IFS Aviation Maintenance

Engineering and Technical Records

ICAM 26.2



Document Revision: 26.2-1

Publication Date: November 02, 2026

Contents

1 Configuration management....10
Equipment baseline....10
Assemblies....11
Assembly classes....12
Assemblies and Part Groups Integration Between CAMO module and ATCM....14
Software parts....17
Add software parts to a configuration slot on an assembly....18
Assembly List tab....19
Sensitive systems....19
Add sensitivities to a config slot....20
Sensitive system warnings and aircraft capability levels....21
Configuration hierarchies for assemblies....22
Part numbers and part groups....26
Line and shop replaceable units....27
Configuration rules for part groups....28
Part applicability....28
Part interchangeability....31
Part and task incompatibilities....33
Changing the inventory class of part numbers....39
Part group sensitivities....40
Aircraft capabilities....41
Configuration baseline update management with Allowable Configuration....41

2 Usage management....45
Usage parameters and usage definitions....45
Updating usage parameters on inventory records....47
Calculated usage parameters....48

3 Maintenance program management....49
Task definitions....49
Task definition types....51
Historical modification tasks....52
Task definition life cycle....52
View differences between two versions of a task definition....54
Job card definitions....54

Create a job card definition 56
Allowable HTML tags for large text fields 57
Revise a job card 59
Add technical references to a job card 59
Add attachments to a job card 60
Add labor requirements 60
Add part requirements to job cards 61
Add measurements to job cards 62
Add tool requirements 62
Add aircraft zones and panels 63
Add task steps to job card and executable requirement definitions 64
Select work condition settings 65
Assign job cards to a requirement 65
Activate a job card definition 66
Create open and close panel job card definitions 66
Add zones and panels to tasks 67
Add labor requirements 67
Add part requirements 68
Add measurements 69
Add tool requirements 69
Add task steps 69
Select work condition settings 70
Activate job card definitions 70
Fleet Task Labor Summary tab 71
Requirement definitions 72
Replacement requirements 73
Create replacement requirements 75
Add job card definitions to replacement requirements 76
Part transformation requirements 77
Create part transformation (MOD) requirement definitions 77
Add part transformation information 80
Add scheduling rules to modification requirements 80
Associate job card definitions to modification requirements 81
Create troubleshooting requirement definitions 81
Assign corrective actions to troubleshooting requirement definitions 82
Activate requirement definitions 83
Create recurring requirements 83

Add aircraft weight and balance impact to requirements..... 86
Generate the Weight & Balance Impact report manually..... 87
Reference document definitions..... 87
Create aircraft maintenance program reference documents..... 88
Disposition a reference document..... 89
Block definitions..... 89
Assigning requirements to block definitions.....91
Grouping requirements in a block chain.....91
Recurring requirements in block chains..... 94
Create and edit blocks.....95
Master panel card definitions.....96
Master panel card examples.....99
Create master panel card definitions.....101
Revise master panel cards..... 101
Add zones to master panel card definitions..... 102
Add panels to master panel card definitions..... 102
Add technical references to master panel card definitions..... 102
Add an attachment to a master panel card definition.....103
Activate master panel card definitions.....103
View differences between master panel card revisions.....104
Task definition revisions.....104
Revise and activate task definitions..... 105
Compare two revisions of a task definition.....105
Initialization.....106
Initializing task definitions manually.....107
Preventing manual initialization of requirements..... 108
On-condition task definitions.....109
Initialize an on-condition task.....109
Task applicability..... 110
Creating or canceling tasks on installation or removal.....117
Modeling component maintenance..... 119
Component work packages and replacement tasks.....119
How component work packages are created automatically.....121
Component removal due to faults.....125
Manual creation of component work packages and replacement tasks..... 126
Next shop visit tasks.....126
Enforcing job card order in the workscope.....126

Workscope Ordering for Repair Routing....127
Automatic Assignment of Tasks to Shop Locations....128
Tags....129
Create a new tag....129
Tag a task definition....130
Tag a block definition....130
Tag a requirement definition....131
Generate a tagged task definition report....131
Task dependencies and links....132
Task dependencies....132
Create New (CRT) dependency....133
Terminate Task (TERMINATE) dependency....134
Complete Task (COMPLETE) dependency....135
Post-Create (POSTCRT) dependency....136
Linked tasks....136
Link task definitions....137
Scheduling....138
Recurring requirements....138
Forecasting requirements....138
Determining the Scheduling Start Value....139
Add missing manufactured date or received date....142
Add missing effective date or initial usage value....142
Reschedule From values....142
Scheduling interval....143
Threshold, Initial and Repeat intervals....143
Schedule to Plan....143
Month and year intervals....144
Measurement-specific scheduling intervals....145
Part-specific scheduling interval....147
Tail number-specific scheduling interval....147
Manual scheduling....147
Hard and soft deadlines, deviation, and notification....149
Maintenance programs for aircraft and assemblies....150
Maintenance program revision numbers....154
Create a maintenance program....156
Assign requirements to a maintenance program....157
View a maintenance program....157

Change group code on a REQ or REF....158
Lock a maintenance program....158
Activate a maintenance program....158
Revise a maintenance program....159
Assign another operator to a maintenance program....160
Unassign requirements from maintenance programs....160
Unassign requirements from maintenance programs with multiple operators....161
Issue temporary revisions of requirements....162
Print maintenance program reports....163
Interactive Electronic Technical Manuals (IETMs)....163
Creating IETMs....164
Adding Technical References to IETMs....164
Adding Attachments To IETMs....167
Operators and applicability codes for IETMs....168
Baseline synchronization....168
Identification of inventory to be synchronized....169
Allow or prevent synchronization....171
Applying baseline synchronization....172
Canceling, terminating, updating and initializing tasks....172
Canceling tasks....172
Terminating tasks....173
Updating tasks....173
Initializing tasks....176
Updating the mapping between blocks and requirements....177
Updating mapping information examples....178
Life-limited parts....179
Create discard requirements for life-limited parts....180
Prorated life limits....181
Accumulated usage parameters....183
Create accumulated usage parameters....183
Set up prorated life limits....184
Create discard requirements for prorated LLPs....186
Add scheduling rules to discard requirements....187

4 Repair management....188

Repair management....188
Repair references....189

Repair reference attributes..... 190
Create repair reference requirement definitions..... 191
Follow-on tasks..... 191
Duplicate follow-on tasks for multiple faults..... 192
Handling duplicate follow-on tasks..... 193
Create follow-on requirement definitions..... 193
Create follow-on tasks manually..... 194
Fault definitions..... 195
Create fault definitions..... 198
Troubleshooting tasks and corrective actions..... 199
Failure effects and possible faults..... 200

5 AD/SB management..... 201
Monitoring AD and SB compliance status..... 201

6 Records management..... 203
Recording flights..... 203
Life cycle of a flight..... 204
Flight API..... 206
Flight measurement parameters..... 207
Edit flight records..... 208
Create flight records..... 209
Complete flights..... 211
Recording usage..... 211
Ways to record usage..... 212
Edit usage on historical flights..... 214
Create a usage record..... 214
Updating APU usage..... 215
Applying negative counts..... 215
Editing usage for assemblies and parent inventory..... 216
Edit inventory usage..... 216
Editing usage for single components..... 217
Recording historical maintenance..... 217
Edit fault details..... 218
Record technical incidents and occurrences..... 219
Record a work package that occurred in the past..... 220
Package and complete tasks done in the past..... 221

Performing record corrections....222
Adjust and correct task deadlines....223
Correct usage at the last task completion date....224
Correct usage at the effective date....224
Correct manufactured or received dates....225
Add deadlines to ad hoc tasks or faults....225
Inventory items and inventory records....227
Inventory classes....227
Creating and editing inventory records....231
Create an inventory record manually....232
Find and edit inventory....232
Edit inventory details....233
Edit sub-component details....233
Edit task lists for inventory items....234
Manufactured date and received date....235
Locking inventory....236
Lock and unlock inventory records....236
Archiving inventory....237
Unarchiving and reinducting inventory....238
Unarchive inventory....239
Reuse of records for received inventory....239
Inventory associations....241
Create inventory associations....242
Remove inventory records from an association....242
Changing the part number of inventory....243
Attaching and detaching inventory....243
Attach and detach components outside of tasks to correct configuration....244
Detach inventory items....244
Attach inventory items....245
Create and attach inventory....246
Backdating sub-component installations and removals....246
Reliability notes....247
Add a reliability note....248
Resolve a reliability note....249
View reliability notes for an inventory item....249
Search reliability notes by part number or config slot....250
Asset record coordination....250

Upload asset records....250
Setting up ARC Message Management....251
Configuration parameters....251
Permission settings....252
Coordinating asset records....254
Importing asset records....254
Review ARC upload history....254
Perform an ARC upload....255
Exporting asset records....255
Export an aircraft....256
Upload asset processing logic....256
Id sub-element and the inventory-id type....258
Current configuration element....258
Completed tasks element....260
Open faults element....262
Inventory usages element....263
Inventory details element....263
Mandatory elements....264
ID mandatory sub-elements....264
Aircraft details mandatory sub-elements....265
Current configuration mandatory elements....265
Completed tasks mandatory sub-elements....265
Open faults mandatory sub-elements....266
Inventory usage mandatory sub-elements....267
Inventory details mandatory sub-elements....268
Mapping elements to CAMO Module....268
Upload errors....273
Asset record coordination upload results....273
Asset record coordination message alerts....283
Purging ARC upload messages....284
Configuring the ARC message purging policy....284

7 Resources and References....286

1

Configuration management

Equipment baseline

The equipment baseline consists of templates that represent the various models of assets, such as aircraft and engines, for which you want to plan and track maintenance activities in CAMO Module.

In CAMO Module, you model these assets as assemblies, define their structure as hierarchies of systems and components, select the usage values and measurements to track for the inventory matching the assembly, specify the parts that are allowed in the assembly hierarchy, and set the details about the applicability and compatibility of parts.

Baseline data consists of collections of templates that are used repeatedly in CAMO Module. You create templates to represent different types and models of assets you have, and the maintenance work to be performed on these assets. Templates also include rules. For example, rules that govern which parts are allowed on specific assets and where they fit, and rules that dictate which maintenance tasks are required and when they should be performed.

Baseline data is essential for CAMO Module to create tasks that are relevant to the assets, to request parts that are compatible with the asset undergoing maintenance or repair, and to provide the traceability required to verify compliance with directives issued by equipment manufacturers or regulatory bodies.

The equipment baseline is one portion of the CAMO Module baseline. The complete baseline also includes the maintenance baseline, and the information about organizations, locations, and departments, which is sometimes referred to as the system baseline. Equipment baseline consists of the templates that define the following:

- The types of complex assets you have in your fleet. These are your assemblies.
- The structure of each type of complex asset, the functional systems and physical components that make up the asset. For each assembly, this is defined by creating the assembly hierarchy. The hierarchy consists of configuration slots, to which part groups are assigned.

- The parameters with which to measure and track the accrued usage of each assembly and sub-component.
- The allowable configuration of each assembly, which identifies the components and parts that can be used on the assembly, where they fit in the assembly hierarchy, and what information should be recorded in CAMO Module throughout the life of these components and parts. The allowable configuration information is captured as part numbers organized in part groups.

Once the equipment baseline is defined, you use the templates to create inventory records that correspond to real physical assets that exist within your organization. Inventory items can be purchased, shipped, transferred, stored, issued, installed, removed, repaired and scrapped. At every stage, the rules that are set up in the equipment baseline guide how CAMO Module controls the inventory item. For example, if the baseline rules specify that when you receive a specific part, it must be inspected before being considered serviceable, CAMO Module automatically sets the condition of new inventory of that part to inspection required (INSPREQ). Other baseline rules specify incompatibilities between certain parts; CAMO Module prevents the installation of such a part on an asset when the incompatible part is already installed elsewhere on the same asset.

The equipment baseline templates are also associated with the maintenance programs and tasks that are relevant to the assembly. Maintenance programs and tasks are defined in the maintenance baseline.

For example, the equipment baseline template for an engine is associated with the maintenance plan for the engine, and for all of its components. The maintenance plan defines tasks such as inspections, corrective tasks, life-limited discards, and overhauls. This engine template is used to generate an inventory record for each actual engine of that kind that exists in the fleet. Each inventory record made from the template is assigned the serial number of the corresponding engine. The configuration of a specific engine is tracked under that engine's serial number. Information that is tracked includes the maintenance performed, the usage accrued, the individual parts that are installed on it, and those that were removed from it.

These inventory-specific details, serial number, maintenance performed, and so on are unique for actual inventory items in CAMO Module.

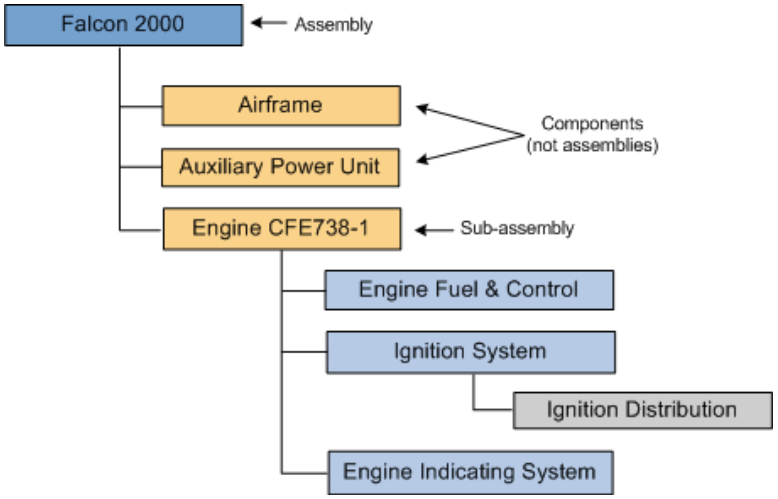
Assemblies

An *assembly* represents a self-contained type of asset that performs a particular function. Examples of an assembly include an aircraft, engine, auxiliary power unit (APU), common hardware (COMHW), and tools and service equipment (TSE).

To model an asset as an assembly, it must possess at least one of the following characteristics:

- The asset has its own maintenance plan, for example, an aircraft.
- The asset accrues usage that must be tracked, for example, an engine.
- The asset is a complex or reusable unit, for example an APU.

An assembly can also be a component of a more complex assembly; referred to as *sub-assembly*. The top-level assembly is referred to as the *parent assembly*. For example, an engine assembly can stand on its own, but it can also be a sub-assembly because it plugs into an aircraft assembly, as shown in the following diagram.



Engine sub-assembly installed on an aircraft assembly

Assembly classes

Each assembly must be assigned an assembly class. Assembly classes identify the type of assembly, the behavior of CAMO Module for inventory of the assembly, and the operations that are possible in CAMO Module. There are several standard CAMO Module assemblies, and your organization can add more, if needed.

The following table details standard assembly classes that are available in CAMO Module.

Assembly classes

Assembly Class	Assembly Class Code	Description
Aircraft	ACFT	Represents aircraft assemblies. Some CAMO Module features are only available for the ACFT assembly class, such as the ability to create flights, specifying inventory that is on-board, and more.

Assembly Class	Assembly Class Code	Description
Engine	ENG	Each of these represents a component that can be installed and removed from a parent assembly, usually an aircraft, and for which you want to maintain baseline information that is separate from the parent assembly. This eliminates the need to create the baseline information for every parent assembly on which the component can be installed.
Auxiliary Power Unit	APU	Not recommended. Landing gears do not have their own maintenance programs; their maintenance tasks are included in the aircraft maintenance programs. Also, landing gears only accrue usage when they are installed on the aircraft. Therefore, modelling landing gears as assemblies is not called for, and results in much administrative overhead.
Propeller	PROP	
Engine Module	MODULE	
Landing Gear	LDGEAR	
Common Hardware	COMHW	Mandatory assembly in every CAMO Module installation, this is used to define parts and supplies that can be used on many, or all types of assemblies. Typical common hardware assemblies include items like standard hardware, lubricants, sealants, adhesives, and more. There can only be one COMWH assembly.
Tools and Service Equipment	TSE	Mandatory assembly in every CAMO Module installation, this is used to define tools that can be used on many, or all types of assemblies. CAMO Module handles tool parts that are in the TSE assembly differently than installable parts. For example, when preparing tasks, they are listed as tools rather than parts, and they are checked out rather than issued. However, tools share many of the characteristics of installable parts; they can have serial numbers, they can have scheduled maintenance, such as a calibration task, and they can be purchased and stored. There can only be one TSE assembly.

Assemblies and Part Groups Integration Between CAMO module and ATCM

In this release, Allowable Configuration (ATCM) is integrated directly with CAMO module Upgrade pages. Assemblies and Part Groups created, updated, or deleted in CAMO module are now automatically synchronized with ATCM.

This means configuration engineers no longer need to run migration jobs or switch modules manually. In addition, new navigation buttons make it easy to move between CAMO module and ATCM without losing context.

Prerequisites

- ATCM is configured, and data is loaded into the environment.
- Integration between CAMO module and ATCM is complete, including routing, authentication, and required API permissions.
- The user role grants access to CAMO module entity detail pages and corresponding ATCM pages.
- The user can view Manage Configurations in the CAMO module detail pages and View Main Assembly/View Main Part Group in ATCM when navigated from CAMO module.

Business Benefits

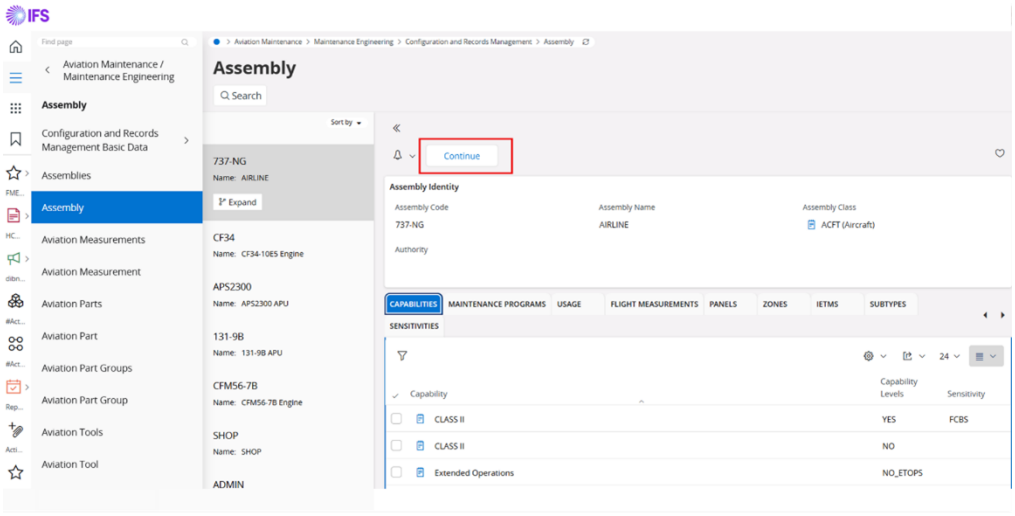
- Automatic Synchronization: Create, update, or delete actions on Assemblies and Part Groups in CAMO module Upgrade are automatically reflected in ATCM.
- Cross-Navigation: Manage Configurations in CAMO module opens the corresponding record in ATCM. View Main Assembly / View Main Part Group in ATCM returns to the CAMO module application. Return buttons in ATCM are context-aware and appear only when accessed via CAMO module.
- Unified User Interface: Page names, menu items, and breadcrumb paths are aligned across both modules.
- Elimination of Manual Jobs: Routine configuration updates no longer require the execution of migration jobs.

Navigation and Workflow Enhancements

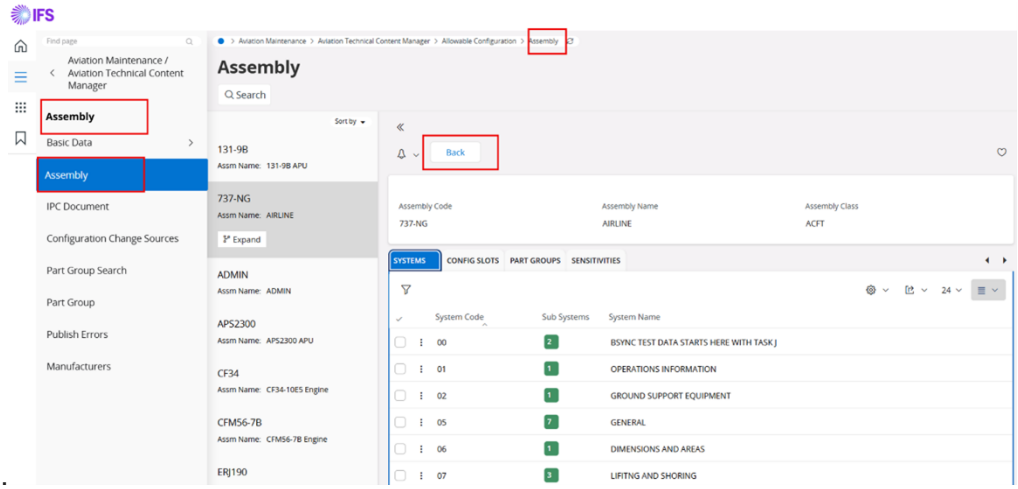
Assemblies

- **Automatic Sync**
  - Assemblies created, updated, or deleted in CAMO module are immediately reflected in ATCM**.**
- **Navigation**

- On the **Assembly Details** Page in CAMO module, a **Manage Configurations** button is available.
  - Clicking opens the same Assembly in ATCM.



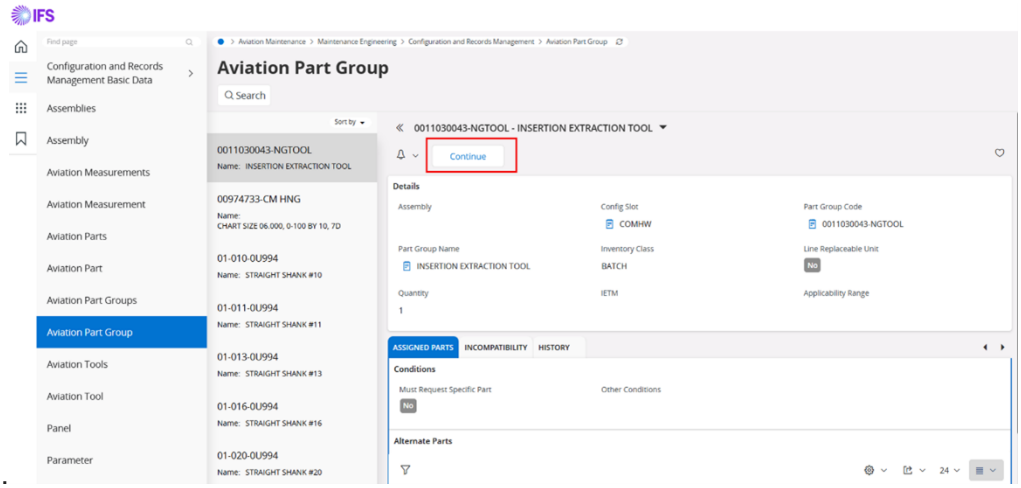
- In ATCM, if the page was opened from CAMO module, a **View Main Assembly** button is available.
  - Clicking it returns you to the Assembly in CAMO module.



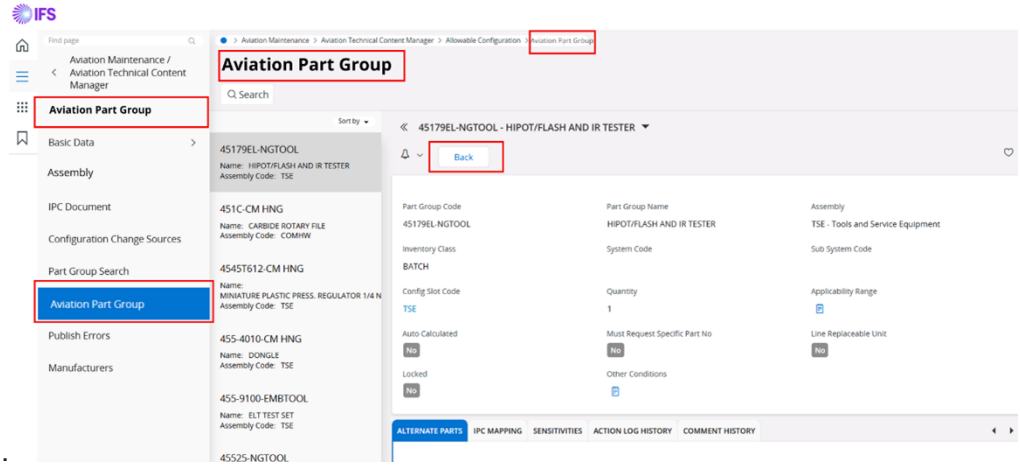
Part Groups

- **Automatic Sync**
  - Part Groups created, updated, or deleted in CAMO module are immediately reflected in ATCM
- **Navigation**
  - On the **Part Group Details Page** in CAMO module, a **Manage Configurations** button is available.

- Clicking it opens the same Part Group in ATCM.



- In ATCM, if the page was opened from CAMO module, a **View Main Part Group** button is available.
  - Clicking it returns you to the Part Group in CAMO module.



.

Validations and Error Handling

- All mandatory fields, character-length limits, and duplicate checks are enforced in both modules.
- The View Main button appears only when ATCM is opened via Manage Configurations from CAMO module.
- When ATCM is accessed directly (for example, through search), the View Main button is hidden.
- If synchronization appears delayed, refresh ATCM. Persistent delays should be reported to the system administrator for integration verification.

What to Expect

- Synchronization between CAMO module and ATCM happens automatically. You do not need to re-run migration jobs for Assemblies or Part Groups.
- **Manage Configurations** and **View Main** buttons only appear when navigating from CAMO module to ATCM.
- If you open ATCM directly (e.g., through search), these buttons are not visible.
- Error handling follows standard IFS Cloud rules (validation for duplicates, missing fields, or character limits).

Limitations

- This release covers Assemblies and Part Groups only. Other entities (Config Slots, Panels, Tools) will be integrated in future releases.
- Standalone ATCM pages still function independently but do not include the new navigation buttons.

Software parts

You can create part numbers in CAMO Module for software applications that are installed and updated on assemblies, such as Field Loadable Software (FLS) installed on aircraft.

However, software applications have peculiarities that do not apply to other types of parts:

- Software applications do not use the same material management workflows as other parts; they are often uploaded via a network, instead of being shipped, received, and routed to the correct inventory.
- Although you can install software on several different inventory items and you may be required to track when and where each version of the software is installed to prove compliance, the instance of the software installed on each inventory item does not have a unique serial number.

When you create tracked configuration slots on an assembly and select the Software check box, all tracked part numbers added to the tracked part group, which CAMO Module creates on the configuration slot —are treated as software components. For software components, unlike regular tracked parts, CAMO Module does not:

- Require a unique serial number for software inventory you create in the system.
- Create shipments, transfers, turn ins, cycle counting, or track stock for software, because such workflows do not apply to software components.
- Create a removal task when software components are installed; a software installation is a first installation, an upgrade, or a minor update, and no physical item is removed or discarded as a result of the installation. However, a software installation is not permitted when there is already software installed in the config slot position, and the installed software can only be replaced. Also, repairable software parts cannot be used for part removal (software parts by definition are not repairable).

- Generate a part request when a software component is added to a task as a part requirement, because software components are not stored in a warehouse, and are not usually obtained from material management personnel.

You use CAMO Module tasks to schedule and track the installation and update of software applications on inventory items. You should include the version number of the software application in the part number to make it easy to see which version is installed on each applicable inventory.

You can also use the part applicability, interchangeability, and incompatibility features of CAMO Module to accomplish the following:

- Prevent the wrong software, or wrong version of the software, from being installed on specific assemblies or inventory.
- Prevent incompatible software from being installed on the same inventory.
- Prevent incompatible software and hardware from coexisting on the same inventory.
- Prevent the installation of a software version that should not be installed on the inventory because some work was done on the inventory which makes the software incompatible with the inventory, or because some work that is required to make the software compatible with the inventory has not been done yet.

Add software parts to a configuration slot on an assembly

Software parts, like physical parts, are managed via config slots. Although software parts do not require regular maintenance, a history of installation is important to ensure software upgrades are applied.

Prerequisite

The assembly must already exist in CAMO Module.

Steps

1. Go to the **Assembly List** tab.
2. In the **Assembly** column, click the link for the assembly on which you want to create a sub-configuration slot.
3. On the **Assembly Details** page, **Config Slots** tab, select the radio button of the configuration slot that is the parent of the new sub-configuration slot.
4. Click **Create Subconfig Slot**.
5. On the **Create Config Slot** page, in the **Identification and Details** area, provide the required information. Note the following:
   - **Name**: The item description found in the Illustrated Parts Catalog (IPC) or other authoritative document.
   - **Positions per Parent**: The positions per parent value indicates the number positions that will be created for a configuration slot.
   - **Config Class**: Select TRK (Tracked Config Slot).

- **Mandatory**: If a component is removed from a mandatory configuration slot, the hierarchy is considered incomplete (not airworthy) until a replacement component is installed.
- **Software**: Select this check box if you want to install software components on the assembly, for example, Field Loadable Software (FLS).

6. On the **Create Config Slot** page, in the **Codes and References** area, provide the required information. Note the following:
   - **ATA Code**: A unique code for the new tracked configuration slot, for example, the ATA chapter code, followed by a short description to make the code unique.
   - **RVSM Significant**: Select this check box if the configuration slot is RVSM significant.
   - **ETOPS Significant**: Select this check box if the configuration slot is important for ETOPS approval.
7. Click **OK**.

Assembly List tab

The Assembly List tab displays all assemblies over which the user has authority, and all assemblies that have no authority.

The table of assemblies contains the following columns:

- Assembly: The name of the assembly. Click the hyperlink to go to the Assembly Details page.
- Inventory Exists: If this check box is selected, CAMO Module contains inventory against this assembly.

Sensitive systems

Sensitive systems are aircraft systems that may require certification, often by a specialized or certified technician, after maintenance has been performed. This certification may need to occur before the aircraft can be released. You can configure sensitivities on SYS class config slots.

By default, CAMO Module supports the following sensitive system types:

- Category III Instrument Landing System (CAT III)
- Extended-range Twin-engine Operational Performance Standards (ETOPS)
- Required Inspection Item (RII)
- Fatigue Critical Baseline Structure (FCBS)
- Reduced Vertical Separation Minimum (RVSM)

Note You cannot add sensitivities to Tracked (TRK), Root (ROOT), or Sub-assembly (SUBASSY) config slots.

The History tab for the config slot records events associated with sensitivities. For example, when a user changes a sensitivity type on a config slot, or a user applies a sensitivity from a parent to a child config slot, the History tab displays this information.

Maintenance technicians will see warnings when working with faults that have associated sensitivities. For example, if a technician is raising an open fault on a CAT III sensitive system, CAMO Module will display a warning indicating that the aircraft may require re-certification or, depending on your organization, some other special instructions.

CAMO Module displays these warnings during the following workflows:

- Raise open logbook fault
- Log fault and close
- Log fault and defer
- Log fault and request part immediately

Add sensitivities to a config slot

You can add sensitivities to a system (SYS) config slot when you create it.

About this task

Maintenance technicians will see warnings when working with faults that have associated sensitivities. For example, if a technician is raising an open fault on a CAT III sensitive system, CAMO Module will display a warning indicating that the aircraft may require re-certification or, depending on your organization, some other special instructions.

Steps

1. On your to-do list, click the **Assembly List** tab.
2. In the **Assembly** column, click the link for the assembly.
3. Click the radio button next to the config slot, and then click **Create Subconfig Slot**.
4. On the **Create Config Slot** page, in the **Identification and Details** area, provide the required information. Note the following:
   - **Name**: Enter the config slot name. This should be the ATA chapter for the system.
   - **Config Class**: Select SYS (System).
   - **Mandatory**: If a component is removed from a mandatory config slot, the hierarchy is considered incomplete (not airworthy) until a replacement component is installed.
5. In the **Codes and References** area, provide the required information. Note the following:
   - **ATA Code**: The ATA chapter code for the system.
   - **RVSM Significant**: Select this check box if the config slot is RVSM significant.
   - **ETOPS Significant**: Select this check box if the config slot is important for ETOPS approval.
6. In the **Sensitivities** area, select the check box (or boxes) next to the sensitivity (sensitivities) you want to add to the config slot.

7. Click **OK**.

A record of this change is displayed on the **History** tab.

Sensitive system warnings and aircraft capability levels

Aircraft capabilities, if configured at your organization, can influence if sensitivity warnings are displayed or not displayed to technicians.

Maintenance technicians will see warnings when they raise a fault on a sensitive system that has a sensitivity mapped to a capability level and the aircraft is configured to that capability level. The same is true for adding part requirements to a fault. However, if the aircraft does not have a capability level and a sensitivity mapped to it, the technician will not see any warnings. If there are no capability levels mapped to a sensitivity, warnings will be displayed.

Consider the following scenarios:

Scenario 1: Aircraft has the configured capability level (ETOPS60, ETOPS90 and ETOPS120) and the level is mapped to a sensitivity

Capability	Capability level	Sensitivity	Sensitivity warning shown?
ETOPS	NO_ETOPS		No
	ETOPS60	ETOPS	Yes
	ETOPS90	ETOPS	Yes
	ETOPS120	ETOPS	Yes

Scenario 2: Aircraft does not have the configured capability level (aircraft has NO_ETOPS) and the level is not mapped to a sensitivity

Capability	Capability level	Sensitivity	Sensitivity warning shown?
ETOPS	NO_ETOPS		No
	ETOPS60	ETOPS	No
	ETOPS90	ETOPS	No
	ETOPS120	ETOPS	No

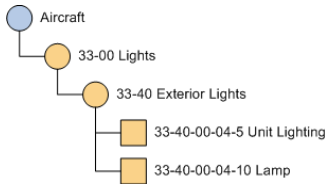
Configuration hierarchies for assemblies

The structure of an assembly is defined by the hierarchy of the configuration slots created under the assembly.

The hierarchy of configuration slots represents the assembly's functional and physical equipment hierarchy. Once the configuration hierarchy is defined, you can identify the part numbers that can be installed in specific physical locations on the assembly, define maintenance program requirements, create job card definitions, and more.

When breaking down an assembly into configuration slots that represent its systems and components, it is recommended to use a reference standard, such as the ATA Chapter breakdown. You can use the ATA Chapter reference numbers as the codes you assign to configuration slots.

The following diagram shows a hierarchy of configuration slots under the aircraft, in which the ATA Chapter references have been used in addition to a name for each configuration slot. The configuration slots 33-00 Lights and 33-40 External Lights represent functional systems of the aircraft, whereas the two configuration slots below 33-40 Exterior Lights represent components that are installed in the exterior lighting system.

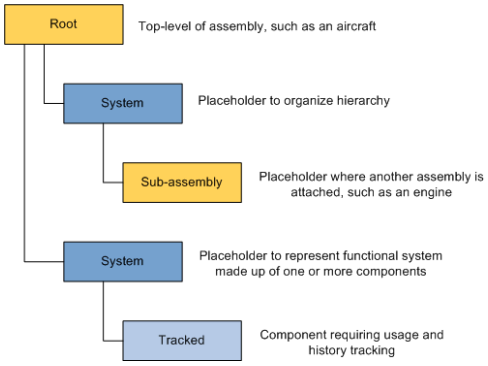


Configuration slot hierarchy

Configuration classes

Every configuration slot has a *configuration class*, which determines the level of detail and the information CAMO Module maintains for the parts assigned to the configuration slots. Because CAMO Module behaves so differently from one configuration class to another, you cannot change the configuration class that is assigned to a configuration slot.

The following diagram shows how the configuration classes are used in the configuration hierarchy:



Configuration classes in the assembly hierarchy

Configuration classes

Config class	Description
ROOT	When you create an assembly, a corresponding root configuration slot is created. This is the top-level configuration slot in the assembly hierarchy. When you create a root slot, an ACFT or ASSY part group is automatically created.
SYS	System configuration slots are used to group other configuration slots that make up a functional system of the assembly, such as several tracked configuration slots that make up the air conditioning system. They do not correspond to physical components and they do not have part numbers associated with them. You create system configuration slots under root or other system slots. Do not create system slots under tracked or sub-assembly slots. The common hardware (COMHW) and the tools and service equipment (TSE) assemblies cannot have system subconfiguration slots. When you create a system slot, no part group is automatically created.

Config class	Description
SUBASSY	A sub-assembly configuration slot is where another assembly (sub-assembly) plugs into the current assembly (parent assembly), for example where an engine is installed on an aircraft. A sub-assembly can have multiple positions per parent. For example, a SUBASSY slot for an engine can have four positions. You create sub-assemblies under system configuration slots. You cannot create sub-configuration slots under sub-assembly configuration slots. The hierarchy of the sub-assembly is defined in the separate assembly that you create to model that component. To determine which assembly fits into a sub-assembly configuration slot, CAMO Module matches the part number assigned to the SUBASSY configuration slot to the part number assigned to the ROOT configuration slot of the sub-assembly. You cannot create a sub-assembly configuration slot under the common hardware (COMHW) or the tools and service equipment (TSE) assemblies. When you create a sub-assembly slot, an ASSY part group is automatically created.
TRK	Tracked configuration slots are used for high-value components that have the following requirements: • Stringent configuration control in CAMO Module. • Accrued usage must be tracked. • Regular maintenance. • A complete history of installation, removal, and repair. You create tracked configuration slots under system or other tracked configuration slots. A tracked slot can have multiple positions per parent. When you create a tracked slot, a TRK part group is automatically created.

In addition to the part groups that are created automatically for configuration slots, you can create additional part groups, on any configuration slot, including system (SYS) slots. You might want to create additional part groups for all untracked part numbers that are specific to a configuration slot. Untracked part numbers are those that have the inventory classes of serial-controlled (SER), batch-controlled (BATCH), or kit (KIT). Note that consumables that are used on many configuration slots or many assemblies should not be included in part groups on configuration slots, but rather in the common hardware assembly so that they can be added to any task.

Mandatory configuration slots

When you create a configuration slot, you specify whether it is mandatory. If a component is removed from a mandatory configuration slot, the hierarchy is considered incomplete (not airworthy) until a replacement component is installed. Missing mandatory components are displayed as errors on the Preview Release page.

If a new sub-assembly or tracked configuration slot is added to an assembly when inventory for the assembly already exists, an empty hole is created on the existing inventory (holes are not created if system slots are added). If the new configuration slot is mandatory, the assembly is marked as incomplete.

When inventory already exists, it is best to create new configuration slots as non-mandatory, create and install the appropriate inventory, and then edit the configuration slot to make it mandatory. An easy way to verify whether any inventory exists for a specific assembly is to consult the Assembly List tab - beside each assembly, a check box indicates if inventory exists in the system.

When a transaction occurs that could change whether a component is marked as complete, CAMO Module automatically evaluates impacted inventory and sub-components for completeness. You can manually trigger an evaluation of completeness for aircraft inventory by clicking the Evaluate Completeness button on the Inventory Details page.

Positions on configuration slots

When you create a sub-assembly or tracked configuration slot, you specify the number of positions per parent because these configuration slots can represent a single position on the assembly, or multiple positions. For example, an aircraft has two main landing gears which could be modeled in two different ways:

- As two separate configuration slots; one configuration slot for the left main landing gear and another configuration slot for the right main landing gear.
- As a single configuration slot with two positions: left and right.

Modeling as separate configuration slots allows positional control over configuration and maintenance, whereas modeling as a single configuration slot with multiple positions does not.

For example, if the left and right main landing gear require different part numbers—part A only fits on the left side, and part B only fits on the right side—this configuration is enforced by using separate configuration slots for the left and right positions. A single configuration slot with two positions cannot enforce the configuration; part A could be installed in either the left or right position, and likewise for part B.

CAMO Module keeps track of which part number and serial number is installed in each configuration slot and position. Mechanics must specify the configuration slot and the position every time they record a component installation or removal.

Part incompatibility rules can be defined for assembly positions.

Part numbers and part groups

Part numbers are used to represent all the physical items on which technicians perform maintenance work, and all the items that are used during maintenance work. Part groups are associated with configuration slots and represent the set of alternate parts that can be installed in a particular configuration slot.

You create part numbers to identify the following: the parts you install, the consumables used during maintenance work, tools, kits, collections of different items that are to be used together for a specific purpose and the assets themselves, such as engines and aircraft. Often, there are two or more part numbers that have the same form and function for example, the same part, but made by different manufacturers and that are valid alternates to each other. These parts are in the same part group.

Part groups are created automatically created when you create configuration slots - one part group for each slot created. You can create additional part groups on any configuration slot, including system (SYS) slots. You might want to create additional part groups for all untracked part numbers that are specific to a configuration slot. Untracked part numbers are those that have the inventory classes of serial-controlled (SER), batch-controlled (BATCH), or kit (KIT). Note that consumables that are used on many configuration slots or many assemblies should not be included in part groups on configuration slots, but rather in the common hardware assembly so that they can be added to any task.

All part numbers must be associated with a manufacturer. In CAMO Module, the combination of the part number and manufacturer forms a unique identifier for a part. This allows a specific part number to exist in the system under different manufacturers.

You must create part numbers for the types of aircraft on which you will complete maintenance, the components you remove and send for repair, the parts and consumables you provide for the maintenance visits, and the parts supplied by your customers (the owners of the aircraft). Also, it is advisable to create part numbers for specialized tools you use on projects. Creating part numbers for these items allows you to do the following:

- Specify the parts you will provide in the quotes you submit to customers.
- Identify all the parts required for a maintenance visit—those you supply and those the customer supplies.
- Identify the tools required to perform some of the work—mostly specialized or expensive tools that are in limited supply, and that you track more closely than commonly used tools.
- Use the material management features of CAMO Module for all inventory needed to complete projects.

When you create a new part in CAMO Module, its part status is set to Build, and the use of the part number in workflows is restricted. To use the part number, it must first be approved for general use. When a part number is reviewed and approved, its status changes to Active and it is available for use in all workflows.

Usually, most of the part numbers are loaded into the database directly during the implementation of CAMO Module. However, you can use CAMO Module to add new part numbers, or to edit the details of part number, as needed, for example, to change the price you are charging customers for a part.

Line and shop replaceable units

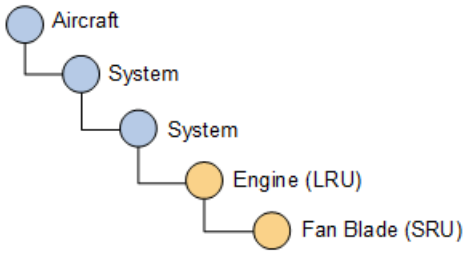
Each part group in CAMO Module is identified as a line replaceable unit (LRU) or a shop replaceable unit (SRU). CAMO Module uses the LRU and SRU attribute on the part group, (in conjunction with the Must Be Removed value specified in requirement definitions), to create replacement tasks for the appropriate configuration slots when parts in the part group must be removed.

When a component requires maintenance, LRU parts can be removed directly from the aircraft, or from another top-level assembly. SRU parts cannot be removed directly from the aircraft, or assembly. Before a technician can access and work on the SRU, a parent LRU part must be removed from the aircraft first.

By default, all part groups are LRUs, except for part groups that are created on the root configuration slot of an aircraft assembly; an aircraft cannot be an LRU. To identify the part group as an SRU, you edit the part group and clear the Line Replaceable Unit checkbox. (In the user interface, the part group isn't labelled SRU, but if the LRU checkbox is cleared, the part group is SRU.) You cannot designate kit part groups as SRUs.

CAMO Module handles maintenance differently based on whether the part is an LRU or an SRU, and on the value that is specified for the Must Be Removed attribute when task definitions are created. For example, when a task is initialized against an SRU item, CAMO Module automatically finds the parent item that is an LRU, and creates a replacement task on that parent item, so that the LRU can be removed to allow work to be done on the SRU.

The following diagram shows an example of an SRU (the fan blade) which is installed on an LRU (the engine). The engine must be removed in order to remove the fan blade.



LRU and SRU in the configuration hierarchy

Identifying a component or a part as an SRU does not prevent you from creating tasks or faults on the aircraft that state the SRU must be replaced. However, it helps maintenance planners because CAMO Module includes logic that uses the SRU designation to create the replacement task on the correct parent component in the assembly automatically.

Configuration rules for part groups

By default, CAMO Module considers all part groups and part numbers specified in an assembly to be applicable to all inventory that matches the assembly, at all times. It is also considered that they are all compatible with each other; for example, part A installed on configuration slot 1 is compatible with part F installed on configuration slot 4. CAMO Module also considers all part numbers in a part group to be valid alternates to each other. Part applicability, part interchangeability, and part incompatibility are CAMO Module features that let you further refine your equipment baseline by specifying exceptions to the default behavior.

Part applicability is used to identify the subset of the available inventory of a given assembly to which a part number applies. For example, a newer aircraft of a given type has an in-seat entertainment system installed, whereas older aircraft of the same type just has a cabin entertainment system. Therefore, different tail numbers (inventory) of the same type of plane (assembly) use different part numbers, or part groups, for their entertainment systems.

Part interchangeability is used to determine which part numbers can be used as substitutes for other part numbers within the same part group. This is useful when you want to make sure that certain parts, usually older versions of a part number, are not installed on an assembly after a newer version of the part has been installed.

Part incompatibility rules let you specify that a part number cannot be installed on the assembly or under a sub-assembly configuration slot position when another specific part number is installed—for example, to install a particular avionics unit, you must use a specific sensor that is compatible with the unit. (The avionics unit is incompatible with other sensor part numbers). You can also use part incompatibility to specify that a part number can only be installed on the inventory when a specific task has been completed on the inventory, or has not been completed.

Part applicability

In CAMO Module, you use part groups to represent the set of alternate parts that can be installed to replace each other. By default, all part numbers within a part group are considered to be universally valid alternates of each other. However, each individual aircraft is unique, and an aircraft's history of manufacture, modifications, and capabilities can affect which part numbers are actually valid for that particular aircraft. In CAMO Module, you can identify the specific aircraft on which a part number can be installed using the "applicability" feature.

You set up applicability by doing the following:

- Specify an *applicability code* for every aircraft inventory record. This is an attribute on every aircraft, and it is used to uniquely identify the aircraft for the applicability feature(s). It is common practice to use the tail numbers of aircraft as applicability codes, but you can use any value. Applicability codes are alphanumeric and can use any combination of numbers and letters.

- Set the *applicability range* on the part number within the part group. The *applicability range* consists of one or more applicability codes separated by commas and/or hyphens. Do not type spaces between the comma, hyphens and codes.

If the applicability code of the aircraft is included in the applicability range of a part, that part can be requested, reserved, issued and installed on the aircraft. If the applicability code of the aircraft is not included in the applicability range of a part, CAMO Module will prevent that part from being requested, reserved, issued or installed.

If the aircraft does not have an applicability code, CAMO Module ignores applicability altogether and every part will be valid on this aircraft. If a part number does not have an applicability code, CAMO Module will ignore applicability and it will be allowed on every aircraft.

The following table provides some examples of how applicability ranges are specified. Note that empty cells in the tables below indicate blank values.

Part Number Applicability

Applicability Range of Part	Values Included in the Range
332,A12	This part can be installed on two aircraft, the aircraft with applicability codes 332 and A12.
332,348-350	This part can be installed on aircraft with applicability codes 332, 348, 349, 350, and any three-character string that is within the range 348-350, such as 34A and 34Z. This will not include the aircraft with applicability code 35A
A100-A199	This part can be installed on aircraft with applicability codes A100, A101, ..., A199, and any four-character string that is within the range, such as A10A, A18Z. This will not include the aircraft with applicability code A, A1, A10, A19A
	This part can be installed on any aircraft.
N/A	This part cannot be installed on any aircraft

In addition to specifying applicability on a part number, you can set an applicability range on the part group itself. This will allow you to indicate whether that part group exists on a particular aircraft. If the applicability code of an aircraft is included in the applicability of a part group, then that part group (configuration slot) will appear on the aircraft's configuration tree, and part requirements can be requested for that part group. If the applicability code of an aircraft is not included in the applicability range of a part group, then that part group (configuration slot) will not

appear in the aircraft's configuration tree, and part requirements cannot be requested for that part group.

The following table provides examples of part group applicability:

Part group applicability

Inventory Applicability Code	Part Group Applicability Range	Is the Part Group Applicable to the Inventory?
		Yes
	N/A	No
	100-199	Yes
	200-299	Yes
101		Yes
101	N/A	No

You can set the applicability range for a part group, and then further define an applicability range for each alternate part within the part group.

For example:

- There are 4 aircraft with the following applicability codes: 101, 102, 103, 104
- There is a Part Group AA with applicability range = 101-103
  - Part A with applicability range = 101-102
  - Part B with applicability range = 103
  - Part C with no applicability range specified

While the part group is applicable to aircraft 101, 102, and 103, Alternate Part A is only applicable to aircraft 101 and 102. Alternate Part B is only applicable to aircraft 103. No applicability range was set for Alternate Part C, so it applies to all aircraft; however the part group is only applicable to aircraft 101, 102, and 103, so you will only be able to install the part on those 3 aircraft. Neither the part group or any part inside it can be assigned to aircraft 104.

You set the applicability range on a part group by editing the part group details. You set the applicability range on individual part numbers by doing one of the following:

- Going to the Part Details page, Alternate Parts tab, and editing the details of one or more of the alternate parts.
- Going to the Part Group Details page, Applicability tab, and editing the applicability.

Sub-Assembly Applicability

You can assign applicability codes to sub-assembly inventory, such as engines and APUs, and you can define applicability ranges on those sub-assembly part groups and part numbers. For the most part, sub-assembly applicability checks behave the same as aircraft applicability checks. However, instead of checking the applicability range against the applicability code of the aircraft, they will check the applicability code of the parent sub-assembly inventory.

There is a configuration parameter APPLY_APPLICABILITY_CHECK_TO_NH_ASSEMBLY that can alter how the applicability checks are done. This value can be set to TRUE or FALSE.

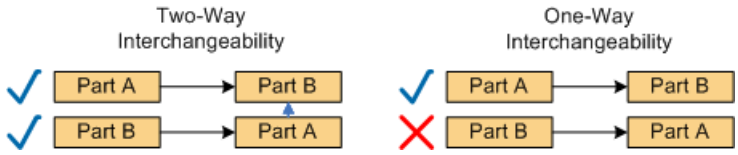
- TRUE (default): Applicability checks behave as normal; check that the parent sub-assembly's applicability code falls within the part group's and part number's applicability range.
- FALSE: Applicability ranges on sub-assembly part numbers actually list the *aircraft* applicability codes to which they apply, not the parent sub-assemblies. This means that applicability checks will not be done unless you are installing the sub-component onto an aircraft; either installing the parent sub-assembly onto an aircraft, or installing the component onto an already on-wing sub-assembly. This configuration parameter does not affect part group applicability checks, and it has no effect on aircraft part numbers.

The part group Applicability tab lists the inventory matching the assembly to which the part group is associated, and whether the part group, and each alternate part within the part group, apply to the individual inventory items.

Part interchangeability

Part interchangeability refers to whether an alternate part number can be substituted for all of the alternate part numbers in the part group. By default, CAMO Module considers all the part numbers in a part group to be valid alternates to each other, therefore interchangeable with any of the alternate parts in the part group. This is called two-way interchangeability.

However, there are situations when you want to specify one-way interchangeability, where part A can be used to replace part B, but part B cannot be used to replace part A, as shown in the following diagram. One-way interchangeability can be specified for part numbers that have one of the following inventory classes: assembly, tracked, and serial-controlled.



Part Interchangeability

CAMO Module assigns an *interchangeability order* value of 1 for each part number you create in the system, which makes all parts in the same part group interchangeable with each other

(two-way interchangeability). You can edit the details of the part numbers to give them different interchangeability order values.

Whenever a part is installed on an assembly, as part of a maintenance task or when technical records personnel update inventory records after the installation has been performed, CAMO Module compares the part number of the removed component with the part number of the installed component. CAMO Module lets mechanics install part numbers that have the same interchangeability order, or a higher one, than the part that is currently installed, but does not allow the installation of a part with a lower interchangeability order. Within a part group, part numbers that have the same interchangeability order are two-way interchangeable.

Note

Your administrator can configure CAMO Module to only display warnings about interchangeability problems but still allow users to proceed, or display an error and prevent the user from continuing. Also, the administrator can configure CAMO Module to allow only a subset of users, for example those with the maintenance supervisor role, to proceed with the installation of a non-interchangeable part, while preventing all other maintenance users from doing so. See the Maintenix Administration Guide.

The following is an example of a part group that include different interchangeability values:

Interchangeability Order in a Part Group

Part Group	Part Number	Interchangeability Order
33-20-00-04-5 (Unit Lighting)	Part A	1
	Part B	1
	Part C	2

In this situation, Part A and Part B are two-way interchangeable, because they have the same interchangeability order. However, Part A and Part C are one way interchangeable, as are Part B and Part C, because in each case, the parts have different interchangeability order values.

For the one-way interchangeable parts numbers, the following is true:

- CAMO Module allows Part A and Part B to be replaced with Part C, because the latter part number has a higher interchangeability order.
- CAMO Module does not allow Part C to be replaced with either Part A or Part B, because both of these part numbers have a lower interchangeability order.
- All other permutations are allowed: replacing Part A with part B, replacing Part B with Part A, and any replacement involving two parts of the same part number.

You can see the interchangeability order value of parts, and edit them, on the Part Group Details page, Assigned Parts tab, and on the Part Details page, Alternate Parts tab.

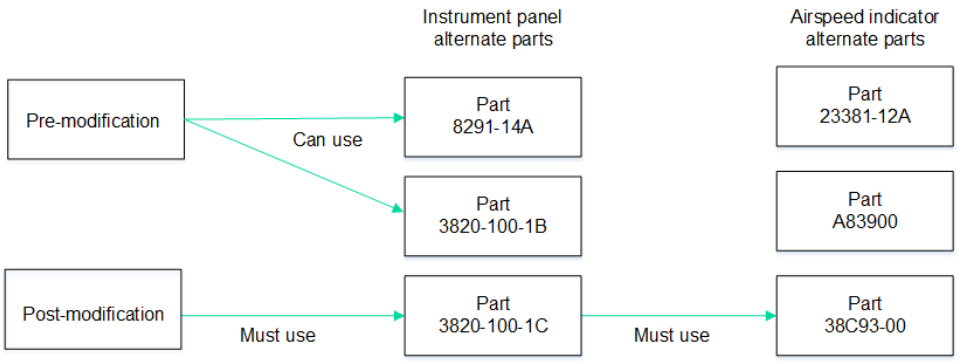
Part and task incompatibilities

By default, CAMO Module assumes that all parts are compatible with all other parts and that all part numbers can be installed on an assembly regardless of what tasks are completed or open on the assembly. In practice, some parts can only be installed in conjunction with other specific parts, or when a task (such as a modification) has a specific status.

For example, there might be several part number versions of an instrument panel and of an airspeed indicator.

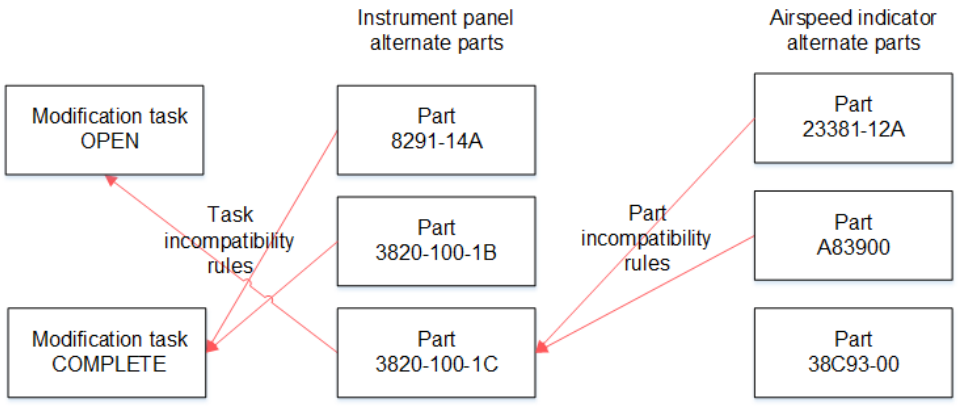
- Only the latest version of the airspeed indicator can be installed on the latest version of the instrument panel.
- The older versions of the airspeed indicator can't be used with the new instrument panel, but the latest version of the airspeed indicator can be used with older instrument panels.

If an aircraft structure is modified in order to install the latest version of the instrument panel then after the modification task is performed, only the latest version of the instrument panel can be installed.



Compatibility scenario

To model this in the CAMO Module baseline and ensure that only compatible parts are installed, you create part or task incompatibility rules to explicitly define combinations of parts and tasks that can't be used together. Incompatibility rules create exceptions to the default behavior. The diagram below shows the incompatibility rules that are required for the scenario diagram above. All other combinations of parts in the instrument panel and airspeed indicator part groups are compatible and can be installed together.



Incompatibility rules in CAMO Module

Part incompatibility

Part incompatibility rules specify which part numbers, within groups of alternate part numbers, are not compatible with other part numbers. You can specify incompatibility rules for parts within the same part group or in different part groups. CAMO Module assesses part incompatibility when parts are reserved, issued, and installed.

CAMO Module supports part incompatibility rules only between part numbers with the tracked inventory class.

When you create part incompatibility rules, you choose a part incompatibility type that enforces the rule within a broader or smaller scope in the hierarchy of configuration slots. To understand how these types work, recall that:

- Configuration hierarchies are built with root, system, sub-assembly, and tracked classes of configuration slots.
- A root configuration slot is an aircraft or assembly.
- Sub-assembly and tracked slots can have multiple positions.
- Configuration slots have part groups.

There are two part incompatibility types:

Global part incompatibility

Incompatibility is assessed against all other parts installed under the highest parent assembly (root configuration slot) of the installed part. If the part is installed on a sub-assembly that's installed on an aircraft, then the aircraft is the highest assembly. If the part is installed on a loose assembly, such as an engine, the highest assembly at that time is the engine.

Parts that are incompatible with parts already installed anywhere on the highest assembly can't be installed.

You could use the Global type to ensure that an aircraft has all the same engines installed. For example, if an engine configuration slot has two positions and both positions require the same

engine, both either engine A or engine B, then you create a Global type part incompatibility rule for the engine part number.

Assembly position part incompatibility

Sub-assembly class configuration slots can have multiple positions. Incompatibility is assessed up to and under the sub-assembly configuration slot position that a part is installed on.

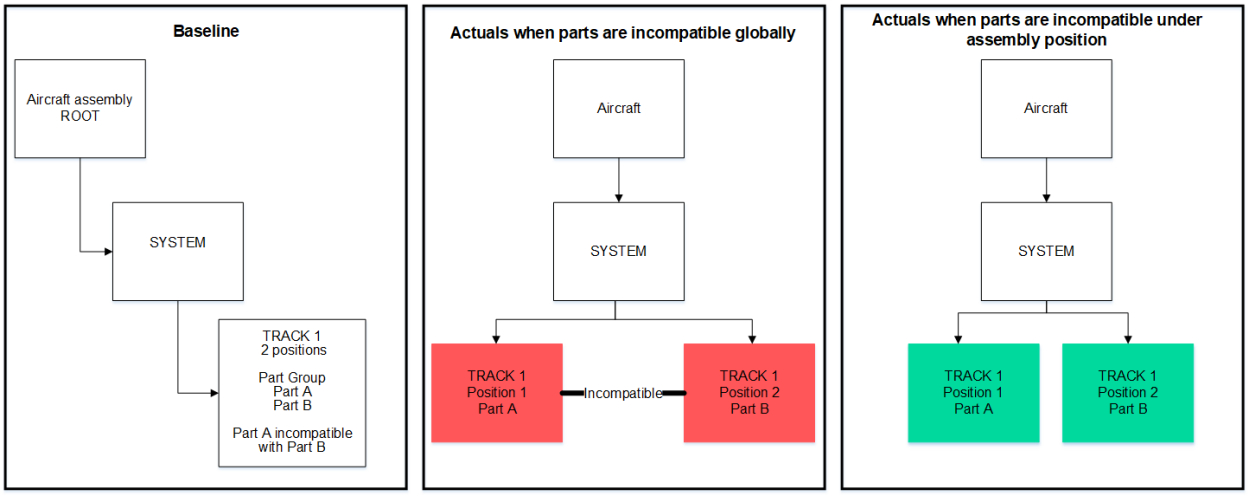
Parts that are incompatible with another part installed under the sub-assembly configuration slot position, can't be installed.

You could use the Assembly position type to ensure that parts on an engine are compatible, while allowing multiple engines installed on an aircraft to have different (alternate) parts installed.

The following examples show the difference in part compatibility outcomes when an incompatibility rule is created for Parts A and B with the Global type and with the Assembly Position type.

In example one below, Parts A and B are installed in two positions of a tracked configuration slot. Note that the tracked slot is not under the sub-assembly configuration slot position.

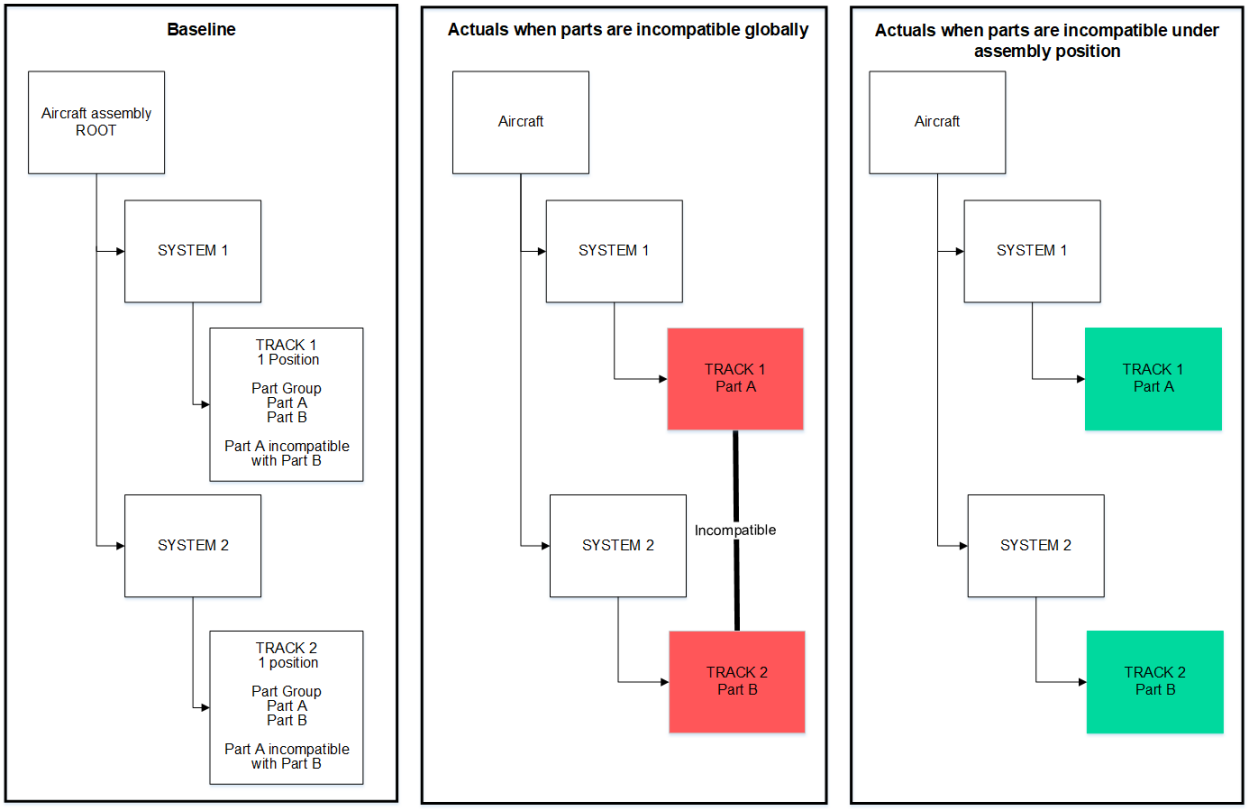
- If the incompatibility rule is the Global type, Part A and Part B are incompatible.
- If the incompatibility rule is the Assembly Position type, Part A and Part B are compatible.



Part incompatibility example 1

Example two shows a variation in which Parts A and B are installed on tracked configuration slots that are on two different systems with the same outcome as in example one:

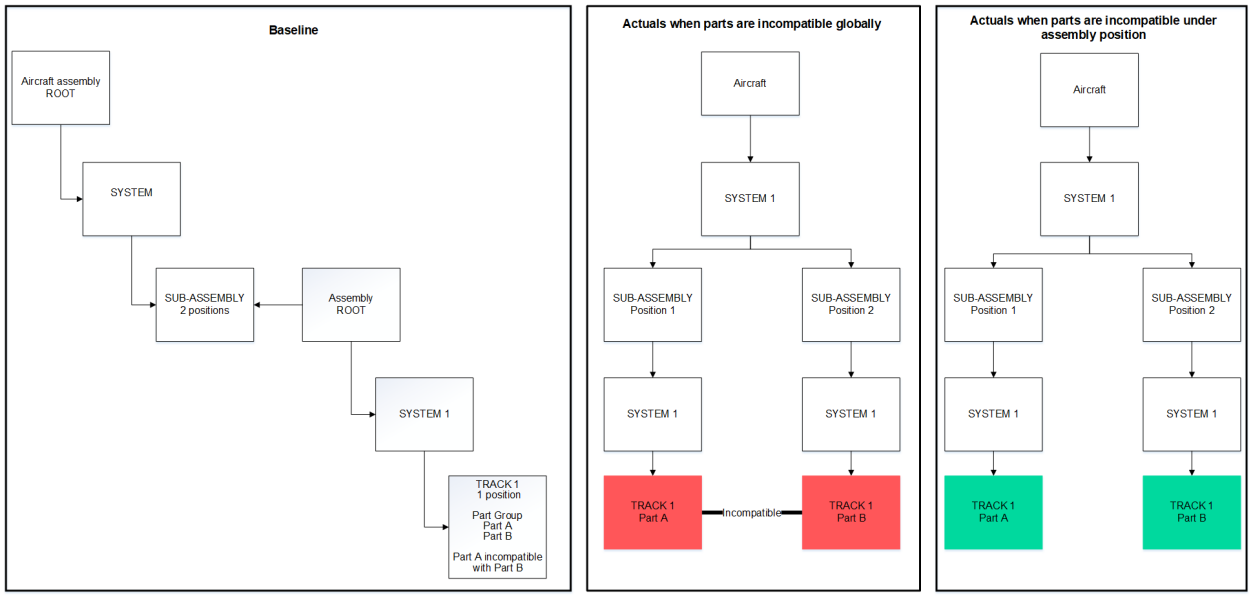
- If the incompatibility rule is the Global type, Part A and Part B are incompatible.
- If the incompatibility rule is the Assembly Position type, Part A and Part B are compatible.



Part incompatibility example 2

In example three, the configuration hierarchy includes a sub-assembly configuration slot with two positions. Installing the sub-assembly on the aircraft assembly has the following compatibility outcomes:

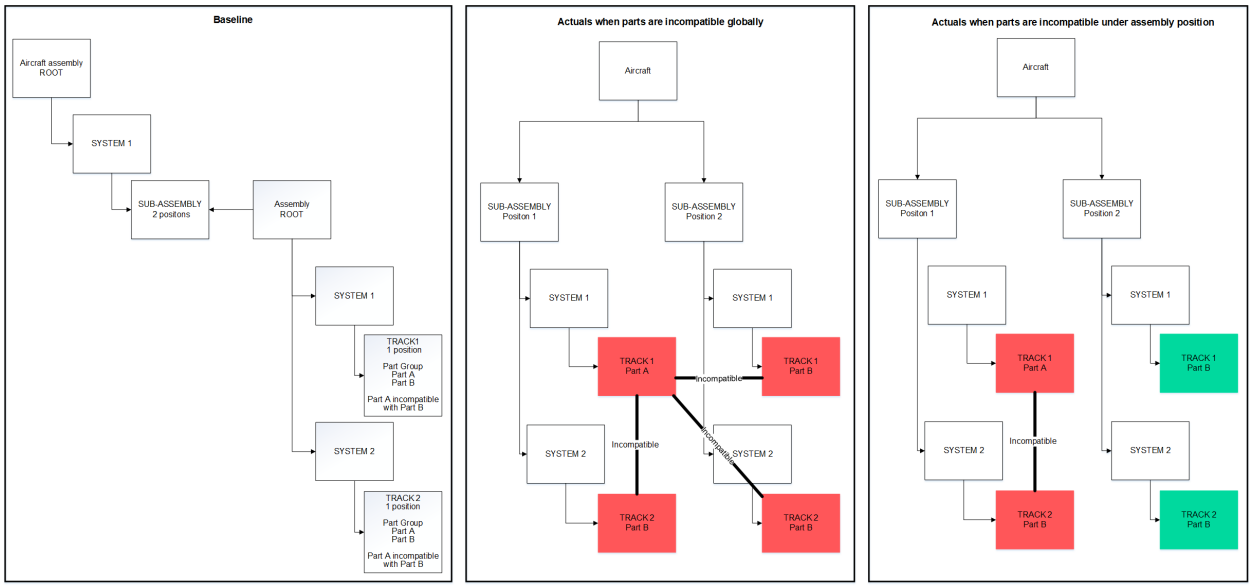
- If the incompatibility rule is the Global type, Part A and Part B are incompatible.
- If the incompatibility rule is the Assembly Position type, Part A and Part B are compatible.



Part incompatibility example 3

Example four below extends example three. We now show a sub-assembly configuration slot with two positions and two systems underneath each. Parts A and B are installed on the two different systems, but under one sub-assembly the tracked slots on both systems have the same part installed and under the other sub-assembly, the tracked slots under the two systems have a mix of Part A and Part B.

- If the incompatibility rule is the Global type, Part A and Part B are incompatible. Only one part or the other can be installed anywhere on the aircraft.
- If the incompatibility rule is the Assembly Position type, Part A and Part B are incompatible when installed under the same assembly position.



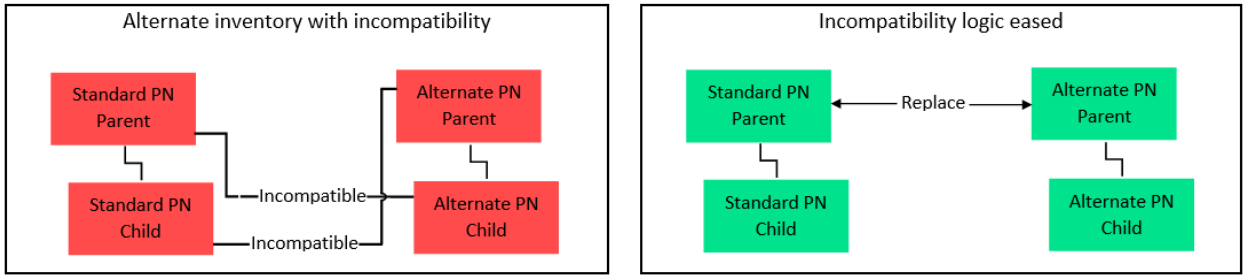
Part incompatibility example 4

In the examples, the root assembly is an aircraft, but if an engine assembly is loose, the root and highest assembly at that time, is engine sub-assembly.

Complex tracked part incompatibilities

The Part Incompatibility logic is eased when complex tracked parts are reserved, issued and installed.

Consider alternate tracked parts that are configured in the same part group such that child components installed on them are incompatible with each other's parents. Example: Emergency escape slides on aircraft: the slides are interchangeable, but the individual cartridges installed on the slides are not interchangeable.



When an installed inventory is being replaced with an alternate inventory that is incompatible at the child level or below, CAMO Module allows users to add install part requirements for the alternate inventory when the incompatibility is on or under the configuration slot position being replaced. The same logic applies for reserving parts manually as well as automatically and completing installations.

CAMO Module also allows users to proceed with inventory creation when a sub-component standard part is incompatible with the parent, in many scenarios including when receiving a shipment, turning in an inventory, and capturing the work of removing or installing an inventory.

Task incompatibility

Task incompatibility rules specify which part numbers within groups of alternate part numbers cannot be installed based on the specified task and task status. When you create these rules, you select a task definition and specify whether the part number is incompatible when the task is complete or when the task is open. In the case of a modification, some parts in a part group will have a rule for when the task is open while other parts in the same part group will have a rule for when the task is complete.

Tip

Some pre-modification and post-modification incompatibility rules can be modeled as one-way interchangeability.

CAMO Module supports task incompatibility with tracked and serial-controlled parts.

Changing the inventory class of part numbers

You can change the inventory class that is assigned to a part number.

You can promote a part number to a higher inventory class to track more information about the part's inventory. You can also demote a part number to a lower inventory class.

Because the inventory class determines how CAMO Module deals with inventory, the ramifications of changing a part number's inventory class can be substantial. Therefore, the ability to makes such changes is controlled by permissions.

CAMO Module allows the following inventory class changes:

- Promoting a part from batch-controlled to serial-controlled.
- Promoting a part from serial-controlled to tracked.
- Demoting a part from tracked to serial-controlled.
- Demoting a part from serial-controlled to batch-controlled.

General restrictions

You cannot change the inventory class of a part number in the following cases:

- If a part has an inventory class of Assembly or Aircraft.
- If a part is no longer approved in your organization. A rejected part number has the status of Obsolete (Reject Part).

- If a part is associated with a stock number and the stock number also has other part numbers associated with it.
- If a part is associated with locked inventory items that are not archived or scrapped.

Part group sensitivities

You can mark part groups as sensitive so all parts in the part group must be treated as such (regardless of which part in the part group is added as a part requirement).

Note that there are certain scenarios where both the system and part will be sensitive, or a system may not have a sensitivity but a TRK slot below it does. Also, removing or replacing a part on one system could trigger a sensitivity alert based on another system.

Consider the following setup:

```
22 (SYS) – Auto Flight – no sensitivity
   22-11 (SYS) – Auto Pilot – CAT III system sensitivity
      22-11-10-10 (TRK) - CAT III part sensitivity
   22-23 (SYS) – Yaw Damper System – no sensitivity
```

```
27 (SYS) – Flight controls - no sensitivity
   27-32 (SYS) – Stall Warning System – no sensitivity
       27-32-10-01 (TRK) Stall Management & Yaw Damper (SMYD) – CAT
 III part sensitivity
       Some other TRK part  – no sensitivity
```

```
27-32 (SYS) – CATIII
   27-32-01 (TRK 1) – CATIII
   27-32-02 (TRK 2)– no sensitivity
```

Consider the following scenarios:

Scenario 1: Alert based on system sensitivity

- Raise a fault on 22-11 (SYS). The system is CAT III sensitive, so a CAT III alert is displayed.

Scenario 2: Alerts for both the system and part requirement

- Raise a fault on 22-11 (SYS). The system is CAT III sensitive, so a CAT III alert is displayed.
- During the fault execution, you removed and installed 22-11-10-10 (TRK) and the part is CAT III sensitive. As a result, a CAT III alert is displayed.

Scenario 3: Alert based on a part requirement on a different system

- Raise a fault on 22-23 (SYS). The system is not CAT III sensitive, so an alert will not be displayed.
- However, during the fault execution, you removed and installed a Stall Management & Yaw Damper TRK part (SMYD) and the part is CAT III sensitive. As a result, a CAT III alert will be displayed.

Scenario 4: Alert based on part requirement only

- Raise a fault on 27-32 (SYS). The system is not CAT III sensitive, so an alert will not be displayed.
- However, during the fault execution, you removed and installed a Stall Management & Yaw Damper TRK part (SMYD) and the part is CAT III sensitive. As a result, a CAT III alert will be displayed.

Aircraft capabilities

Aircraft capabilities are a tool for summarizing the types of flights and services an aircraft is able to perform at the present time. Engineers configure aircraft capabilities, but maintenance controllers revise the current capabilities when required. For example, after deferring a fault, you reduce an aircraft's current ETOPS capability level.

To report an aircraft's capability, you must consider both its configured capability (what capability the aircraft has been built to embody), and what its current operating capability is (which factors in any temporary limitations). CAMO Module allows you to update both the configured and current capabilities of the aircraft. This information is useful for the users responsible for aligning aircraft tail numbers to flight numbers.

Note You can view any changes made to capabilities on the Inventory Details page on the Historical > Additional tab.

Configuration baseline update management with Allowable Configuration

The configuration baseline defined for assemblies in CAMO Module generally requires updates with the release of a new IPC revision, service literature released by the OEM, or configuration change requests.

In conjunction with CAMO Module, you can use Allowable Configuration which is part of the Aviation Technical Content Manager portfolio. It works as follows:

Export configuration data from CAMO Module

A copy of the configuration baseline, for update, is obtained by exporting configuration data from CAMO Module. The exported configuration data contains the following:

- Assembly information
- Part group information
- Alternate part information
- Incompatible part information
- Incompatible task information

After the configuration baseline is loaded to Allowable Configuration, a configuration specialist can search for part groups on the **Part Group Search** page and view configuration data for a part group on the **Part Group** details page.

Create IPC document revision for assembly

When changes to the configuration baseline are deemed necessary, the configuration specialist creates an IPC change source in Allowable Configuration to serve as the base to which assemblies can be linked, in order to effect changes required to a specific assembly by a new IPC Document revision. In the event that the change source is an IPC Document, the configuration specialist creates the IPC Document in Allowable Configuration and links an assembly to it on the **Assemblies** tab of the **IPC Document** page. You can then upload the new IPC document revision and generate the baseline. When done, you can set the status of the document revision to Ready for Analysis so that it can be sent to the engineering service partner for analysis.

Review suggested changes

To determine the changes to configuration data as a result of a new IPC revision, the engineering service partner downloads the new revision along with the baseline. They then suggest changes to the part group configuration data, based on the information at hand. After the partner has finished adding changes, the IPC change suggestions file is uploaded to Allowable Configuration so a configuration specialist can view the suggested changes.

Enable part groups for changes

After a configuration specialist has identified the part groups impacted by the suggested changes, the part group should be connected to a change source if an existing part group requires a change or a new part group can be created. Once the change source is modified for a part group it becomes the active change source.

Action suggested changes

The configuration specialist sees the suggested changes on the **Suggested Changes** tab of the **Part Group** page. Each change receives a criticality which is indicative of the action that should be taken on the change. Criticality for change sets is as follows:

- Ones that must be reviewed.
- Ones that can be accepted.
- Ones for which you should perform spot checks.

After you determine the course of action for the change set, you must:

- Accept the suggestion. In the event that the suggested change is to create a new part group, accepting this change set creates the part group.
- Reject the suggestion.
- Set the suggestion to manually actioned to make changes manually.

You can also accept and reject all change sets for a particular change set type, for all the part groups on a change source, in a single operation. To bulk accept or bulk reject, the change set types must have either the Accept or Spot Check criticality.

Once you have actioned changes on the part group, they can be viewed as change steps, categorized by types such as mapping to IPC elements, taken against the part group on the **Action Log** tab for the part group.

Action changes due to other change sources

The configuration specialist can also action manual changes to part groups that result from other service literature. It should be noted that these changes may need to happen in the middle of an IPC update, and these changes will need to be published without inadvertently publishing elements of the IPC update. To action these changes, the configuration specialist needs to modify the change source for the affected part group to the Other type change source or create a part group for this change source. Manual changes can then be made on the part group, which can then be published.

Publish change source

After all the updates for a configuration change source are made, you can submit the change source for approval by setting the status to Ready for Approval. After it's approved, the change source is ready to be published. When the change source is published, all the valid changes to the configuration baseline are updated in CAMO Module. If all the changes on the change source were valid, the status of the change source is updated to Published. If some or all of the changes to the configuration baseline are invalid, the status of the configuration change source changes to PublishError and the changes that failed validation along with the description of the error are displayed on the **Publish Errors** page. You can then navigate to the part group details to rectify the error and publish the change source again.

Note For configuration information, see the Administration Guide.

2

Usage management

Usage parameters and usage definitions

Usage parameters are used to track how long equipment has been in service, based on a specific usage unit of measurement, such as airframe hours and cycles. Usage values are usually associated with an event, for example a flight.

Usage parameters are most important for components that get damaged or worn out from use—those that can crack from stress, impact, or fatigue due to moving parts. Usage parameters can be recorded as absolute counts, or as incremental counts (such as one more aircraft landing).

CAMO Module uses usage parameters to calculate the time between maintenance activities on the aircraft, and on its sub-components. For example, if an aircraft must be inspected every 100 hours of flying time, a usage parameter for flying hours is assigned to the assembly on which the aircraft is based.

CAMO Module includes standard usage parameters, such as HOURS and CYCLES, and lets you define as many additional usage parameters as your organization requires. Usage parameters are stored in a global list, and they can be assigned to any assembly.

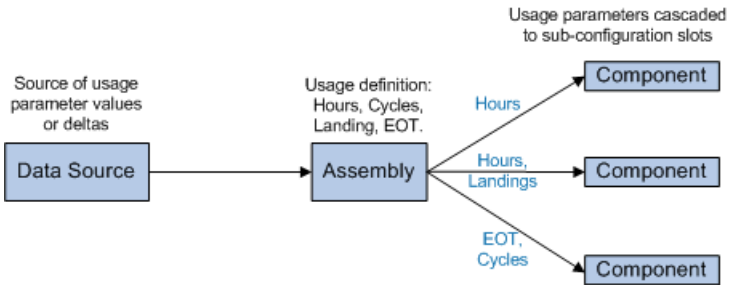
To specify the usage parameters to track, you create *usage definitions* for each assembly. *Usage definitions* are groups of usage parameters, and they are used to categorize usage parameters based on the source of the usage data. The following table describes the data sources and how usage values are entered and updated for each one:

Data sources for usage definitions

Data Source	Description
BULK (Bulk Usage Entry)	This data source is for specifying the usage parameters that users must be able to enter in CAMO Module by creating a usage record or by editing an inventory's usage. It is also used for usage parameters whose values are sent to CAMO Module via an integration with external systems.
EDIT (Allows edition of data collection)	This data source is for parameters for historical flights that personnel in the technical records department enter manually in the CAMO Module interface.
MXFL (Maintenix Flight Log)	The source of the parameter values is either manual entry of the flight data in the CAMO Module interface, or an external flight monitoring system that is integrated with CAMO Module using the Maintenix Flight API. See the *Maintenix Flight API Guide* for more information about this type of integration. Note that only the parameters assigned to the MXFL data source are displayed to users when they create a flight record in CAMO Module.

Once a usage parameter is assigned to an assembly, you can assign that parameter to the various sub-configuration slots of the assembly, as required by the maintenance program. For example, if a component must be overhauled every 100 flying hours, the flying hours usage parameter is assigned to the sub-configuration slot to which the component is assigned.

By setting up the hierarchical structure of the assembly, you can assign usage parameters created for an assembly to any or all of its sub-assemblies and components to define the type of usage these sub-assemblies and components accrue, as illustrated in the following diagram. When the parent assembly accrues usage—for example when a flight occurs—CAMO Module applies the usage collected on the aircraft to each component, based on the usage parameters specified for each configuration slot in the assembly baseline.



Usage parameters from top-level assembly to components

You can only cascade a parameter from the root of the assembly, which assigns the parameter to all configuration slots in the assembly hierarchy, or from any configuration slot, which assigns the parameter to all sub-configuration slots that are below the configuration slot. You can also manually assign any of the parameters in the assembly's usage definition to a specific configuration slot.

The usage parameters that are assigned to each assembly, sub-assembly, and component, should all be defined during the set-up of the aircraft in CAMO Module and before flights (with usages) are recorded against the aircraft. This is typical practice and best practice.

The usage values are recorded against the assembly on which the sub-assemblies and components are installed. The number and order of MXFL usage definition parameters displayed on various pages is configurable. For more information see the Maintenix Administration Guide.

If a sub-assembly can accrue usage while it is not installed on the parent assembly, for example an engine can accumulate usage as the result of a bench test—and it has maintenance requirements that are scheduled based on usage—you want that sub-assembly to have its usage values even when it is removed from a parent assembly. In such cases, you must create a usage definition on the sub-assembly itself, and assign it the correct usage parameters. When the sub-assembly is installed on a parent assembly, CAMO Module tracks any additional usage parameters that come from the usage definition of the parent assembly, and that are assigned to the configuration slot where the sub-assembly is installed.

Forecast models let you define rates at which an aircraft, and any component that is installed on that aircraft, will accrue usage for a certain period of time. CAMO Module uses these rates to predict the usage-based maintenance deadlines.

Updating usage parameters on inventory records

When you add or remove usage parameters for a configuration slot for which inventory records already exist in CAMO Module, the inventory records must be updated to match the changes you make to the configuration slot. CAMO Module does not update the inventory records dynamically or automatically, because making changes to the usage parameters often entails making several successive changes, and it takes some time to select the select a parameter and the configuration slot to which it applies. It is preferable to update the inventory records only once, when the changes are completed, rather than doing so repeatedly while they are being done.

When you have finished making changes to the usage parameters on the assembly, click the **Synchronize Usage Parameters** button on the Assembly list tab to update all inventory records that match the assembly.

If users try to perform certain actions on the inventory after you have made changes to the assembly usage parameters, but before you have synchronized the inventory records, CAMO Module warns users that the parameters are out of sync with the baseline, and prevents users from continuing.

Calculated usage parameters

A calculated usage parameter is usage on an item which is calculated by CAMO Module using functions. These functions combine constants and input parameters, and they return a numeric value that is stored as the usage value. Therefore, the stored usage value is calculated by CAMO Module, instead of being entered by technical records. The input parameters are a subset of the standard usage parameters that are defined for the assembly.

Every time usage is adjusted on an inventory record, such as flights, usage records or editing inventory, the calculated usage parameters for that item will be re-calculated.

To calculate the usage value, CAMO Module uses the current TSN values of the input usage parameters as the input values for the function. The function also uses a list of constants that are defined against the calculated usage parameter. You can specify part-specific constants that override the constant values of the calculated usage parameter, but only for the specified part numbers.

Whenever the function calculates usage for an inventory with that part number, the calculated usage value is obtained using the part-specific constants, rather than the default ones specified in the calculated usage parameter.

Once defined, you can cascade calculated usage parameters down to all sub-configuration slots using the **Cascade Parameter** button available at the root-level of the configuration slot, or assign them to specific configuration slots individually.

3

Maintenance program management

Task definitions

Task definitions are the templates used to create actual tasks that are performed on applicable inventory items as these items age and accrue usage. The different types of task definitions serve different purposes, and they relate to one another.

You can establish links and dependencies between task definitions. The types of task definitions and the links allow you to model the complex relationships that make up an asset maintenance program.

In the user interface, when you see a button with *task definition* on it, the action is something that applies to all (or most) types of task definitions, such as activate, initialize, duplicate, delete, move, and obsolete. When you create task definitions, you create a specific type, so the buttons that you see are specific to the following types of task definitions:

Requirements (REQ)

You can use requirement definitions to describe maintenance activities at a high level, and provide scheduling information. This facilitates planning, scheduling, and compliance reporting. Examples of maintenance activities to model as requirements include the following:

- Maintenance activities that are part of maintenance programs for your assets.
- Work that must be accomplished to comply with a maintenance program document (MPD) from the equipment manufacturer, a service bulletin (SB), or an airworthiness directive (AD).
- Replacement activities in which a component is removed from an assembly—so that it can be sent to a shop for maintenance, for example—and replaced with another component.
- Troubleshooting work to resolve non-routine issues that are encountered regularly.

Requirements contain scheduling information, except for requirements created for replacement activities and corrective actions, which do not require scheduling because they are used only when needed rather than at specific intervals.

Reference Documents (REF)

Reference document definitions are often used to track compliance. In civil aviation for example, use reference documents to represent service bulletins (SB) or airworthiness directives (AD). You can link such reference documents to the requirement definitions that contain the execution information required to comply with the SD or AD, and that break down that information into several job card definitions. You can also create reference documents that are not linked to requirements, such as administrative reference documents for which no maintenance work is needed.

Reference document definitions are not initialized as active actual tasks.

Job Cards (JIC)

Job card definitions describe a unit of work that can be assigned to one or several technicians, and that completes a maintenance function. Job cards are the task definitions that specify the labor skills that are required, the parts and tools needed, the estimated duration of the maintenance task, and the steps and instructions for completing the work. Job cards are also where technicians sign off when the work is completed.

Job cards can be printed so that maintenance personnel can have them on hand as they execute the work.

Using job card definitions is optional; you can include the execution information listed above in requirement definitions—provided you designate these definitions as executable requirements—or create job cards that include some of the execution information and links to an external system that provides the work instructions for technicians.

Master Panel Cards (MPC)

Master panel card definitions list all aircraft panels that must be opened and closed during a maintenance visit. They differ from other types of task definitions in that CAMO Module automatically initializes them as actual tasks when you generate the workscope of a work package. When that happens, two job cards are created: one for opening panels and one for closing panels.

Blocks (BLOCK)

You create block definitions to group requirement definitions that have similar deadlines or that represent similar functions, such as overnight checks or heavy maintenance visits. Blocks are used to assist maintenance planners in scheduling a large number of requirements that would be difficult to manage without this type of grouping, such as heavy maintenance visits that can have hundreds of requirements. You can also create block chains that contain several different block segments to execute in order. Blocks contain scheduling information.

Other than follow-on requirements, all classes of requirement definitions can be assigned to blocks.

Task definition types

When you create a task definition, you associate it with the configuration slot of the assembly that is relevant to the work being done, or with the part number of the component on which the work will be done.

Part number-based task definitions eliminate the need to define a task definition on each configuration slot where a component can be installed across all applicable assemblies. You can use part number task definitions for the following tasks:

- Maintenance requirements for components that are in storage.
- Modifications to components.
- Tracking compliance for components.
- Tracking shop visit maintenance requirements for components.
- Work that is required on tools, for example calibration.

Note You cannot link a part number task definition to a configuration slot task definition, and vice versa.

Part number task definitions are very similar to configuration slot definitions in that they can have links, scheduling rules, and so on. Also, when you activate a part number definition, baseline synchronization pushes out the new revision on applicable inventory. When a part number requirement is initialized, CAMO Module also initializes the associated job cards. However, there are differences between part number task definitions and configuration slot definitions:

- You can create part number type definitions for only requirements, job instruction cards, and reference documents.
- Blocks and Master Panel Cards (MPCs) apply only to assemblies and are therefore created on config slots. You cannot create them for part numbers.
- Part number task definitions cannot be used in the Long Range Planner (LRP) application.
- Troubleshooting (CORR) task definitions and replacement (REPL) task definitions cannot be or include part number task definitions.
- Part number based task definitions will have their applicability and modification restrictions enforced when actual tasks are created using the **Create Historical Task** workflow (in contrast to tasks created against configuration slots).
- Part number task definitions on BATCH parts cannot have scheduling rules.
- The CAMO Module compliance report is not available for part number task definitions.

Note For configuration slot task definitions, the task definition codes you assign must be unique only on a given configuration slot. For part number task definitions, task definition code must be unique across the CAMO Module system.

You should use configuration slot-based task definitions whenever you need to use any of the CAMO Module functionality that does not apply to part number task definitions.

Note It is recommended to use configuration slot requirements rather than part number requirements because IFS Maintenix cannot include part number requirements in the aircraft's maintenance program.

Historical modification tasks

Whenever you reinduct inventory, it is important that you record which tasks have been previously completed. If the part was previously in the organization, some tasks may have been completed when the part was previously in CAMO Module in a non-archived state. However, if the part has been away from your organization for awhile, it is possible that some tasks that were completed on the part have not been recorded as completed in CAMO Module.

If a task definition has not been completed in CAMO Module, you can use the Create Historical Task button to record historical tasks.

It is possible that the part might have undergone a modification and changed part numbers while it was not in your organization's possession. This means it is possible that you can receive inventory that is not currently the same part number as it used to be.

When you are creating historical tasks, applicability rules and transformation rules are enforced for tasks based on part numbers and are ignored for tasks based on configuration slots. This means that when a receiving inspector has received an item and is trying to enter configuration slot based historical maintenance on the item, they can use the same workflow even if the tasks were performed on a different part number.

CAMO Module allows you to create historical MOD tasks, even if the inventory's part number does not match the Old Part Number of the Part Transformations list of the MOD task definition. The part transformation logic does not run when you create a historical MOD task (since the transformation has already happened).

In addition, you can create a historical configuration slot based modification task even if it does not match the inventory's current task applicability rules. Although the task is not currently applicable to the inventory item, it was applicable when the task was performed, so therefore, you are able to initialize these tasks. CAMO Module allows historical tasks to be initialized even if they do not match applicability, but includes a warning message about the same

Task definition life cycle

When you first create a task definition in CAMO Module, it has the Build status. While it remains in the Build status, you can make modifications to the task definition, no actual tasks can be created from the definition.

When the task definition is complete, and has received the approval required by your organization, you activate the task definition, which changes its status from Build to Active. Active task definitions can be used to create actual tasks against inventory. In CAMO Module, you can define the approval process for task definitions to suit the needs of your organization. For example, you can decide that multiple approvers review and approve a task definition prior to the activation. At a high level, the process is that the user who creates or revises a task definition requests its approval; approvers review the task definition, and they approve it or reject it.

Initializing a task definition creates actual tasks for the inventory to which the task definition applies. Only the active revision of a task definition can be initialized, unless the task definition is assigned to a maintenance program. Initialization can occur automatically or be done manually. For example, most blocks and requirements are initialized automatically by CAMO Module; however, block and requirement definitions that are designated as being on-condition must be initialized manually. Active job cards are automatically initialized when their parent requirement is initialized.

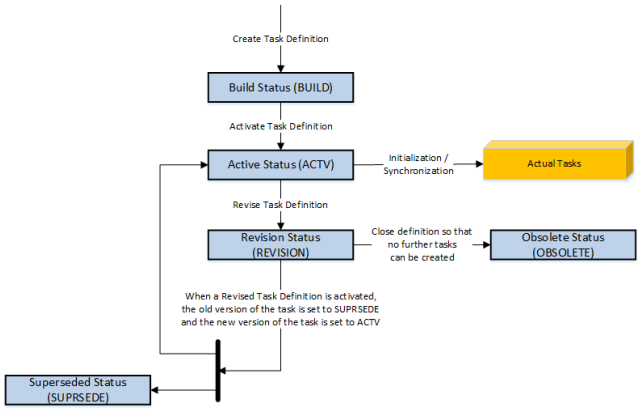
When you create and activate a task definition for the first time, it is considered Revision 1 in CAMO Module. When you need to change an active task definition, you create a revision of the task definition. There are now two revisions (versions) of the same definition, one in ACTIVE status which continues as the basis for actual tasks and one in REVISION status which you can change. When your changes are done and approved, you activate the version that's in REVISION status. It becomes REV 2 ACTIVE. REV 1 ACTIVE changes to SUPERSEDE status and actual tasks are now based on REV 2 ACTIVE.

As you create, revise, and no longer need task definitions, you can do the following:

- Delete Requirement: If a requirement is still in BUILD status, you can delete it from the requirement's Details page.
- Obsolete Task Definition: If a task definition is in REVISION status, you can make it obsolete (its status changes to OBSOLETE). You can obsolete multiple definitions at the same time from the Task Definition Search page.

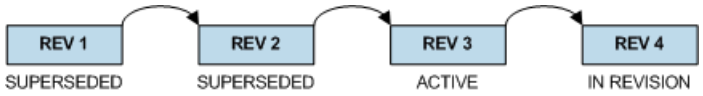
You can also move and duplicate task definitions with one exception - you can't move master panel card definitions because they are specific to assemblies.

The following diagram illustrates the various status transitions for task definitions.



Task definition life cycle

Task definitions can be revised many times, but only one revision can be active at any time. When you create and activate a new revision of a task definition, the status of the previous revision is changed to Superseded, as shown in the following diagram.



Task definition revisions

View differences between two versions of a task definition

You can compare one revision of a task definition with any of its other revisions. The Show Differences button on the details page of the task definition provides this functionality.

Steps

1. Navigate to the details page of the task definition revision you want to use for comparison.

   To start with a revision different than the current one, on the details page of the task definition, click the **Revision** tab and then click the required revision under the **Revision History** area.
2. Click the **Show Differences** button.
3. On the **Show Differences** page, select the revision to be compared to the previously selected revision.
4. Click **OK**.

All the differences between the two selected revisions are highlighted in yellow. To hide these highlights, click the Hide Differences button.

Job card definitions

The purpose of a job card definition is to convey how to perform the work, or some of the work, that is required to satisfy a maintenance requirement, including:

- Work instructions, consisting of the detailed sequence of steps needed to complete the task.

  If your organization has an external system that includes the instructions, for example in the aircraft maintenance manual (AMM), you can add links to that system in the job cards in CAMO Module, so that maintenance personnel access the instructions in the external system.
- Supporting information such as technical reference links to external documentation, diagrams, or other instructional aids.
- Resources that are needed, including the number of technicians, their skills, the tools, the parts, and whether the work done by each technician must be certified by another user and undergo an independent inspection.

Once you have created a job card, you can preview it as a PDF document, and print the job card.

When you create a job card definition, you assign it a class. The job card definition classes provided in CAMO Module are described in the following table.

Job card definition classes

Class	Description
Clean (CLEAN)	A task to clean equipment.
Close (CLOSE)	A task for closing a panel or area when the work is completed. This task class is used for heavy maintenance work packages, and the actual tasks are scheduled at the end of the work package.
Close Panel (CLOSEPANEL)	Provides instructions on how to close a specific panel on the aircraft, as well as parts and tools requirement. The aircraft zone and panel are specified in the task definition.
Inspection (INSP)	Identifies a preventative maintenance action.
Install (INST)	A task for installing a component, this is usually a subtask to a replacement requirement (REPL).
Job Card (JIC)	A generic job card task that does not relate to the other job card classes listed in this table.
Open (OPEN)	A task for opening a panel or area when the work starts. This task class is used for heavy maintenance work packages, and the actual tasks are scheduled at the beginning of the work package.
Open Panel (OPENPANEL)	Provides instructions on how to open a specific panel on the aircraft, as well as parts and tools requirement. The aircraft zone and panel are specified in the task definition.

Class	Description
Approved Repair (REP)	Identifies a repair task where the work needed to make a component serviceable requires the physical alteration of the component.
Removal (RMVL)	A task for removing a component, this is usually a subtask to a replacement requirement (REPL).
Servicing (SRVC)	Routine tasks during which some equipment is being serviced; calibrating a tool is an example.
Test (TEST)	Work that results in some equipment being certified as being airworthy or serviceable.

Like other types of task definitions in CAMO Module, you can do the following for job card definitions:

- Create them for a part number or for a configuration slot. While a configuration slot job card definition is still in the Build status, you can move it to a different configuration slot.
- Assign them an organization.
- Include non-routine estimation information.
- Add task impacts, and Interactive Electronic Technical Manuals (IETM) references and attachments.
- Activate, make revisions, and make them obsolete. However, you cannot initialize job cards individually; they are initialized when their parent requirement task definition is initialized.
- Assign them to requirement definitions, and remove them from requirement definitions.
- Specify applicability ranges or rules to restrict the inventory to which the job card applies.
- If you add steps to a job card, you can do the following:
  - Specify applicability ranges for individual steps. (Different steps within one job card can have different applicability ranges).
  - Add skills to job card steps.

You cannot set scheduling information in job cards; job cards inherit the scheduling information from their parent requirement definition.

Create a job card definition

Steps

1. Select the **Task Definition Search** menu item.
2. On the **Task Definition Search** page, click **Create Job Card**.
3. On the **Create Job Card** page, in the **Job Card Type** area, select **Config Slot**.

4. In the **Identification** area, provide the required information. Note the following:
   - **Assembly**: Select the type of aircraft to which the job card definition applies.
   - **Config Slot**: Click and select the configuration slot to which the job card definition relates.
5. In the **Classification** area, provide the required information. Note the following:
   - Class:
     - If the job card provides information for opening an aircraft panel, select **OPENPANEL** (Open Panel JIC).
     - If the job card provides information for closing an aircraft panel, select **CLOSEPANEL** (Close Panel JIC).
     - For other types of work, select the class that is most closely matched to the work, or select the generic **JIC** (Job Instruction Card) class.
6. In the **Planning Details** area, you can select one or more work types that apply to the job card definition. Hold Ctrl as you click to select multiple work types.
7. Click **OK**.

   The job card definition is created and is in Build status.

What's next

You must activate a job card definition before you can use it. However, before activating, you might want to add instructions, part and tool requirements, and other details for technicians, and associate the job card definition to a requirement definition.

Allowable HTML tags for large text fields

CAMO Module allows you to use a list of HTML tags in large text fields. This allows you to create notes, descriptions, and instructions that are richly formatted for easier reading. Any HTML tags that are not allowed will be simply display as text.

The following HTML tags and their appropriate attributes are allowed in large text fields in CAMO Module:

Allowable HTML tags for large text fields

Tag	Description
<a>	For hyperlinks. Links can point to `http, https, ftp, and mailto`. This tag has an enforced `rel=nofollow` attribute.
<b>	For bold text.
<cite>	To display a citation.
<code>	To display computer code.

Tag	Description
<blockquote>	To display text quoted from external sources.
<q>	To display a short quotation.
	For text that has stress emphasis.
<i>	To italicize text for technical terms, phrases, etc.
<small>	To display text with a smaller size.
	To apply a style to a phrase.
<strike>	To display strike-through text.
	For important text.
<sub>	For subscript text.
<sup>	For superscript text.
<u>	For underlined text.
 	Creates a line break.
<dl>, <dt>, <dd>	To define a description list, a description term, and description of the term in a list. <dl>, <dt>, and <dd> are often used together.
<p>	To separate paragraphs.
, ,	To define ordered or unordered lists and their list items.
<pre>	To define pre-formatted text. Usually used with the *width* attribute.
<table>	To define a table.
<th>	To define a table header cell.
<td>	To define a table cell.
<tr>	To define a table row.
<caption>	To define a table caption.
<colgroup>, <col>	To specify column properties.
<thead>, <tbody>, <tfoot>	To group header, body, and footer content in a table

The following HTML tags are not allowed in large text fields in CAMO Module:

- <img> tag and its attributes

Revise a job card

If the job card definition already exists, these steps are executed to put it into a revision (editable) status. You can then perform any of the instructions provided below; they apply to both creating a new job card, and revising an existing one.

Steps

1. On your to-do list, click **Job Cards Search**.
2. On the **Job Card Search** page, provide the following information:
   - Select **Search by assembly/code**.
   - Enter the assembly of the job card to be revised.
   - Enter the code of the job card to be revised.
3. Click **Search**.
4. In the **Job Card** column, click the link.
5. On the **Job Card Details** page, click **Create Revision**.
6. On the **Create Revision** page, enter the name of the contact person for the revision, the reason for the revision, and any note you see fit.
7. Click **OK**.

Add technical references to a job card

About this task

You can add one or more technical references to link the job card to information that resides in an external document management system. Printable technical references are automatically printed with the task cards created based on the job card. When you have two or more technical references, you can change their order on the job card.

Steps

1. On the **Job Card Details** page, click the **Details** tab.
2. Click **Add Technical Reference** ⊞. The IETM Search page opens with the buttons related to Technical References.
3. On the **IETM Search** page, in the **Search Criteria** area:
   - Select **Search for technical references by name** or **Search for technical references by operator**.
   - **IETM**: Select the reference.
   - **Name**: Enter the name of the IETM. This field is displayed if Search for technical references by name is selected.

- **Operator**: Select the operator. This field is displayed if Search for technical references by operator is selected.

4. Click **Search**.
5. On the **Technical References** tab, select the check boxes next to the required references.
6. Click **Assign Technical Reference**.

Add attachments to a job card

About this task

If you do not have an external document management system with which you can link the job card, you can attach documents that provide information to technicians. Printable attachments are automatically printed with the task cards that are created based on the job card. If you add two or more attachments, you can change the order in which they are listed on the job card.

Steps

1. On the **Job Card** or **Requirement Details** page, **Details** tab, click **Add Attachment** ⊞. The IETM Search page opens with the buttons related to Attachments.

   Note The size of the attachment must be smaller than the configured file size. The default size of the file that can be attached is 10MB. Contact your administrator if you do not know what your configured file size is.

2. On the **IETM Search** page, **Search Criteria** area:
   - Select **Search for attachments by name** or **Search for attachments by operator**.
   - **IETM**: Select the reference.
   - **Type**: Optional. Select the type of reference.
   - **Name**: Enter the name of the IETM. This field is displayed if **Search for attachments by name** is selected.
   - **Operator**: Select the operator from the drop-down list. This field is displayed if **Search for attachments by operator** is selected.
3. Click **Search**.
4. On the **Attachments** tab, select the check boxes next to the required attachments.
5. Click **Assign Attachment**.

Add labor requirements

About this task

You add labor requirements to task card definitions, or to executable job standard definitions.

Steps

1. If it is not already displayed on your screen, go to the details page of the task definition.

> **Tip** To go to the details page, select the **Task Definition Search** menu item. The fastest way to find the task definition is to enter its complete code (or only the first few characters of the code) and press Enter.
>
> Alternatively, you can select the type of aircraft the definition pertains to in the **Assembly** field, the class of the definition, and/or the status of the definition. After searching, click the desired code/name on the Task Definitions Found tab to go to the details page.

2. On the details page of the task definition, click the **Execution** tab.
3. Click **Add Labor Requirements** .
4. On the Add Labor Requirements page, provide the following information, and click OK:
   - **Labor Skill**: The labor skill required to complete this labor requirement. The list of skills from which you select only includes the skills assigned to the organization of the task card definition.
   - **Number of People Required**: The number of resources who have the specified labor skill and that are required to complete the work.
   - **Work Performed Sched. Hours**: The expected number of hours per resource required.
   - **Certification Required**: Select if this work requires certification when it is complete. When it is required, the labor row is not complete until it is certified.
   - **Certification Sched. Hours**: The number of hours that the certification takes to complete.
   - **Independent Inspection Required**: Select if this work requires independent inspection when it is completed. When it is required, the labor row is not complete until it is inspected.
   - **Independent Inspection Sched. Hours**: The number of hours that the independent inspection takes to complete.

Add part requirements to job cards

About this task

You add part requirements to identify the rotables and consumables required to complete a task. You add part requirements to job card definitions or to executable requirement definitions.

Steps

1. On the **Details** page of the task definition, click the **Execution** tab.
2. Click **Add a Part Requirement** .
3. On the **Add Part Requirement** page, enter the applicable search criteria.

4. Click **Search**.
5. On the **Parts Found** tab, select the parts to add as part requirements.
6. For each part, select the applicable options:
   - **Qty**: Enter the quantity needed for the part.
   - **RM**: Select to indicate that a part like this one will be removed as part of the task.
   - **IN**: Select to indicate that the part is to be installed as part of the task.
   - **Action**: Select whether CAMO Module should create a part request for the part requirement or not, whether the required part is included in a kit, or usually kept as bench stock.
   - **Position**: If the required part is for a configuration slot with multiple position, select the correct position.
   - Under **Alternate Part List**, if there are several alternate part numbers to choose from, you can select a specific part.
7. Click **Assign Selected Parts To Task Definition**.

Add measurements to job cards

About this task

Specify the measurements that the maintenance technician should record while executing the task. You can add measurements to job card definitions or to executable requirement definitions.

Steps

1. On the **Details** page of the task definition, click the **Execution** tab.
2. Click **Assign Measurements**.
3. On the **Measurements Search** page, enter the applicable search criteria.
4. Click **Search**.
5. Select applicable measurements from the search results, and click **Assign Measurement**.

Add tool requirements

About this task

List the tools required to complete the task. You can add tool requirements to task card definitions or to executable job standard definitions.

Steps

1. If it is not already displayed on your screen, go to the details page of the task definition.

> **Tip** To go to the details page, select the **Task Definition Search** menu item. The fastest way to find the task definition is to enter its complete code (or only the first few characters of the code) and press Enter.
>
> Alternatively, you can select the type of aircraft the definition pertains to in the **Assembly** field, the class of the definition, and/or the status of the definition. After searching, click the desired code/name on the Task Definitions Found tab to go to the details page.

2. On the details page of the task definition, click the **Execution** tab.
3. Click **Add Tool Requirement** ⊞ .
4. On the **Add Tool Requirement** page, enter your search criteria.
5. Click **Search**.
6. Select applicable tools from the search results, and enter how long each tool is needed in **Scheduled Hours**.
7. Click **Assign Selected Tools to Task Definition**.

Add aircraft zones and panels

About this task

In task definitions, you can identify the aircraft zones and panels where the work covered by the task occurs. You can add zones and panels to task card definitions or to executable job standard definitions.

Steps

1. If it is not already displayed on your screen, go to the details page of the task definition.

> **Tip** To go to the details page, select the **Task Definition Search** menu item. The fastest way to find the task definition is to enter its complete code (or only the first few characters of the code) and press Enter.
>
> Alternatively, you can select the type of aircraft the definition pertains to in the **Assembly** field, the class of the definition, and/or the status of the definition. After searching, click the desired code/name on the Task Definitions Found tab to go to the details page.

2. On the details page of the task definition, click the **Zones/Panels** tab.
3. Click **Add Zone** ⊞ .
4. On the Add Zone page, select applicable zones, and click OK.
5. Click **Add Panel** ⊞ .

6. On the Select Panel page, enter the applicable search criteria.
7. Click **Search**.
8. Select applicable panels from the search results, and click OK.

Add task steps to job card and executable requirement definitions

You can add task steps to job card definitions and executable requirement definitions. When the actual task is in work, the steps must be completed to complete the task. Adding skills to job card step allows technicians to record sign off on job card steps per skill.

Prerequisite

- The job card definition must be in the BUILD or REVISION status to add job card steps.
- To add skills to job cards steps, you must have labor requirements, with certification required, on the job card definition for those skills.

About this task

You can specify an applicability range for each step. Different steps in one job card definition can have different applicability ranges. Unlike other applicabilities, the applicability range for job card steps is applied when the work packages that contain the actual job cards are committed, when the tasks are put into committed work packages, or when a job card in a committed work package is updated to the latest revision. For more applicability range information, see *Task applicability*.

You can also add skills to job card steps while the job card or executable requirement is in Build or Revision status. This allows technicians to sign off on job card steps for each required skill when completing labor rows. When adding skills to steps either all steps must have at least one skill or none of the steps have skills assigned.

The skills that you can add to the job card steps correspond to the labor requirements. The labor row must be marked as Certification Required in order to add the corresponding skill to the job card step. For each skill that you add, you can indicate that an independent inspection is required if the corresponding labor row requires independent inspection. Additional validations are in place, on both the task definition and the actual, to keep the skills on the steps aligned with the labor rows. Step skills cannot be added to actuals.

Using job card step skills allows you to record certification on steps per skill, otherwise skills are certified at the job card level.

Note Skills cannot be added to steps on ad hoc tasks or faults.

Steps

1. On the **Details** page of the job card definition or executable requirement, click the **Execution** tab.

2. In the **Job Card Steps** or **Steps** area, click **Add Step**.
3. On the **Add Step** page, do the following:
   a) (Optional) Enter the applicability range for the step.
   b) (Optional) Under **Certifying Skill(s)**, click **Required for this Step** to require a skill on this step, and/or **Requires Independent Inspection** to require an inspection by a technician who did not perform the work.
   c) Enter a description of the work the technician must do.
4. (Optional) Do any of the following:
   - In the **Applicability Range** column, enter applicability codes.
   - In the **Predefined Step Descriptions** list, select quick text and then edit it in the **Description** field (if required).
5. Click **OK**.

Select work condition settings

Work conditions are used to indicate the state an aircraft must be in before work can be performed. For example, an airplane must have its power turned off before work can be performed on its electrical systems.

Steps

1. On the **Job Card Details** page, click the **Execution** tab:
2. Click **Edit Conditions**.
3. On the **Edit Work Conditions** page, select the setting for each condition that applies to the task.
4. Click **OK**.

> **Note** In Production Planning and Control (PP&C) you can set filter criteria options to display tasks that can only be performed when an aircraft is in a specific work condition.

Assign job cards to a requirement

Steps

1. On the **Job Card Details** page, click the **Requirements** tab.
2. Click **Add Job Card to Requirement**.
3. On the **Add Job Card to Requirement** page, type the requirement code in the **Requirement** field, or click to search for the requirement.
4. Click **OK**.

Activate a job card definition

You activate a job card definition when it is complete, associated with the correct requirement definition, and ready for use.

About this task

Use the following steps to activate one job card.

Note To activate multiple job card definitions at the same time, do a Task Definition Search, select one or more definitions and click Activate Task Definition.

Steps

1. On the **Job Card Details** page of the appropriate job card definition, click **Activate Job Card**.
2. On the **Activate Job Card** page, provide the information requested, and click **OK**.

Note

After you activate job card definitions, it can take up to an hour before actual tasks are created.

Create open and close panel job card definitions

About this task

You create job card definitions for opening and closing a panel if master panel card (MPC) task definitions exists for the aircraft type.

When a work package for the same aircraft type and same work type as the MPC task definition is committed, CAMO Module automatically creates the job cards to open and close the panels that are referenced in the other tasks in the work package, and includes the information that is in the corresponding open and close panel job card definitions.

You can create individual job card definitions for each panel, or use the same job card definition for several panels.

Steps

1. Select the **Task Definition Search** menu item.
2. On the **Task Definition Search** page, click **Create Job Card**.
3. On the **Create Job Card** page, in the **Job Card Type** area, select **Config Slot**.
4. In the **Identification** area, provide the required information. Note the following:
   - **Assembly**: Select the type of aircraft to which the job card definition applies.
   - **Config Slot**: Click and select the configuration slot to which the job card definition relates.

5. In the **Classification** area, provide the required information. Note the following:
   - **Class**:
     - If the job card provides information for opening an aircraft panel, select **OPENPANEL** (Open Panel JIC).
     - If the job card provides information for closing an aircraft panel, select **CLOSEPANEL** (Close Panel JIC).
     - For other types of work, select the class that is most closely matched to the work, or select the generic JIC (Job Instruction Card) class.
6. In the **Planning Details** area, you can select one or more work types that apply to the job card definition. Hold Ctrl as you click to select multiple work types.
7. Click **OK**. The job card definition is created and is in **Build** status. You must activate a job card definition before you can use it. However, before activating, you might want to add instructions, part and tool requirements, and other details for technicians, and associate the job card definition to a requirement definition.

Add zones and panels to tasks

About this task

Identify the aircraft zones and panels where the work covered by the task occurs. You can add zones and panels to job card definitions or to executable requirement definitions.

Steps

1. On the details page of the task definition, click the **Zones/Panels** tab.
2. Click **Add Zone** ⊞.
3. On the **Add Zone** page, select applicable zones.
4. Click **OK**.
5. Click **Add Panel** ⊞.
6. On the **Select Panel** page, enter the applicable search criteria.
7. Click **Search**.
8. Select applicable panels from the search results.
9. Click **OK**.

Add labor requirements

About this task

You add labor requirements to job card definitions, or to executable requirement definitions.

Steps

1. On the details page of the task definition, click the **Execution** tab.

2. Click **Add Labor Requirements** ⊞.
3. On the **Add Labor Requirements** page, provide the following information:
   - **Labor Skill**: The labor skill required to complete this labor requirement. The list of skills from which you select only includes the skills assigned to the organization of the job card definition.
   - **Work Performed Sched. Hours**: The expected number of hours.
   - **Certification Required**: Select if this work requires certification when it is complete. When it is required, the labor row is not complete until it is certified.
   - **Certification Sched. Hours**: The number of hours that the certification takes to complete.
   - **Independent Inspection Required**: Select if this work requires independent inspection when it is completed. When it is required, the labor row is not complete until it is inspected.
   - **Independent Inspection Sched. Hours**: The number of hours that the independent inspection takes to complete.
4. Click **OK**.

Add part requirements

About this task

You add part requirements to identify the rotables and consumables required to complete a task. You add part requirements to job card definitions or to executable requirement definitions.

Steps

1. On the **Task Definition Details** page, click the **Execution** tab.
2. Click **Add a Part Requirement** ⊞.
3. On the Add Part Requirement page, enter the applicable search criteria.
4. Click Search.
5. On the **Parts Found** tab, select the parts to add as part requirements.
6. For each part, select the applicable options:
   - **Qty**: Enter the quantity needed for the part.
   - **RM**: Select to indicate that a part like this one will be removed as part of the task.
   - **IN**: Select to indicate that the part is to be installed as part of the task.
   - **Action**: Select whether CAMO Module should create a part request for the part requirement or not, whether the required part is included in a kit, or usually kept as bench stock.
   - **Position**: If the required part is for a configuration slot with multiple position, select the correct position.
   - Under **Alternate Part List**, if there are several alternate part numbers to choose from, you can select a specific part.
7. Click **Assign Selected Parts To Task Definition**.

Add measurements

About this task

Specify the measurements that the maintenance technician should record while executing the task. You can add measurements to job card definitions, or to executable requirement definitions.

Steps

1. On the **Task Definitions Details** page, click the **Execution** tab.
2. Click **Assign Measurements** ⊞.
3. On the **Measurements Search** page, enter the applicable search criteria.
4. Click **Search**.
5. Select **Applicable Measurements** from the search results, and click **Assign Measurement**.

Add tool requirements

About this task

List the tools required to complete the task. You can add tool requirements to job card definitions or to executable requirement definitions.

Steps

1. On the **Task Definition Details** page, click the **Execution** tab.
2. Click **Add Tool Requirement** ⊞.
3. On the **Add Tool Requirement** page, enter the applicable search criteria.
4. Click **Search**.
5. Select applicable tools from the search results, and enter how long each tool is needed in **Scheduled Hours**.
6. Click **Assign Selected Tools to Task Definition**.

Add task steps

You can add task steps required to complete tasks to job card definitions, and to executable requirement definitions. You can also change the order of the steps.

Steps

1. On the **Task Definition Details** page, click the **Execution** tab.
2. In the **Steps** area, click **Add Step** ⊞.
3. On the **Add Step** page, enter a brief description of the task step or use the list in the **Predefined Step Descriptions** area to add predefined quick text.

Tip You can edit the predefined text (if required).

4. Click **OK**.

Select work condition settings

Work conditions are used to indicate the state an aircraft must be in before work can be performed. For example, an airplane must have its power turned off before work can be performed on its electrical systems.

About this task

List the aircraft technical conditions required to complete the job card.

Steps

1. On the **Job Card Details** page, click the **Execution** tab:
2. Click **Edit Conditions** .
3. On the **Edit Work Conditions** page, select the setting for each condition that applies to the task.
4. Click **OK**.

Note In Production Planning and Control (PP&C) you can set filter criteria options to display tasks that can only be performed when an aircraft is in a specific work condition.

Activate job card definitions

You activate a job card definition when it is complete, associated with the correct requirement definition, and ready for use.

About this task

Use the following steps to activate one job card.

Note To activate multiple job card definitions at the same time, do a Task Definition Search, select one or more definitions and click Activate Task Definition.

Steps

1. On the **Job Card Details** page of the appropriate job card definition, click **Activate Job Card**.
2. On the **Activate Job Card** page, provide the information requested, and click **OK.**
3. If prompted, enter your password and click **OK**.

Fleet Task Labor Summary tab

The Fleet Task Labor Summary tab enables you to search for tasks for which the time required to complete the work for a specific labor skill was outside a certain deviation percentage of the scheduled hours. The search results can help you adjust the scheduled hours for a certain skill in a task definition.

The Search Criteria group box on this page has the following fields:

- Assembly: The assembly for which the actual tasks are defined.
- Skill: The skill for which the task labor summary is requested (optional).
- Deviation %(+/-): The deviation beyond which tasks are returned in the search results. For example, if this value is 20, CAMO Module returns tasks that deviated 20% (+/-) outside the scheduled hours for the skill.

The table that displays the search results has the following columns:

- Task Definition: The task definition from which the actual tasks were initialized.
- Revision: The revision of the task definition.
- Assembly: The assembly for which the actual tasks are defined.
- Skill: The skill associated with this row of the task labor summary.
- Sched. Hours: The scheduled hours in the task definition for the labor row for this skill.
- AVG Hours (6 Months): The six-month running average of the actual hours that the actual tasks required for this skill.
- Difference: The difference between the average actual hours and the scheduled hours, as the percentage of the scheduled hours.

The following example shows how CAMO Module calculates the average hours and the difference between the actual hours and the scheduled hours.

Recurring requirement, R1, has one job card, JIC1. JIC1 has one labor skill, LS1. The scheduled hours for LS1 is two hours, and it requires two people. The actual data for two consecutive runs of R1 is as follows:

Run	Actual Hours for LS1	
	Person 1	Person 2
1	2:20 (2.33 decimal)	2:45 (2.75 decimal)
2	2:10 (2.17 decimal)	2:25 (2.42 decimal)

Average actual hours = ((2.33 + 2.75) / 2 + (2.17 + 2.42) / 2) / 2= 2.42 hours

Difference = ((2.42 - 2.00) / 2.00)*100) = 20.8335%

Requirement definitions

Requirements are the standard task definitions used to model maintenance activities. Requirements contain scheduling information, except for requirements created for replacement activities and troubleshooting, which do not require scheduling because they are used only when needed rather than at specific intervals.

You can put the execution steps, part, tool, and labor requirements into one or more job card definitions you associate with the requirement. Alternatively, you can create requirement definitions that include all necessary execution information and that do not have job cards; these are called *executable requirements*.

When you create a requirement, you select a class. In addition to the following, standard requirement definition classes provided in CAMO Module, your organization can create custom classes.

While a requirement is in build status, you can change its class if the requirement has the REQ class or a custom class. You can change the class to a custom class or to REQ class. This is useful if you are duplicating and revising definitions, or for correcting errors made during the build phase.

Requirement definition classes

Class	Description
Replacement (REPL)	Used for the removal of a component, and the installation of another component to replace it, for example, during an overhaul. Replacement tasks change the inventory condition of the removed part, and can change the aircraft configuration information.
Part Transformation (MOD)	A non-recurring requirement that involves the modification of a target part group. The part number changes as a result of the modification.
Overhaul (OVHL)	A complex series of maintenance tasks that are completed off wing. This is a routine and recurring requirement that resets the Time Since Overhaul (TSO) value of the component on completion.
Corrective Action (CORR)	Represents a troubleshooting task associated with a specific fault. The CORR requirement groups all the possible corrective actions to try when attempting to resolve the fault.

Class	Description
Discard (DISCARD)	A routine, non-recurring requirement that causes a certificate of destruction to be issued for the target component, which has become unserviceable because it has reached a certain age. CAMO Module sets the inventory condition to SCRAP, and does not allow any more work to be performed on the discarded inventory.
Repair reference (REPREF)	Represents a repair that can be done by a technician. Repair references are used to model one-time repairs such as EA (Engineering Authorizations) as well as re-usable repairs such as those found in the SRM (Structural Repair Manual) or re-usable EAs.
Follow-on (FOLLOW)	Describes work (such as an inspection) that must be performed after a fault is deferred or repaired. Added as Following Tasks on repair or deferral references and initialized when faults are deferred or repairs are completed.
Requirement (REQ)	Any type of maintenance requirement that does not fall into the other requirements classes—one that is not a replacement, part transformation, overhaul, corrective action, or discard. This class can be used to group routine and recurring tasks, or unplanned on-condition tasks, such as those required after a lightning strike.

Replacement requirements

You use replacement requirement definitions to model the replacement of a tracked component that is installed on an aircraft or another assembly.

Replacement requirements can be executable requirements, which contain all the instructions, and part requirements for the work, or they can contain job card definitions that contain the detailed instructions.

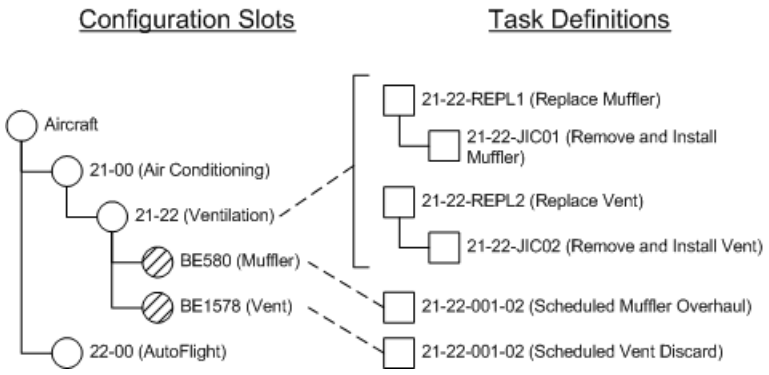
Regardless of the reason for the replacement—a component reaches its life limit and must be discarded, or is in need of an overhaul—the instructions and resources required to remove and install a component are the same each time it is replaced. The replacement requirement definition for a component can be re-used in any situation that requires the component to be removed. A single replacement requirement definition per component is more convenient than embedding the replacement instructions in every task definition that applies to the component.

When component tasks are initialized that require that the components be removed from an assembly, CAMO Module automatically creates the necessary replacement tasks, using the replacement requirement definitions. You can also create replacement tasks manually. Replacement requirements do not include scheduling information. The deadline of the component task, which drives the need for the replacement task, is copied to the replacement task, and you cannot change it.

You create a replacement requirement definition for the configuration slot of the component to be replaced. When a replacement task is initialized, CAMO Module associates the task with the parent configuration slot of the component, because that is where the replacement is done. Also, this allows the job card subtasks to remain on the parent component or assembly after the component is removed. This is important to ensure that if a component was removed, another component is installed in its place. The component task that drives the replacement, such as overhaul and discard tasks, are created on the component's configuration slot. Replacement requirement definitions are listed in the Config Slot Details page for both the configuration slot where the replacement work is required, and the configuration slot where the component is located.

In the event that an off-wing task for a component is canceled and that task has a link to the replacement task, then the replacement task is canceled, but only if work was not started on any of the replacement task's job cards. If any job cards are in COMPLETE, IN WORK, or PAUSE status, the replacement task is not canceled. This ensures that you can't remove a component on a replacement task without installing another one in its place at some time.

The following diagram depicts that CAMO Module associates the replacement requirements and their job card subtasks to the parent configuration slot (21-22), and the component task definitions to tracked sub-configuration slots (BE580 and BE1578).



Replacement Tasks in the Configuration Hierarchy

Best practice is to create a replacement requirement definition for every tracked and sub-assembly configuration slot. However, if a task is initialized that requires the replacement of a component for which there is no replacement definition, CAMO Module creates an ad hoc replacement task that contains the component as a part requirement, but that is otherwise empty; it does not include labor requirements, tool requirements or instructions.

For configuration slots that have multiple positions, CAMO Module uses the single replacement requirement definition assigned to the configuration slot, but creates a replacement task for each position. The details shown for the replacement tasks, the job card subtasks, and the part requirements, display the configuration slot position, appended to the configuration slot name.

Job card definition subtasks

Using job card definitions to specify the instructions, parts, and labor resources that are needed to replace a component provides production planning personnel with improved visibility of the resources required. For replacements that are done only in line maintenance, and for which the removal and the installation are done within a short period of time, you can use a single job card. For the following however, consider splitting the removal and installation of a component into separate job card definitions:

- Complex replacement tasks such as the removal of an engine.
- Tasks in heavy maintenance visits for which the component removal occurs near the beginning of the visit, and the installation near the end.

With separate job cards, the resource needed for each task are more visible and can be managed more efficiently. When all the resources needed are specified on a single job card, knowing which resources are needed for the removal and which ones are needed for the installation is not as obvious as with multiple job card definitions. You can use the job card classes RMVL and INST for the removal job card and the installation job card, respectively. If more job cards are needed in the replacement requirement definition—for example, for a functional check to do after the installation—use any other suitable job card class.

If the instructions for performing the replacement work are different between variants of the same aircraft or assembly, you create different job card definitions as subtasks of the same replacement requirement, and specify the applicability ranges or applicability rules in the job card definitions. When a replacement task is initialized, only the job cards that apply to the aircraft or assembly are created in the replacement task.

Create replacement requirements

You can create replacement requirement definitions for tracked or sub-assembly components that need to be replaced several times during their lifetimes for overhaul or repair.

About this task

You can create replacement requirement only for tracked or sub-assembly configuration slots.

You can have only one active replacement requirement definition per configuration slot.

Steps

1. On your to-do list, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot**.

- In the **Identification** area, select the assembly and the configuration slot.

3. In the **Classification** area, provide the required information. Note the following:
   - **Class**: Select REPL.
   - **Workscope**: Select *This requirement requires a job card for execution*.
4. Do not specify an applicability range or applicability rule in the Applicability area. Because you can only have one replacement requirement per configuration slot, the replacement requirement must apply to all parts for the configuration slot.

   Tip You can use applicability ranges and rules in job card definitions you include in the replacement requirement, for example, when the instructions for replacing the component vary from one part number to another within the part group.

5. In the **Planning Details** area, provide the required information. Note the following:
   - **On Condition**: Select this option so that replacement tasks are created only when they are needed due to initialization task on the component. If you do not select On Condition, baseline synchronization creates replacement tasks unnecessarily, which display in the open tasks lists of your assets.
   - **Review on Receipt**: Select this check box if this on-condition requirement should be reviewed to assess whether or not it should be executed when a new component or aircraft is inducted.
   - **Enforce Workscope Order**: Select this check box if the job cards included in this requirement must be performed in the sequence in which they are listed in the requirement definition.
6. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

What's next

The requirement definition is in build status. To create tasks based on this requirement, you must activate the task definition and job card definitions it includes. However, if you need to add more information to the requirement by attaching documents, or by adding labor requirements and instructions to the job cards, do so before activating the requirements.

Add job card definitions to replacement requirements

About this task

You can add job card definitions in build or revision status to replacement requirement definitions. You cannot add not active job cards.

You must select job card definitions that are defined on the parent configuration slot of the component to replace.

Steps

1. On the **Requirement Details** page of the replacement requirement, click the **Job Cards** tab.
2. Click **Add Job Card to Requirement**.
3. On the **Add Job Card to Requirement** page, enter the complete job card definition code in the **Job Card** field, and click Select Job Card .
4. On the **Job Cards** tab, select the job card definition, and click **Add Job Card to Requirement**.

Part transformation requirements

A part transformation (MOD) requirement has the MOD task class. It is a type of nonrecurring requirement used to model the work required to modify a part. A new part number is created as a result of the modification.

When you create a modification requirement definition, you specify the original part number, and the new part number resulting from the transformation, in the Part Transformation group box of the requirement details.

If the new part number requires different task scheduling intervals than the original part number, you must update the task scheduling rules with the new intervals.

A modification requirement does not apply to any inventory that already has the target part number of the modification.

Create part transformation (MOD) requirement definitions

Part transformation (MOD) requirement definitions are non-routine, non-recurring requirement definition used to model the work required to modify a part.

Prerequisite

- The new part number that will be assigned to the part after the modification is complete must already exist in CAMO Module, and when applicable, it must be assigned to the same configuration slot as the modification requirement definition.

About this task

If the new part number requires different task scheduling intervals than the original part number, you must update the scheduling rules with the new intervals. A modification requirement does not apply to any inventory that already has the target part number of the modification.

Steps

1. On your to-do list, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot** if the part transformation applies to a specific configuration slot. Select **Part Number** if the part transformation applies to all inventory of a specific part number.

- If you selected **Config Slot**, select the **Assembly** and click Select Config Slot to find the appropriate configuration slot.
- If you selected **Part Number**, click Select Part to find the appropriate part number.
- **Organization**: Select the organization whose users are allowed to modify the requirement.

3. In the **Classification** area, provide the required information. Note the following:
   - **Class**: Select MOD (Part Transformation).
   - **Workscope**: If execution information will be provided in job cards, select *This requirement requires a job card for execution*. If you plan to include all execution information in the requirement, select *This requirement will contain execution information and will not have job cards*.
4. In the **Scheduling Details** area, provide the required information. Note the following:
   - **Recurring**: Leave this check box blank.
   - **Schedule From**: Select whether CAMO Module is to schedule the requirement starting from the manufactured date of the inventory, the received date of the inventory, or from an effective date. If you select effective date, specify the Effective From Date.
   - **Due Date**: If you selected an effective date for the requirement, you can optionally set a specific due date.
   - **Use Manufactured Date If Later**: This check box is visible only for task definitions that are scheduled from the effective date. Select it if you want CAMO Module to schedule the tasks based on the manufactured date for inventory that is manufactured after the specified effective date.
   - **Min Usage for Release**: For part number requirements and those based on a tracked configuration slot, type the percentage value that the usage must exceed before the inventory item, when loose, can be released from maintenance without seeing a warning.
   - **Schedule To Latest Deadline**: If the requirement has multiple deadlines, you can select this to have CAMO Module schedule the requirement at the latest of the deadlines.
   - **Min Forecast Range**: Type the number of days into the future CAMO Module should forecast tasks based on this requirement. CAMO Module initializes tasks that are due within their forecast range.
   - **Soft Deadline**: Select this if the deadline of the tasks based on this requirement can be exceeded without making the tasks overdue in CAMO Module.
   - **Create/Cancel on Install**: Specify whether CAMO Module should create a task based on this requirement, or cancel an existing task, when the applicable inventory is installed on an aircraft, or installed on a component other than an aircraft, for example, an engine.
   - **Must Be Removed**: This option is only visible for requirements defined on a tracked or sub-assembly configuration slot. You select whether the component must be removed for the part transformation work to be completed.
     - If the component does not need to be removed, select N/A.
     - If the component must be removed from its parent component, select Off-Parent.

    - If the component must be removed from its highest assembly, select Off-Wing.
  - **Next Shop Visit**: This option is visible only when you select both Soft Deadline and either Off Parent or Off Wing. Select Next Shop Visit if the task is one that should not prevent the component from going back into service if the task is not completed by its due date. CAMO Module does not automatically create component work packages or create replacement tasks for tasks that have this option selected.
  - **Allow Manual Scheduling**: Select this check box to allow authorized users to edit the scheduling interval manually on tasks based on this requirement definition, therefore change the tasks due date.
5. In the **Applicability** area, provide the information requested if you want to restrict the inventory to which this requirement applies:
  - **Applicability Range**: Type the applicability range—the range or collection of applicability codes that, when assigned to inventory items of an inventory class of aircraft or assembly, make this requirement applicable to the inventory.
  - **Applicability Rule**: Type the applicability rule. The applicability rule is used for more complex filters.
6. In the **Planning Details** area, provide the required information. Note the following:
  - **On Condition**: Select this option if you do not want CAMO Module to create tasks based on this requirement, but want the tasks to be created by users only when they are needed.
  - **Review on Receipt**: This option is visible when you select On Condition. Select this check box if this on-condition requirement should reviewed—to assess whether it should be executed or not—when a new component or aircraft is inducted.
  - **Enforce Workscope Order**: Select this check box to specify that the job cards included in this requirement must be performed in the sequence in which they are listed in the requirement definition.
7. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

The requirement definition is in Build status. To create tasks based on this requirement, you must activate the task definition and job card definitions it includes. However, if you need to add more information to the requirement or to the job cards—labor requirements, instructions, part and tool requirements, and so on—do so before activating them.

What's next

The next step is to add part transformation information.

Add part transformation information

The part transformation information consists of the part number of the target inventory before the transformation work, and the new part number to assign to the inventory after the transformation work. Note that this is applicable to MOD requirement task definitions only.

Steps

1. On the **Requirement Details** page, click the **Details** tab.
2. Click Add Part Transformation ⊞ .
3. On the **Add Part Transformation** page, provide the following information:
   - **Transform From Old Part No.**: Select the part number of the inventory before the transformation work.
   - **Transform Into New Part No.**: Select the part number to assign to the inventory after the transformation work.
4. Click **OK**.

What's next

Then you add a scheduling rule to a non-recurring requirement or block.

Add scheduling rules to modification requirements

You can add scheduling rules to a part transformation (MOD) requirement definition to establish how tasks are scheduled for maintenance activities.

Steps

1. On the details page for the requirement or block, click the **Scheduling** tab.
2. Click Add Scheduling Rule ⊞ .
3. On the **Add Scheduling Rule** page, provide the following information:
   - **Usage Parm**: The calendar or usage parameter used to set the scheduling interval.
   - **Threshold**: The interval used to determine the task deadline, in units of the calendar or usage parameter.
   - **Notification**: The amount of usage or time ahead of the deadline when CAMO Module changes the task's schedule priority from LOW to HIGH.
   - **Deviation (Qty)**: The amount of usage or time by which the task can exceed its calculated deadline before becoming overdue (for most requirements, this is 0).
   - **Sched to Plan Low**: For long tasks, which planners might want to stagger to avoid exceeding the available capacity, type the amount of usage or time prior to the due date when it is acceptable to finish the task.
   - **Sched to Plan High**: For long tasks, which planners might want to stagger to avoid exceeding the available capacity, type the amount of usage or time after the due date when it is acceptable to finish the task.

4. Click **OK**.

What's next

Now you can associate job card definitions that are in Build or Revision status to the requirement definition.

Associate job card definitions to modification requirements

You must select job card definitions that are defined for the same configuration slot aircraft system or part number as the requirement.

Steps

1. On the **Requirement Details** page, click the **Job Cards** tab.
2. Click **Add Job Card to Requirement**.
3. On the **Add Job Card to Requirement** page, enter the complete job card definition code in the **Job Card** field, and click Select Job Card .
4. On the **Job Cards** tab, select the job card, and click **Add Job Card to Requirement**

Create troubleshooting requirement definitions

You create troubleshooting requirement definitions to associate them with fault definitions. You can provide corrective actions as instructions or attachments in the troubleshooting requirement itself, or create job card definitions for each corrective action, and assign the job cards to the troubleshooting requirement.

Prerequisite

- The troubleshooting requirement definition is defined on the same assembly and configuration slot as the fault definition with which it will be associated.

Steps

1. On your to-do list, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot**.
   - In the **Identification** area, select the assembly and configuration slot for which the troubleshooting task applies.
3. In the **Classification** area, provide the required information. Note the following:
   - **Class**: Select **CORR (Corrective Action)**.
4. If you want to restrict the inventory to which this requirement applies, provide the information requested in the **Applicability** area. For more help, note the following:
   - **Applicability Range**: Type the applicability range—the range or collection of applicability codes that, when assigned to inventory items of an inventory class of aircraft or assembly, make this requirement applicable to the inventory.

- **Applicability Rule**: Type the applicability rule. The applicability rule is used for more complex filters.

5. In the **Planning Details** area, provide the required information. Note the following:
   - **Review on Receipt**: Select this check box if this troubleshooting task should reviewed —to assess whether it should be executed or not—when a new component or aircraft is inducted.
6. In the **Instructions** area, type the troubleshooting instructions for technicians.

> **Tip** If you plan on assigning job card definitions to this troubleshooting requirement, to provide more detailed possible corrective actions, you might want to restrict the instructions here to a minimum.

7. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

What's next

You then need to activate this requirement.

Assign corrective actions to troubleshooting requirement definitions

The possible corrective actions are job card task definitions that have the status of Build or Revision, and that you assign to troubleshooting requirements.

Steps

1. On the **Requirement Details** page of the troubleshooting requirement, click the **Job Cards** tab.
2. Click **Add Job Card to Requirement**.
3. On the **Add Job Card to Requirement** page, enter the job card code in the **Job Card** field, and click Select Job Card .
4. On the **Job Cards** tab, select the check box next to the job card, and click **Add Job Card to Requirement**.
5. Repeat steps 2 to 4 as needed.

Activate requirement definitions

You activate a requirement definition when it is complete and ready for use.

About this task

Use the following steps to activate one requirement at a time.

> **Note** To activate multiple requirement definitions at the same time, do a Task Definition Search, select one or more definitions and click Activate Task Definition.

Steps

1. On the **Requirement Details** page, click **Activate Requirement**.
2. On the **Activate Requirement** page, provide the information requested, and click **OK**.
3. If prompted, enter your password, and click **OK**.

   You activate a job card definition when it is complete, associated with the requirement definition, and ready for use.
4. On the **Job Card Details** page of the required job card definition, click **Activate Job Card**.
5. On the **Activate Job Card** page, provide the information requested, and click **OK**.
6. If prompted, enter your password and click **OK**.

> **Note**
>
> If requirements include executable tasks, then after you activate requirement definitions, it can take up to an hour before actual tasks are created.

Create recurring requirements

About this task

You create a recurring requirement for maintenance work that must be repeated periodically, such as an inspection or an overhaul. CAMO Module uses its forecasting capabilities to estimate when subsequent occurrences of the requirement will be due for each applicable inventory item. When the active requirement task on an inventory is completed, CAMO Module makes a new active task for the same inventory, based on the recurring requirement task definition.

Steps

1. On your to-do list, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:

- In the **Requirement Type** area, select **Config Slot** if the requirement applies to a specific configuration slot. Select **Part Number** if the requirement applies to all inventory of a specific part number.
- If you selected **Config Slot**, select the **Assembly** and click Select Config Slot to find the appropriate configuration slot.
- If you selected **Part Number**, click Select Part to find the appropriate part number.
- **Organization**: Select the organization whose users are allowed to modify the requirement.

3. In the **Classification** area, provide the required information. Note the following:
   - **Class**: Select the applicable class from one of the following classes: **MOD (Part Transformation)**, **OVHL (Overhaul)**, or **REQ (Requirement)**.
   - **Maintenance Program**: If you want to assign the requirement to an existing maintenance program for the assembly, select the maintenance program.
   - **Workscope**: If execution information will be provided in job cards, select *This requirement requires a job card for execution*. If you will include all execution information in the requirement, select *This requirement will contain execution information and will not have job cards*.
4. In the **Scheduling Details** area, provide the following information:
   - **Recurring**: Select this option.
   - **Reschedule From**: Select date from which to schedule occurrences of tasks based on this requirement:
     - The date when the previous occurrence of the task is completed on the same inventory item (EXECUTE).
     - The start date of the work package in which the previous occurrence of the task is packaged (WPSTART).
     - The completion date of the work package in which the previous occurrence of the task is packaged (WPEND).
   - If you select effective date, specify the **Effective From Date**.
   - If you select effective date, and you want CAMO Module to schedule the tasks based on the manufactured date for inventory that is manufactured after the specified effective date, select **Use Manufactured Date If Later**.
   - If you assigned this requirement to an existing maintenance program, you can choose to schedule starting from the **Maintenance Program Activation Date**.
5. In the **Applicability** area, provide the information requested if you want to restrict the inventory to which this requirement applies. For more help, note the following:
   - **Applicability Range**: Enter the applicability range—the range or collection of applicability codes that, when assigned to inventory items of an inventory class of aircraft or assembly, make this requirement applicable to the inventory.
   - **Applicability Rule**: Enter the applicability rule. The applicability rule is used for more complex filters.

6. In the **Planning Details** area, provide the required information. Note the following:
   - **On Condition**: Select this option if you do not want CAMO Module to create tasks based on this requirement, but want the tasks to be created by users only when they are needed.
   - **Review on Receipt**: This option is visible when you select On Condition. Select this check box if this on-condition requirement should reviewed—to assess whether it should be executed or not—when a new component or aircraft is inducted.
   - **Enforce Workscope Order**: Select this check box to specify that the job cards included in this requirement must be performed in the sequence in which they are listed in the requirement definition.
7. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

   Now you need to add a scheduling rule to a recurring requirement or block. You can specify two different scheduling intervals for recurring requirements and blocks: one for the first occurrence of the task, and one for subsequent occurrences.
8. On the details page for the requirement or block page, click the **Scheduling** tab.
9. Click Add Scheduling Rule .
10. On the **Add Scheduling Rule** page, provide the following information:
    - **Usage Parm**: Select the calendar parameter to use to set the scheduling interval.
    - **Initial Interval**: The interval to use to determine the deadline of the first occurrence of the task, in units of the calendar parameter.
    - **Repeat Interval**: The interval to use to determine the deadline of the subsequent occurrences of the task, in units of the calendar parameter.
    - **Notification**: The amount of time ahead of the deadline when CAMO Module changes the task's schedule priority from LOW to HIGH.
    - **Deviation (Qty)**: The amount of time by which the task can exceed its calculated deadline before becoming overdue (for most requirements, this is 0).
    - **Sched to Plan Low**: For long tasks, which planners might want to stagger to avoid exceeding the available capacity, type the amount of time prior the due date when it is acceptable to finish the task.
    - **Sched to Plan High**: For long tasks, which planners might want to stagger to avoid exceeding the available capacity, type the amount of time after the due date when it is acceptable to finish the task.
11. Click **OK**.

    You activate a requirement definition when it is complete and ready for use.
12. On the **Requirement Details** page, click **Activate Requirement**.
13. On the **Activate Requirement** page, provide the information requested, and click **OK**.
14. If prompted, enter your password, and click **OK**.

Add aircraft weight and balance impact to requirements

Prerequisite

- The requirement definition is in the Build or Revision status. You cannot specify weight and balance impact on active requirement definitions.
- The requirement definition is not locked.

About this task

In a requirement definition, you can specify the impact that the work has on the weight and balance of the aircraft. When a requirement definition applies to several models of an aircraft assembly, you can specify a different weight and balance impact for each model, if required. This information helps your organization keep track of the total weight and center of gravity of each aircraft on which the requirement is performed.

CAMO Module provides the report called the Weight and Balance Impact report that lists all the requirements completed on a given day that have an impact on the aircraft weight and balance, and that shows the value of these impacts. The report can be sent by email automatically to a controller who communicates this information to the flight crew. Information on how to configure the report server to send the report by email is provided in the *Maintenix Administration Guide*. You can also generate the report manually at any time.

Steps

1. On the details page of the requirement definition, click the **Details** tab.
2. In the **Weight and Balance** area, click ⊞.
3. On the **Add Weight and Balance** page, provide the following information and click **OK**:
   - **Minor Model**: Select the model of the assembly to which the impact you are defining applies.

     When adding weight and balance impact for the first time on the requirement definition, you must add one to the Default model of the assembly to which the definition relates. If you have already defined the Default weight and balance impact, you can select another model of the assembly from the list.

     The list only displays the models that relate to the assembly and that do not have a weight and balance impact already defined in the requirement definition.
   - **Weight**: Enter the impact of the requirement on the weight of the aircraft. The default unit is pounds; your CAMO Module administrator can change this unit if needed.
   - **Moment**: Enter the impact of the requirement on the balance (in moment) of the aircraft. The default unit used for moment is inch-pounds; your CAMO Module administrator can change this unit if needed.

> **Tip** You can edit the values assigned to a weight and balance impact by selecting the impact and clicking . To delete a weight and balance impact, select it and click . You cannot delete the Default weight and balance impact, but you can edit its values.

Generate the Weight & Balance Impact report manually

You can generate the Weight & Balance Impact report whenever you need to. When you do, you select a single day for which you want to see all requirement tasks that were completed that have an impact on the aircraft's weight and balance.

Prerequisite

- You have the URL required to access JasperReports server.

Steps

1. In a browser window, go to the URL of the JasperReports server, and enter your user name and password.
   The JasperReports server's main page opens.
2. Find the Weight & Balance Report by doing one of the following:
   - In the search box in the top right section of the page, type the following and press Enter:

     `WeightBalanceImpact`
   - Click **View > Repository** then, in the **Folders** pane on the left, go to the following:

     root > Organizations > Maintenix > Reports > Core > taskdefinition > WeightBalanceImpact
3. In the **Repository** pane, click the name **WeightBalanceImpact**.
4. In the **Input Controls** dialog box, enter a **Report Date** and click **OK**. By default, yesterday's date is already selected.

   > **Note** When generated, the report lists all requirement tasks that were completed on the selected date, from 00:00:00 hrs to 23:59:59 hrs.

   The **Weight & Balance Impact** report opens on the page.
5. Optionally, you can export the report in a variety of formats, including Excel. To do so, click the **Export** button on the toolbar and select the format.

Reference document definitions

Reference document definitions are used to track compliance to airworthiness directives (AD), service bulletins (SB), maintenance planning documents (MPD) from the manufacturer, and more.

Reference document definitions cannot be initialized as active tasks. You cannot assign reference documents to blocks, and you cannot assign job cards to reference documents. However, you can link reference documents to requirements.

You can also use reference document definitions to represent administrative documents you receive, and for which no maintenance work is needed. In this case, you do not link the reference document to any requirement.

A new reference document has the Build status until you disposition it. While the status remains Build, you can continue to modify the reference document as needed, including changing the class. You can lock reference documents to prevent any modifications while the reference document is in Build or Revision status. If you duplicate a reference document definition, you can change the class on the new definition.

Reference documents can be associated with specific warranty contracts.

Reference Documents Disposition

You disposition a reference document to specify how you handled the information or instruction included in the document. Dispositioning of a reference document changes its status to Active. Your organization configures the types of dispositions that you can select; for example, Not Applicable To Fleet, Maintenance Required, and Rejected.

If a reference document describes work that must be performed, and the work is completed on applicable inventory as part of a requirement, you can also initialize the reference document as historical for the inventory items on which the work was completed, and as non-applicable for inventory for which the maintenance work was not required. Note that initializing reference document is not required for modeling ADs, SBs and other types of directives. You can simply disposition the reference document; the links to completed requirements provide the necessary traceability.

Create aircraft maintenance program reference documents

Steps

1. On your to-do list, click **Create Reference Document**.
2. On the **Create Reference Document** page, enter the following information:
   - **Reference Document Type**: Select Config Slot.
   - **Code**: Type the AMP item number.
   - **Name**: Type the AMP item title.
   - **Assembly**: Select the aircraft assembly.
   - **Config Slot**: Select the appropriate ATA system.
   - **Class**: Select AMP.
   - **Subclass**: Select the appropriate subclass.

- **Received By**: The default is your user name. If the AMP item was received by someone else, type their user name.
- **Received Date**: Type the date the you received the AMP item.
- **Issued By**: If the AMP item is issued by an OEM, select MANUFACT. If the AMP item is issued by the operator, select OPER.
  - **Manufacturer**: Type the manufacturer.
  - **Operator**: Select the operator.

3. Click **OK**.

If the AMP reference document is applicable to the fleet, then requirements must be created to comply with the reference document.

What's next

See *Disposition a reference document*

Disposition a reference document

About this task

You disposition a reference document to specify how you handled the information or instruction included in the document. Dispositioning a reference document changes its status to ACTIVE. Once active, the document cannot be edited.

Steps

1. On the **Reference Document Details** page, click **Disposition Reference Document**.
2. On the **Disposition Reference Document** page, provide the requested information and click **OK**.
3. Click **OK**.
4. If prompted, enter your password and click **OK**.

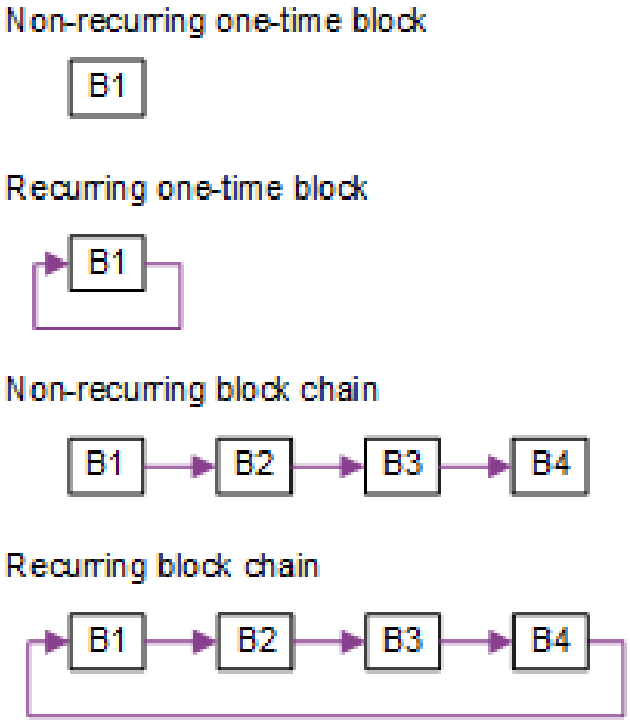
If work needs to be done on the assembly to comply with the SB, create engineering order (EO) requirement definitions and link them to the compliance reference document.

Block definitions

Requirement definitions that should be completed together can be grouped in block definitions. Using blocks facilitates the scheduling of the large number of maintenance requirements that aircraft and other assemblies often have.

You can create blocks for daily requirements such as overnight checks, or for heavy maintenance visits that can have hundreds of requirements. Block definitions are always associated with a configuration slot, not a part number. Blocks are generally created the root level of the assembly.

You can group requirements in a single block or group and sequence them in a block chain. Single blocks are called one-time blocks because all the requirements are to be completed at the same time. Both one-time blocks and block chains can be set to recur or to occur once.



Recurring and non-recurring block and block chain definitions

In a block chain, the same requirement can be added to multiple blocks. You can use block chains to divide maintenance visits into phases, or to equalize the workload by spreading requirements that have varying intervals across the blocks in a chain.

The workflow for creating blocks is as follows:

1. Create the block definition. Optionally add technical references, attachments, and (complies, opportunistic, replaces, or supersedes) links to task definitions.
2. Add scheduling rules and applicability to the block definition as you do for other task definitions.
3. Assign requirements to the block or blocks.
4. Approve, activate, initialize the definition as you do for other definitions.

Blocks can be modified, and locked to prevent modification.

If you move one block that is part of a block chain to a different configuration slot, delete the block, or make it obsolete, all the other blocks in the chain are also moved, deleted or made obsolete. Also, when you active a block chain you activate all blocks that are included in the chain.

Assigning requirements to block definitions

After you create a block definition, you assign requirement definitions to the block. The block definition must have the Build or Revision status for you to add requirements to it.

The same requirement can be assigned to multiple blocks. This is recommended only when the blocks are not applicable to the same aircraft. CAMO Module ensures that only one active instance of requirement can exist against an inventory record. If you assign the requirement to more than one block that is applicable to the same aircraft, CAMO Module assigns the initialized requirement to only one of the blocks.

The requirement definitions you can assign to block definitions must meet the following criteria:

- Be based on configuration slots, not part numbers.
- Have one of the following status values: Build, Revision or Active.
- Have the same On-Condition setting as the block definition to which you are trying to assign them.
- For recurring block chains and recurring one-time blocks, the requirements are recurring.
- For non-recurring one-time blocks, the requirements are non-recurring.
- For non-recurring block chains, the requirements can be recurring or non-recurring.

The way to set up blocks is recommended by the manufacturer. However, airlines may adjust the groupings.

In one-time blocks, both recurring and non-recurring, you usually assign requirements that are completed at the same time; for example, the requirements that define all the tasks required for a specific type of check. In recurring one-time blocks, the requirements that you assign also have the same repeat interval.

Grouping requirements in a block chain

In block chains, you can assign requirements to specific blocks within the chain, and you can make them recurring by repeating them at an interval of blocks within the chain.

For example, in a chain containing 10 blocks, you can set that a requirement should be repeated at intervals of two blocks, starting from the first block in the chain; CAMO Module automatically adds the requirement to blocks 1, 3, 5, 7, and 9 in the chain.

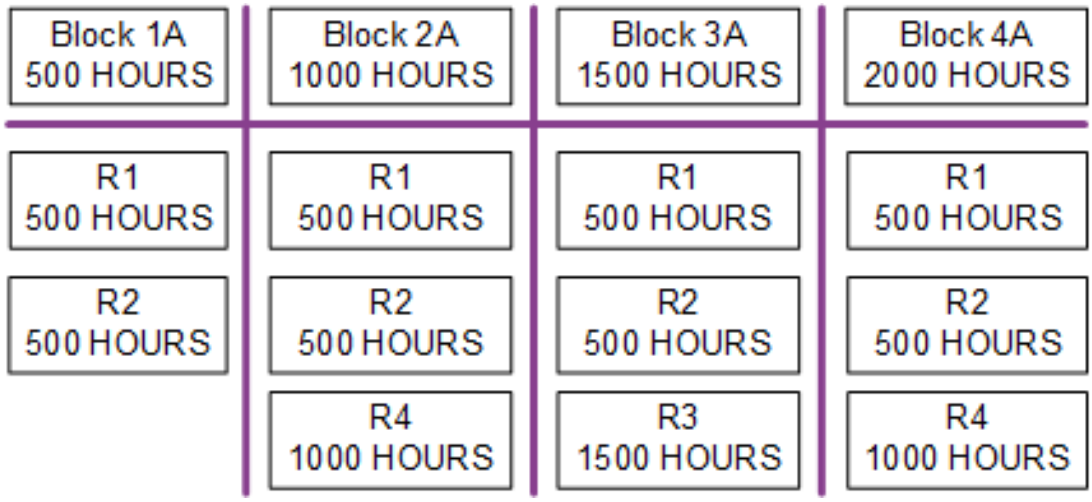
Block chains are recurring or non-recurring. When you add a requirement to a recurring block chain, you must choose the first block in the chain for the first instance of the requirement, and you can only select intervals that correspond to a number by which you can divide the total number of blocks in the chain. For example, for a chain of 10 blocks, you can only select the interval from the following values: 1, 2, 5, and 10.

When you add a requirement to a non-recurring chain, you can place the first instance of the requirement in any block in the chain, and select any interval—the largest being the total number of blocks in the chain.

Grouping requirements that share a deadline

Both blocks and requirements have deadlines. A block is often constructed based on a deadline that is common to several requirements. For example, consider that multiple recurring requirements all have a deadline of 500 flying hours, as R1 and R2 in the following illustration. You can create a block chain, in which each block contains the tasks with a deadline of 500 flying hours.

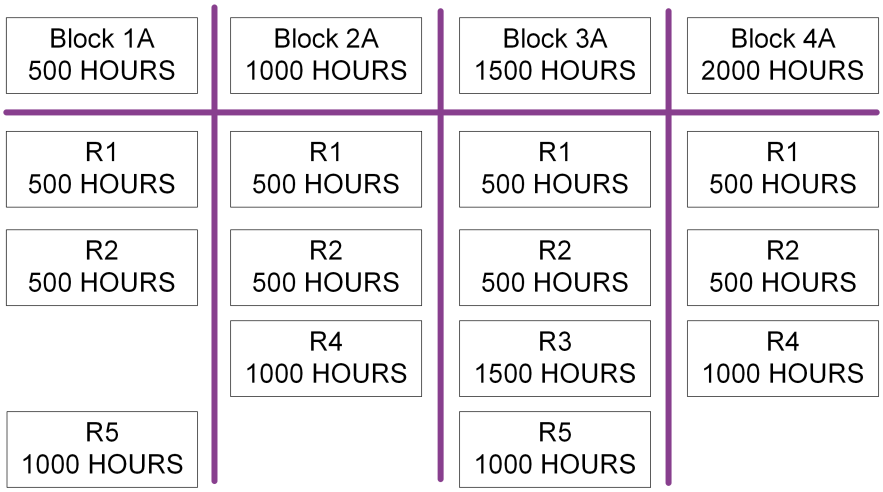
If there are two more requirements, with deadlines of 1500 flying hours (R3) and 1000 flying hours (R4) respectively, these requirements fit into to this block segmentation as well.



Packaging requirements into blocks in a block chain definition

Equalized packaging

Scheduling work packages of similar size is a common practice. For example, rather than scheduling all requirements with a deadline of 1000 flying hours into the 1000 flying hours and 2000 flying hours blocks, it makes sense to take the 1000 flying hours deadline requirements (R4 and R5) and spread them between the blocks. They still have 1000 flying hours between each task, but are staggered between the work packages.



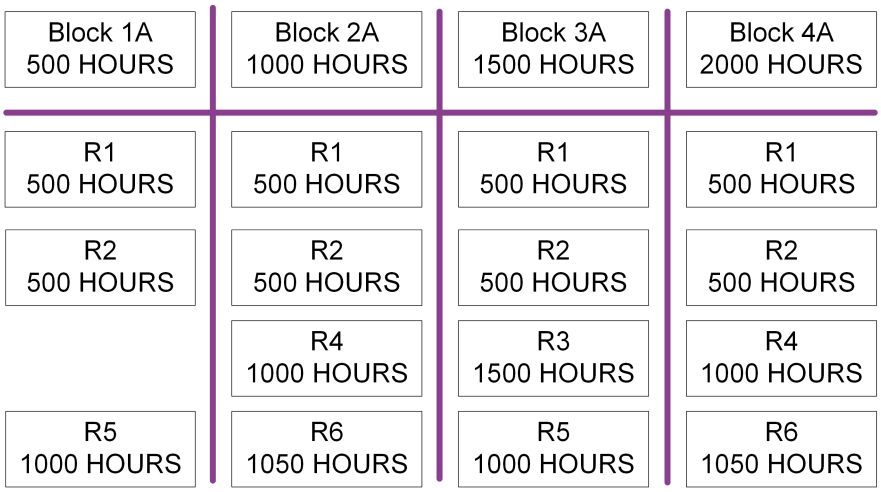
Equalize packaging between blocks

Packaging slightly out-of-phase requirements into block definitions

Sometimes an organization wants to compromise a higher yield for convenient packaging of tasks. For example, organizations can include out-of-phase task definitions in a block, even though they do not match the schedule of the block, as shown in

If the out-of-phase task has a larger deadline interval, you sacrifice the yield on that task; however, if you choose to package a requirement that has a smaller deadline interval than the block into which you are putting the requirement, then you sacrifice the yield on every task in that block. The deadline for a block is determined by the smallest deadline interval in the block—called the driving task. You can also leave outof- phase requirements out of a block if their deadline is not close enough to the block deadlines. These requirements are packaged into a work package at the time they are due.

The baseline synchronization process in CAMO Module updates the mapping of requirements to blocks. There is a configuration parameter in CAMO Module that determines whether baseline synchronization removes constituent requirements that are due before the block—making them loose requirements—or leave such requirements in the block thus moving the entire block to an earlier time to match the driving deadline.



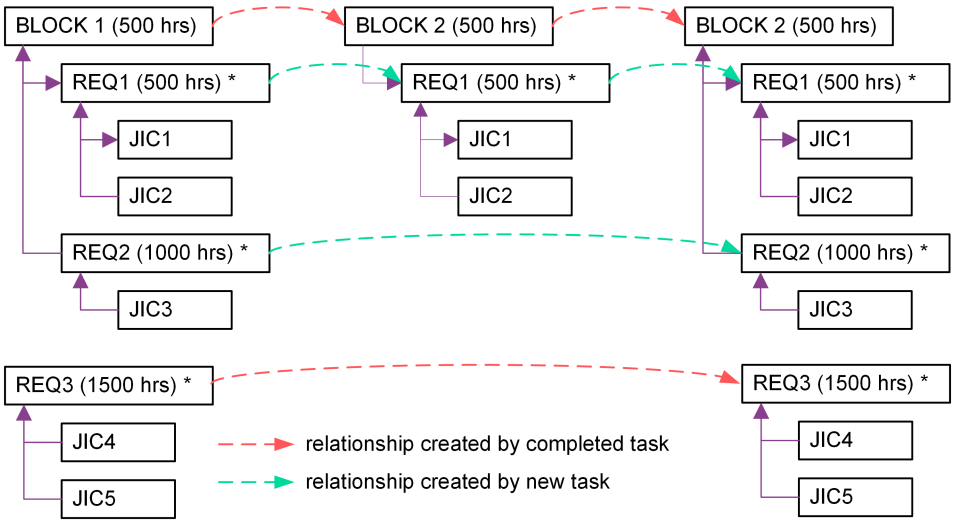
Packaging slightly out-of-phase requirements into block definitions

Recurring requirements in block chains

When a block contains a requirement with a task dependency—such as a recurring requirement —and the block itself has a dependency, CAMO Module applies logic to prevent duplicate requirements from being created for the next instance of that task.

For example:

- CAMO Module does not trigger any dependency logic when a requirement—normally part of a block— is completed, even if that requirement was unassigned from the block and executed in a different work package. Therefore, if this is a recurring requirement, CAMO Module does not create the next instance of the task.
- When a block is completed and the next block is created, all subtasks (requirements) are created as usual. All requirements that contain a task dependency cause CAMO Module to find the previous instance of the originating requirement, and create the usual link between them. Requirements that are not part of a block see their task dependency logic run at the time of completion.



Recurring blockchain definition sub-task logic

Create and edit blocks

To group requirements that must be completed in the same maintenance visit, you can create a one-time block definition and assign all the requirement definitions for that visit to the block.

About this task

The following procedure is for creating a one-time, non-recurring block.

Steps

1. Select the **Task Definition Search** menu item.
2. On the **Task Definition Search** page, click **Create Block**.
3. On the **Create Block** page, in the **Details** area, select **One-Time Block, Not Recurring**.
4. In the **Identification** area, provide the required information. Note the following:
   - **Code**: Enter a unique code for the requirement.
   - **Assembly**: Select the type of aircraft to which the block definition applies.
   - **Name**: Enter a name for the requirement.
   - **Config Slot**: Click and select the aircraft system associated with the work the block definition covers. When creating blocks for maintenance work on many systems, select the aircraft itself.
5. In the **Scheduling Details** area, provide the required information. Note the following:
   - **Scheduled From**: Select a scheduling start value to calculate the task deadline.
   - **Schedule to Latest Deadline**: Select this check box if a task has multiple deadlines, and the requirement is due after the second deadline comes due.
   - **Soft Deadline**: Select this check box if the deadlines for the requirement are considered soft.

- **Allow Manual Scheduling**: Select this check box if you want to allow authorized users to edit the scheduling interval manually on tasks that are initialized from this task definition.
- **Min Forecast Range**: Enter the minimum number of days for which you want CAMO Module to create forecasted tasks.

6. In the **Planning Details** area, you can do the following:
   - Select one or more work types that apply to the block. Hold the CTRL key as you click to select multiple work types.
   - Enter the estimated number of hours required to complete the work.
7. Provide any of the other information requested, as needed, and click **OK**.
8. On the **Block Details** page, click the **Requirements** tab.
9. Click **Add Requirement to Block**.
10. On the **Add Requirement to Block** page, enter the requirement definition code and click to add the requirement definition to the Requirements tab. Repeat to add another requirement to the tab.

> **Note** FOLLOW class requirement definitions cannot be assigned to blocks.

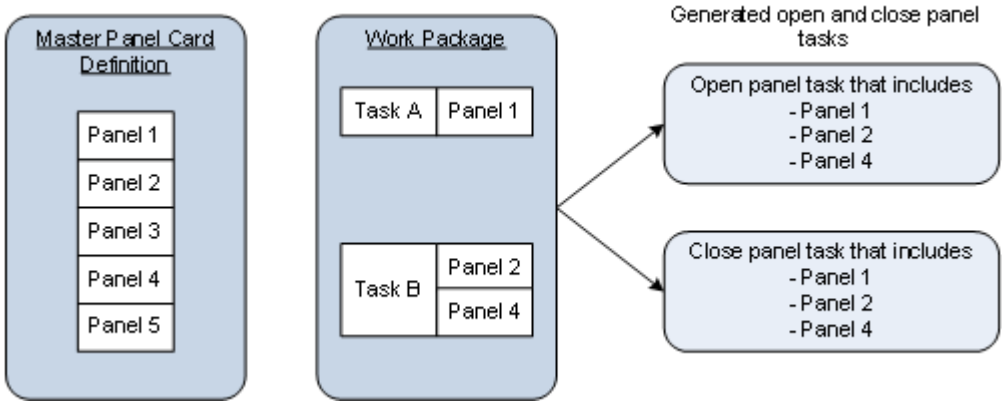
11. To assign requirement definitions to the block, select each requirement definition, and click **Add Requirement to Block**.
12. On the **Block Details** page, click **Activate Block**.
13. On the **Activate Block** page, enter **Description** and **Notes** if needed
14. Click **OK**.
15. If prompted, enter your password, and click **OK**.

Master panel card definitions

A master panel card (MPC) is a task definition that lists the possible aircraft panels that can be opened and closed during a maintenance event. Using MPCs enables you to accurately plan the maintenance visit by taking into consideration the time and resources required to open and close the panels required to complete the maintenance work, and it helps personnel to ensure that all affected panels are closed before the aircraft is released.

An MPC task definition lists several aircraft panels; to facilitate planning, it is advisable to create one MPC task definition for each zone, or sub-zone, of the aircraft, and include all panels in the zone, or sub-zone, in it. When a work package is committed, or when the workscope is generated, CAMO Module scans each task in the work package and builds a list of all panels that must be opened and closed for that work package. CAMO Module then looks up the MPC task definition(s) that apply to the aircraft of work package; for each applicable MPC task definition found, CAMO Module creates one task for opening the affected panels and one task for closing the affected

panels. While an MPC task definition lists all possible panels in a zone or sub-zone, only the actual panels that are affected by the other tasks in the work package are included in the open panel and close panel tasks CAMO Module creates for that MPC.



Master panel card definitions

Like other task definitions, you must activate MPC task definitions before they can generate open panel and close panel tasks in your work packages, but MPC task definitions and open/close panel tasks differ from other CAMO Module tasks in that they:

- Do not have sub-tasks.
- Do not have dependencies.
- Do not have any scheduling rules.
- Cannot be assigned to block or requirement task definitions.
- Are never initialized manually. CAMO Module automatically creates the necessary open panel and close panel tasks when a work package is committed, or when the workscope is generated, as long as the panels that must be accessed during the execution of the work package are assigned to an active master panel card definition.
- Can be revised, but no baseline synchronization occurs for them upon activation of a revision.
- Are created for assemblies, but not for part numbers.

Each MPC task definition is defined against an assembly. You can also assign a work type to a master panel card definition. CAMO Module initializes open and close panel tasks for work packages with a matching assembly and work type. The work types in the MPC task definitions must have exactly the same work type(s) as the work package. When no work type is specified in the MPC task definition, the definition applies to all work packages on the selected assembly.

Note

If you work with Production Planning & Control (PP&C) to create and manage production plans, the open and close panel tasks will be added to the phases that have their task class (MPCOPEN and MPCCLOSE), and to work areas that have the aircraft zone to which the panels belong. In production templates, you can configure the phases and work areas that will hold the open and close panel tasks when they are generated as part of a work package, but you do not load their task definitions into the template.

To ensure that the automatic assignment feature of PP&C can put the open and close panel tasks in the correct work areas, each MPC task definition should correspond to only one work area in PP&C; if an MPC task definition covers panels in that are in two different work areas in PP&C, auto-assignment won't be able to assign the associated open and close panel tasks correctly. For satisfactory results, if you put all panels of an aircraft zone into an MPC task definition, create a work area for that entire zone in your production plan; if you set up an MPC to cover the panels in a sub-zone, you can create a work area for the entire zone, or create work areas for each sub-zone.

Open/Close panel job card definitions

After you have created your master panel card task definition, you create open job card definitions and close job card definitions for all aircraft panels. In the open panel or close panel job cards, you can assign specific instructions, part requirements, labor requirements, tool requirements, and measurements that will be included in the initialized open and close panel tasks. When CAMO Module creates the open panel and close panel tasks in the workscope, it includes the information from the open and close job card definitions to the tasks.

You can create individual open and close job card definitions for each panel, or use the same job card definition for several panels. The open and close job card definitions are not linked directly to the MPC task definition, the association between MPC task definition and job card definitions is derived from the fact that they are all assigned to the same panel on the same aircraft.

When CAMO Module instantiates the open and close panel tasks in the workscope, the following information from the open and close job card definitions is added to the tasks:

- Task description.
- Task instructions.
- Technical references.
- Attachments.
- Labor requirements.
- Part requirements.
- Tool requirements.

- Measurements.
- List of zones and panels.

When there are multiple open or close panel job card definitions associated with the MPC task, duplicate entries are removed. For example, if your open panel task is linked to two open job card definitions, each with the same part request, the task contains a single request for the part, and not a request for two identical parts.

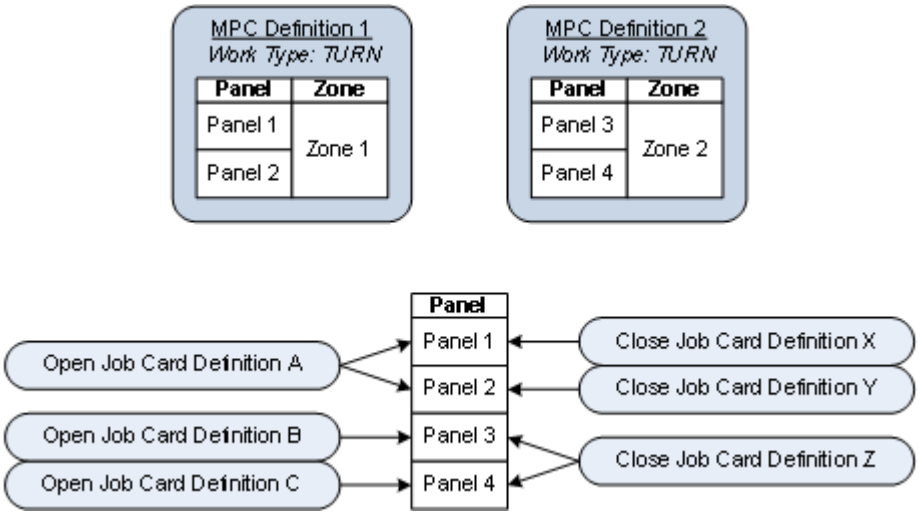
Note In a zone with multiple panels, you can close a panel that does not have active job card tasks in the same work package, even if other panels have active tasks. However, you cannot close a panel that has active job card tasks in the same work package.

Master panel card examples

The following diagram displays a sample baseline set up for master panel cards.

- Two master panel card definitions are created: MPC Definition 1 and MPC Definition 2.
- Panel 1 and Panel 2 are assigned to MPC Definition 1.
- Panel 3 and Panel 4 are assigned to MPC Definition 2.
- Open and close job card definitions are then created and assigned to each of the four panels; some panels share the same open or close job card definitions, while other panels have their own job card.

The following diagram assumes that all master panel card definitions and job card definitions are against the same assembly, with the same work type.



Sample baseline set up for Master Panel Cards

The following examples use the sample baseline set up information from the previous diagram to demonstrate how CAMO Module instantiates actual MPC tasks within a work package workscope.

Example One:

This example demonstrates a simple case where one panel is involved in a work package.

If you have a task in a work package that involves access to Panel 1, generating the workscope of that work package automatically creates two new tasks from the MPC Definition 1:

1. An open panel task that contains the information from Open Job Card Definition A.
2. A close panel task that contains the information from Close Job Card Definition X.

Example Two:

This example demonstrates how CAMO Module combines the information from multiple job card definitions into a single instantiated MPC task.

If you have tasks in a work package that involve access to Panel 1 and Panel 2, generating the workscope of that work package automatically creates two new tasks from the MPC Definition 1:

1. An open panel task that contains the information from Open Job Card Definition A.
2. A close panel task that contains the information from both Close Job Card Definition X and Close Job Card Definition Y.

Because Panel 1 and Panel 2 share the same open job card definition, the open panel task contains only the information from Open Job Card Definition A . Because both Panel 1 and Panel 2 have separate close job card definitions, the close panel task contains the information from both Close Job Card Definition X, and Close Job Card Definition Y.

Example Three:

This example demonstrates how CAMO Module creates separate open and close panel tasks for each MPC task definition whose panels are involved in a work package. Information from multiple job card definitions is still combined within an open or close task when the associated panels use separate open or close job card definitions.

If you have tasks in a work package that involve access to Panel 2, Panel 3 and Panel 4, generating the workscope on that work package automatically creates four new MPC tasks. Because Panel 2 is assigned to MPC Definition 1, the following tasks are created from MPC Definition 1:

1. An open panel task that contains the information from Open Job Card Definition A.
2. A close panel task that contains the information from Close Job Card Definition Y.

Because Panel 3 and Panel 4 are assigned to MPC Definition 2, the following tasks are created from MPC Definition 2:

1. An open panel task that contains the information from both Open Job Card Definition B and Open Job Card Definition C.
2. A close panel task that contains the information from Close Job Card Definition Z.

Create master panel card definitions

Steps

1. On your to-do list, click **Create Master Panel Card**.
2. On the **Create Master Panel Card** page, provide the required information. Note the following:
   - **Assembly**: Select the aircraft type.
   - **Organization**: Select the organization whose users are allowed to modify the master panel card.
   - **Class**: Select **MPC** (Master Panel Card).
   - **Work Types**: To use the MPC definition for all work packages created for the type of aircraft selected, do not select a work type. To use this MPC definition only for specific types of work packages, select the work type that will be assigned to the work packages from the list.
3. Click **OK**.

Revise master panel cards

About this task

If the master panel card definition already exists, these steps are executed to put it into a revision (editable) status. You can then perform any of the instructions provided below; they apply to both creating a new master panel card, and revising an existing one.

Steps

1. On your to-do list, click **MPC Search**.
2. On the **MPC Search** page, provide the following information:
   - Select **Search By Assembly**.
   - **Assembly**: Enter the assembly of the master panel card to be revised.
3. Click **Search**.
4. In the search results list, click the master panel card link.
5. On the **Master Panel Details** page, click **Create Revision**.
6. On the **Create Revision** page, type the name of the contact person for the revision, the reason for the revision, and any note you see fit.
7. Click **OK**.

Add zones to master panel card definitions

About this task

There are three procedures for adding/removing zones and panels from MPCs (this one and the next two) and there is a fourth in the "Common Task Definition Procedures" section of this file; the ones here are for MPCs only; the software behaves a bit differently when adding zones to MPCs than when adding them to other types of task definitions; when you add a zone to an MPC, CAMO Module automatically adds all panels defined in that zone to the MPC, it does not do that for other types of task definitions.

Steps

1. On the **Master Panel Card Details** page, click the **Zones/Panels** tab.
2. Click **Add Zone** ⊞.
3. On the **Add Zone** page, select the applicable zone(s) and click **OK**. Any panel that belongs to one of the zone(s) you added appears under **Panels**. You can add more panels if you want, or remove individual panels from the MPC definition.

Add panels to master panel card definitions

Steps

1. On the **Master Panel Card Details** page, click the **Zones/Panels** tab.
2. Click Add Panel ⊞.
3. On the **Select Panel** page, enter the applicable search criteria and click **Search**.
4. In the search results list, select the applicable panels.
5. Click **OK**.

Add technical references to master panel card definitions

About this task

You can add one or more technical references to link the master panel card to information that resides in an external document management system. When you have several technical references, you can change their order on the master panel card.

Steps

1. On the **Master Panel Card Details** page, **Details** tab, click **Add Technical Reference** ⊞. The IETM Search page opens with the buttons related to Technical References.
2. On the **IETM Search** page, enter your search criteria and click **Search**.
3. On the **Search Results** tab, select the required references.
4. Click **Assign Technical Reference**.

Add an attachment to a master panel card definition

About this task

Context for the current task

Steps

1. On the **Master Panel Card Details** page, **Details** tab, click **Add Attachment** ⊞. The IETM Search page opens with the buttons related to Attachments.

   Note The size of the attachment must be smaller than the configured file size. The default size of the file that can be attached is 10MB. Contact your administrator if you do not know what your configured file size is.

2. On the **IETM Search** page, enter your search criteria and click **Search**.
3. On the **Search Results** tab, select the required attachments.
4. Click **Assign Attachment**.

Activate master panel card definitions

You must activate master panel card task definitions before they can be used to generate open and close panel tasks in work packages.

About this task

Use the following steps to activate one requirement at a time.

Note To activate multiple requirement definitions at the same time, do a Task Definition Search, select one or more definitions and click Activate Task Definition.

Steps

1. On the **Master Panel Card Details** page, click **Activate Master Panel Card**.
2. On the **Activate Task Definition** page, provide the information requested, and click **OK**.
3. Click the down arrow next to the CAMO Module logo, and then click **Administrator Search** > **Part Group Search**.

Note

After you activate master panel card definitions, it can take up to an hour before actual tasks are created.

View differences between master panel card revisions

About this task

All differences between the two revisions are highlighted in yellow. Hover over the highlighted sections to reveal more details about the change. To turn the show differences feature off, click Hide Differences.

Steps

1. On the **Master Panel Card Details** page, click **Show Differences**.
2. On the **Show Differences** page, from the **Compare To Revision** drop-down list, select the revision that you want to compare to the current revision.
3. Click **OK**.

Task definition revisions

When changes are required on requirement, job card, block, or master panel card task definitions that are in use to create actual tasks for aircraft undergoing maintenance, you create a revision of the affected task definitions. When you create a revision of a task definition, its status changes to Revision. Any actual tasks created are based on the active revision of the task definition, not on the one that is in revision. When you revise a task definition, you can change a lot of information, such as part requirements, labor requirements, task applicability, scheduling information, work type, instructions, and more. However, you cannot the change the following information:

- The assembly, configuration slot and, when applicable, the Replace configuration slot.
- The task class assigned to the definition.
- Previous task links: To change this, you must revise the definition of the previous task.
- Linked from tasks: To change this, you must revise the definition of the linked task.
- The warranty summary: This is associated with the warranty contract, and cannot be changed in a task definition.
- Whether a requirement definition is an executable requirement or not.
- The blocks to which requirement definitions are assigned.

When revising non-executable requirement definitions, the following restrictions apply:

- You cannot remove the associated job card definitions while these job card definitions are active (they must also be in revision).
- The information shown on the Execution tab is for reference and information purposes only, and it is not included in actual tasks created from the requirement definition; you must revise the job card definitions to change the execution information.

Revise and activate task definitions

About this task

Follow these steps to change an existing task definition that is in use.

Steps

1. Select the menu item to search for the task definition. Depending on your role, you might have one or more of the following menu items: **Task Definition Search**, **Requirement Search**, or **Job Card Search**.
2. On the **Search** page, select the search criteria, and click **Search**.
3. Click the task definition you want to revise.
4. On the details page of the task definition, click **Create Revision**.
5. On the **Create Revision** page, provide the **Revision Contact**, **Revision Reason** and **Revision Notes**, and click **OK**.

   Entering a revision reason and note may be optional at your organization. When you create or activate job card revisions, the revision reason and notes that you enter appear on the **Job Card Details** page > **Revision** tab, and on the **Work Package Details** > **Job Cards with Newer Revision** page. This information can help users review the revision history and make decisions about updating job cards to the latest revision.
6. Make the necessary changes to the task definition.
7. On the details page of the task definition, click the button called **Activate <task definition type>**, where <task definition type> is one of the following: Block, Requirement, Job Card, or Master Panel Card.
8. On the Activate page, provide the **Activate Description** and **Activate Reference**.
9. (Optional) If you are activating a revised definition, you can edit the **Revision Reason** and **Revision Notes** fields at this point to ensure information is accurate. Click **OK**.
10. If prompted, enter your password and click **OK**.

Compare two revisions of a task definition

About this task

CAMO Module can highlight the differences between two revisions of the same task definition. You start by displaying the revision of the task you want to compare, and then you select the revision to which you want to compare it.

Steps

1. Select the **Task Definition Search** menu item.
2. On the Task Definition Search page, enter the search criteria to find the task definition, for example, select the assembly or task definition class, or enter the task definition code.

3. Click **Search**.
4. In the Task Definitions Found list, click the link to the task definition.

   The details page of the task definition opens. By default, when you search for task definitions, CAMO Module displays the most recent revision. In the **Identification** area, you see the revision number and status of the task definition.

   Note If you want to display a different revision of the task definition, click the **Revision** tab and click the revision to display in the Revision History area.

5. On the details page of the task definition, click **Show Differences**.
6. On the Show Differences page, select the revision to which you want to compare the current revision, and click **OK**.

   The differences between the two revisions are highlighted in yellow.
7. When you have finished reviewing the differences, click **Hide Differences**.

Initialization

Initialization turns active task definitions into actual tasks for inventory to which the task definitions apply.

Only the active revision of a task definition can be initialized, unless the task definition is assigned to a maintenance program. Users can only initialize tasks definitions for organizations to which they belong.

Some task definitions are initialized manually by users, and some are initialized automatically by CAMO Module when certain conditions are met—for example, when a dependency exists between two tasks and the prerequisite task is complete. When the baseline synchronization process runs in CAMO Module, it automatically initializes task definitions that meet a certain criteria—for example, if a change made to a task definition caused the task definition to become applicable to an inventory item it did not apply to earlier.

Task dependencies create chains of task definitions which baseline synchronization initializes according to the dependency relationships. For example, following task definitions aren't initialized until prerequisite tasks are complete. If you have a task definition chain in which two different prerequisite task definitions have CRT dependencies to the same following task (all are on the same configuration slot), both of the prerequisites can be initialized at the same time.

When block definitions are initialized, CAMO Module assigns the requirements to the most appropriate block. When requirement definitions that are included in blocks are initialized, CAMO Module assigns the requirements to the most appropriate block, and initializes the job cards included in the requirement automatically. Users cannot initialize job cards manually. Initialization of requirements marked as Prevent Manual Initialization is skipped when they are contained in a block that is initialized.

If your CAMO Module system includes inventory for several operator organizations, and you initialize a requirement that is included in a maintenance program in CAMO Module, you can only create actual tasks for inventory that belongs to operators that have this specific revision of the requirement in their active maintenance programs.

For reference documents, if you want to initialize them in addition to activating them, you initialize them either as historical tasks—which indicate that your organization has already complied with the maintenance needs stated in the reference document by using requirements that were linked to the reference document—or you state that the reference document is not applicable to your fleet. Initializing reference documents is not necessary in the solution IFS proposes for managing Service Bulletins (SB) Airworthiness Directives (AD), and Engineering Orders (EO).

Initializing task definitions manually

Most task definitions are initialized during baseline synchronization, but you can initialize a task definition by using the Initialize button on the task definition's details page.

Buttons available on this view are as follows:

- **Create Tasks**: Manually create active (ACTV) actual task for the selected inventory/inventories (multiple inventory selection allowed) to which the task definition applies. Clicking this button redirects back to the **Initialize Requirement** page.
- **Create Tasks and Set Deadlines**: Manually create active (ACTV) actual task for the selected inventory to which the task definition applies. Clicking this button redirects to the **Scheduling** tab of the newly created actual task.
- **Create Historical Task**: Manually create historical (COMPLETE) actual task for the selected inventory to which the task definition applies. Clicking this button redirects to the **Scheduling** tab of the newly created actual task.
- **Initialize as Not Applicable**: Manually create actual task in non-applicable (N/A) status for the selected inventory/inventories (multiple inventory selection allowed) to which the task definition applies. Clicking this button redirects back to the **Initialize Requirement** page.

Maintenix does not allow users to manually initialize **Master Panel Card** tasks. Further, **Reference Documents** can only be initialized via the **Initialize as Not Applicable** as this process differs from how other task types are initialized. This can be done on the **Initialize Reference Documents** page.

The task definition's initialization page lists all applicable inventory items for which you can create actual tasks. Besides including details like root inventory, assembly, and position, the page displays the following details on the tasks in the task definition:

- **Next Due/Last Completed Revision**: Displays the revision of the task definition containing the active task that is due to be completed next or the last completed task (if there are no more active tasks).

- **Next Due/Last Completed Status**: Displays the status of the task that is due to be completed next or the last completed task (if there are no more active tasks).
- **Active Instances**: Displays the number of active instances of a task. This number will be greater than one only if the tasks are based on follow-on requirements.

Note The columns described above will remain blank for inventory items against which no tasks have been initialized.

Preventing manual initialization of requirements

CAMO Module lets you prevent or allow manual initialization of a requirement's active tasks.

Sometimes you may want to prevent an on-condition requirement from being initialized anymore. This is commonly done after a new revision of the requirement has been written. It is similar to making a requirement obsolete, however by preventing initialization, CAMO Module will not cancel any currently running instances of the requirement.

You can prevent manual initialization of a requirement's active tasks by using the Prevent Manual Initialization button on the Requirement Details page. This functionality only applies to requirements that are on-condition.

Requirements marked as Prevent Manual Initialization cannot be manually created. They cannot be:

- created from a definition,
- created as a sub-task,
- initialized as part of a block,
- or initialized from a requirement.

Once a requirement has been marked as Prevent Manual Initialization, a different button called Allow Manual Initialization replaces the Prevent Manual Initialization button and the following message is displayed at the top of the Requirement Details page:

`MANUAL INITIALIZATION OF ACTIVE TASKS FOR THIS REQUIREMENT IS PREVENTED`

If you mark the requirement as Allow Manual Initialization, the message disappears. The requirement appears in the various task creation workflows and the Prevent Manual Initialization button is displayed.

In addition, every time you prevent or allow manual initialization of active tasks of the requirement, a History note is added to the Revision tab of the Requirement Details page.

Note When requirements marked as Prevent Manual Initialization are a part of a block, they are not initialized when the block is initialized.

On-condition task definitions

To handle tasks that are necessary only under certain conditions, you can create a task definition and select the on-condition attribute. On-condition definitions are initialized manually, or if they have a task dependency and the dependency is fulfilled, they are initialized automatically.

Here's an example of an on-condition definition that's automatically initialized because of a task dependency with another definition: after a repair is completed, an on-condition, FOLLOW class requirement definition for an inspection is automatically initialized. The pre-requisite requirement definition for the repair has a Create New dependency to the following on-condition requirement definition.

The on-condition option can be selected for these types of task definitions: non-recurring blocks, requirements, and reference documents.

The on-condition option is useful for the following type of tasks:

- Work that is optional or opportunistic; if there is time to perform additional work during a maintenance visit, the task definition can be initialized for the inventory undergoing maintenance.
- Work that becomes necessary only when specific events occur; for example, an inspection task that is necessary following a hard landing.
- Work that can or must be performed when a new inventory item is added to your CAMO Module system. In an on-condition task definition, you select the Review on Receipt check box to indicate that the task definition should be reviewed whenever new inventory—to which the task definition relates —is added to your CAMO Module system. Users can see the list of all review on receipt on-condition task definitions, assess whether any of them should be initialized for the new inventory item, and initialize those that are deemed necessary, on the Edit Inventory page, Step 4 - Edit task list for inventory.

Note A task definition that has the on-condition enabled is never initialized by baseline synchronization.The on-condition option should never be selected on task definitions that describe maintenance that must be performed on a mandatory schedule and for which you track your organization's compliance.

If you cancel an active, one-time, non-recurring block task that was created from an on-condition block definition, the block's sub-tasks are also canceled.

Initialize an on-condition task

To address opportunistic, conditional, or new inventory-specific work, you can select an option to create a task based on a task definition, allowing you to initialize an on-condition task.

Steps

1. Go to the **Fleet List** tab.

2. On the **Fleet List** tab, select an aircraft, and then click **Create Task**.
3. On the **Select Component** page, select the radio button for the component for which the new task should be created.
4. On the **Task Selection** page, select the **Create Task Based On Task Definition** radio button.
5. In the **Blocks and Requirements** area, select the radio button beside the on-condition block or requirement to create.

> **Tip** To display only on-condition task definitions select the **Show Only On Condition Tasks** check box.

6. Click **OK**.
7. On the **Create Task** page, type the Effective From date or click to select the date; if applicable, set the usage parameters in cycles and hours.
8. Click **OK**.
9. If prompted, enter your password and click **OK**.

Task applicability

By default, each task definition applies to all of the possible inventory items that can fill the configuration slot specified in the task definition, or that match the part number of a task definition that is based on a part number. In reality however, not all task definitions apply to all possible inventory and not all steps in a job card apply to the same inventory. CAMO Module lets you specify the inventory to which task definitions and steps within task definitions apply.

There are two ways to assign task applicability in CAMO Module: the applicability range and the applicability rule.

Applicability range

The applicability range is specified in the task definition, and it consists of one or more applicability codes separated by commas; you use a hyphen to include several sequential codes in the applicability range. You can assign an applicability code to any piece of inventory with an inventory class of aircraft or assembly. The task definition only applies to inventory that has an applicability code that is within the applicability range of the task definition.

For task definitions defined on a system or tracked configuration slot that have an applicability range, CAMO Module looks at the applicability code of the root inventory—the aircraft or the sub-assembly inventory.

Using an applicability range lets you set the applicability regardless of the various individual identifiers that may be used in a mixed fleet; for example, one aircraft manufacturer may define applicability using the part number, whereas another manufacturer uses the fin number. For

engines, an internal tracking number may be used. By using applicability codes, all of the applicability ranges can be specified without having to determine which field to use.

If a task definition (executable requirement or job card) includes job steps, you can also set the applicability range for each step. Different steps in one task definition can have different applicability ranges.

The following table provides some examples of applicability ranges.

Applicability range examples

Applicability Range	Result
332, A12	Includes only 332 and A12.
332, 348-350	Includes 332, 348, 349, 350. Also includes any **3-character** string that is within the range, such as 34A, 34Z. Does not include 35A.
A100-A199	Includes: A100, A101, ..., A199. Also includes any **4-character** string that is with the range, such as A10A, A18Z. Does not include A, A1, A10, A19A.
	If the applicability range is blank (not specified), it includes all inventory.
N/A	Does not include any inventory.

Note

If an inventory item does not have an applicability code—the field is left blank in the inventory record—all task definitions defined on the corresponding assembly apply to the inventory, regardless of the applicability range set in the task definitions.

Applicability rule

Another way to assign task applicability is to define an applicability rule. (You can use applicability rules with task definitions, but to specify applicability for job steps, you can only use applicability ranges.)

To define the applicability rule when you create the assembly or component in CAMO Module, you can use any of the following identifiers:

Identifiers used in applicability rules

Common Name	Identifier to be Used
Aircraft Part Number	[Aircraft Part No]
Aircraft Serial Number	[Aircraft Serial No]
Aircraft Fin Number	[Aircraft Fin No]
Aircraft Var Number	[Aircraft Var No]
Aircraft Line Number	[Aircraft Line No]
Aircraft Operator	[Aircraft Operator]
Assembly Part Number	[Assembly Part No]
Assembly Serial Number	[Assembly Serial No]
Assembly Operator	[Assembly Operator]
Assembly Owner Name	[Assembly Owner Name]
Assembly Owner Code	[Assembly Owner Code]
Component Part Number	[Component Part No]
Component Serial Number	[Component Serial No]
Component Lot Number	[Component Lot No]
Component Manufacturer	[Component Manufacturer]
Component Owner Name	[Component Owner Name]
Component Owner Code	[Component Owner Code]

A basic applicability rule can be created using the following format:

[Aircraft Part No] = 'B767-232'

This applicability rule states that this task definition applies to all inventory that has an aircraft part number of B767-232.

Note

The part number must be in quotes for CAMO Module to treat it as a character string.

More complex applicability rules can be created using the operators in the following table.

Applicability Rule Operators

Operator	Description
=	The value before the operator is equal to the value after the operator. The two operands must have the same number of characters.
and	Both the expression before and the expression after the 'and' must be met.
or	Either the expression before or the expression after the 'or' must be met.
and not	The expression after the 'and not' is excluded.
( )	The open and close bracket are used to group information together. Any operations within the brackets are performed first.
<	The value before the operator is less than the value after the operator.
<=	The value before the operator is less than or equal to the value after the operator.
>	The value before the operator is greater than the value after the operator.
>=	The value before the operator is greater than or equal to the value after the operator.
BETWEEN	This operator is used to select a range of data between two values. This operator can be used for strings, integers, and dates: BETWEEN 'string1' AND 'string2' BETWEEN integer1 AND integer2 BETWEEN date1 AND date2 The result includes the boundary values such as 'string1', 'string2', integer1, and integer2.
IN	The value before the operator matches one of the values specified after the operator (in brackets, and separated by commas).

Operator	Description
LIKE	The character string before the operator matches the character string after the operator (which contains wildcard characters "%" and/or "_"). "%" can be any number of characters. "_" can be any single character. **Note** Wildcard characters cannot be used on the Unconstrained Task Definition and Unconstrained Task search pages.
NOT	Negates the logical value of the expression that it precedes. For example: NOT('123'='123') is FALSE
TO_CHAR	The TO_CHAR operator converts a column's content to a string. The syntax is as follows: TO_CHAR(number)
TO_NUMBER	The TO_NUMBER operator converts a string to a number. The syntax is as follows: TO_NUMBER('string')
SUBSTR	The SUBSTR functions allows you to extract a substring from a string. The syntax is as follows: SUBSTR(string, start_position, [length]) This operator can be used with the TO_NUMBER operator to use a section of a string, and then convert it to a number. For example: TO_NUMBER(SUBSTR([Component Serial No],-6,6)) >= 055555 If the start_position is negative, count the number of characters starting from the end of the string. For example, SUBSTR('Maintenix',-3,3) is 'nix', the last 3 characters of 'Maintenix'.

The applicability rule validation logic in CAMO Module verifies column names and functions, but not the syntax, nor does it guarantee correct results.

CAMO Module stores the identifiers used in applicability rules as character strings. While defining your applicability rules, you must consider character string comparison conventions and rules, such as the following:

- Any constant used in the rules must be in quotes because CAMO Module treats them as character strings, not numeric values.

  [Aircraft Part No] = '100' is a valid rule

  [Aircraft Part No] = 100 is not a valid rule
- The operands on both sides of the **equality** operator, =, must have the same length. Otherwise, the comparison result is FALSE, implying that the two operands are not equal.
- The operands for the **less than** ,< , and the **greater than** ,> , operators do not have to have the same length. Characters in strings are compared one by one, starting from the left, until an inequality is found.

  '9' < '10' is FALSE, because the ASCII code for 9 (57) is greater than the ASCII code for 1 (49)

  '09' < '10' is TRUE

Examples:

1. [Aircraft Part No] = '123' **and** [Component Serial No] > '456 ' **and not** [Component Manufacturer] = 'ABC Inc.'

   This expression is TRUE when all of the following statements are true:

   - The aircraft part number is 123.
   - The lot number is greater than 456.
   - The manufacturer is not ABC Inc.
2. **(** [Component Part No] **<** '200' **and** [Component Manufacturer] **=** 'ABC Inc.' **) or (** [Component Part No] **>** '400' **and** [Component Manufacturer] **=** 'XYZ Inc.' **)**

   Applies to the following inventory:

   - Part numbers smaller than 200, manufactured by ABC Inc.

     If the component part number is '100', [Component Part No] **<** '200' is TRUE.

     If the component part number is '0100', [Component Part No] **<** '200' is FALSE, because the two operands of the character comparison are not of the same length.

     If the component part number is '300', [Component Part No] **<** '200' is FALSE.
3. Part numbers bigger than 400, manufactured by XYZ Inc.

   If the component part number is '500', [Component Part No] **>** '400' is TRUE.

   If the component part number is '0500', [Component Part No] **>** '400' is FALSE, because the two operands of the character comparison are not of the same length.

   If the component part number is '300', [Component Part No] **>** '400' is FALSE.
4. [Aircraft Fin No] **IN** ('200','210','220')

The fin number must be one of 200, 210, or 220.

This rule is equivalent to **(** [Aircraft Fin No] **=** '200' **) or (** [Aircraft Fin No] **=** '210' **) or (** [Aircraft Fin No] **=** '220' **)**

5. [Aircraft Fin No] **NOT IN** ('200','210','220')

   The fin number can be anything other than 200,210, or 220.

6. **SUBSTR** ([Assembly Owner Name], 1, 2) **BETWEEN** 'AA' **AND** 'AC'

   The assembly owner name must start with 'AA' , 'AB' , or 'AC' .

7. **TO_NUMBER** ([Component Part No]) **BETWEEN** 100 **AND** 120

   The component part number is between 100 and 120 (includes 100 and 120).

8. **SUBSTR** (**TO_CHAR** ([Component Part No]), -1, 1) **=** '0'

   The component part number ends with a zero.

9. [Component Manufacturer] **LIKE** 'A%'

   Any manufacturer name that starts with "A".

10. [Component Lot No] **LIKE** 'A_'

    Any two-character lot number that starts with "A".

Aircraft Applicability

A task definition that applies to certain aircraft, regardless of what component is on the aircraft, should have the applicability rule set to the aircraft on which the component is installed. Be aware that if this component is removed for another reason, the task is still applicable to the aircraft regardless of what inventory is installed in its place.

For aircraft applicability use Applicability, Aircraft Part Number, Aircraft Serial Number, Aircraft Fin Number, Aircraft Var Number, and Aircraft Line Number.

- *Aircraft Fin Number* is a number given by an airline to each of the aircraft in their fleet.
- *Aircraft Var Number* is a number assigned to an aircraft during manufacturing. It is often referenced in documentation sent to the airlines, such as service bulletins (SBs).
- *Aircraft Line Number* is also a number assigned (by the OEM) to an aircraft during manufacturing. It represents the sequence number of the aircraft coming out of the assembly line for that aircraft type, for example, the 1275th aircraft of a particular aircraft type. It is often referenced in documentation sent to the airlines, such as SBs.

Component Applicability

A task definition that applies to specific component inventory, regardless of what aircraft or assembly it is installed on, should have the applicability rule set for the component itself. You can specify which inventory items apply by Component Part Number, Component Serial Number, Component Lot Number, Component Manufacturer, or Component Owner.

Creating or canceling tasks on installation or removal

CAMO Module can automatically change which maintenance requirements or blocks are active for a component when that component is installed on an aircraft, installed on another component, or removed from an aircraft or other component.

Some maintenance must be completed on a component only when that component is installed on an aircraft, or installed on another component. For example, while on-wing, a component requires a recurring visual inspection.

Other work is necessary only when a component is loose. For example, while in storage, tires need to be rotated or batteries recharged.

When you create task definitions, you can select options from the Create/Cancel on Install list and from the Create/Cancel on Removal list. You have the flexibility to select one option from each list to suit your scheduling needs or you can select one option from just one list.

These create or cancel on install or removal scheduling options can be set on configuration slot and part number-based requirement definition types.

The Create/Cancel on Install list includes the following options:

Create on aircraft install

Tasks are created when the component is installed on an aircraft. Sub-components that have task definitions with the Create on Aircraft Install check box selected also have their tasks initialized when the parent component is installed.

Create on install

Tasks are created when the component is installed on a direct parent component. The parent can be off-wing or on-wing and can be an aircraft.

By default, Create on Install tasks are only created when components are installed on their direct parents. If the component has sub-components and those sub-components have task definitions with the Create on Install check box selected, tasks are not initialized on the sub-components when their parent component is installed.

But, CAMO Module can be configured to initialize Create on Install tasks for installed sub-components when their parent component is installed on an aircraft- unless ACTV tasks already exist for those sub-components. When defining Create on Install tasks, it is important to understand the behavior that your system is configured to use because there might be situations where users need to manually update scheduling.

If sub-components are created as installed when a parent component is created in CAMO Module, this does not trigger initialization of Create on Install tasks for the sub-components, and the recorded date of installation is not the actual date that the sub-components were installed on the parent. For example, cartridge sets that contain cartridges are installed on ejection seats. Each of the cartridges has its own config slot and a Create on Install discard task that needs to be scheduled from when the cartridge set is installed. If the

CREATE_CHILD_TASKS_ON_INSTALL configuration parameter is set to true, the missing tasks on installed sub-components are initialized when their parent component is installed on an aircraft.

Cancel on aircraft install

Tasks are terminated when the component is installed on an aircraft. If the component has sub-components that have task definitions with the Cancel on Aircraft Install check box selected, sub-component tasks are also terminated when the parent component is installed.

Cancel on install

Tasks are terminated when the component is installed on any component other than an aircraft. For example, it may be installed on an engine, but not put on-wing.

Note Tasks created on an install, are created when the component is installed as a result of a part requirement on another task, or when it is installed for other reasons and the inventory record of the parent component on which it is installed is updated using the Attach Inventory button.

The Create/Cancel on Removal list includes the following options:

Create on aircraft removal

Tasks are created when the component is removed from an aircraft. Sub-components that have task definitions with the Create on Aircraft Removal check box selected also have their tasks initialized when the parent component is removed.

Create on removal

Tasks are created when the component is removed from a direct parent component. The parent can be off-wing or on-wing and can be an aircraft.

Cancel on aircraft removal

Tasks are terminated when the component is removed from an aircraft. Sub-components that have task definitions with the Cancel on Aircraft Removal check box selected also have their tasks terminated when the parent component is removed.

Cancel on removal

Tasks are terminated when the component is removed from any component other than an aircraft. For example, it may be removed from an engine.

Note The Cancel functionality permanently terminates the task—the task is not re-initialized the next time baseline synchronization runs.

Modeling component maintenance

Component maintenance refers to work that requires the removal of a component or a part from a top level asset (aircraft or other assembly) or from its immediate parent component in the equipment hierarchy. This work is completed in a maintenance shop location by technicians who do not work on the aircraft. Replacement requirement definitions (REPLs) are used to remove the component from the aircraft, assembly, or parent component.

Task definitions for components are associated with any of the following:

- Configuration slots with config classes of: sub-assembly (SUBASSY) or tracked (TRK).
- Part numbers with inventory classes of: Kit, Batch, Serial-Controlled, and Tracked.

CAMO Module provides the following features to address the particular aspects of component maintenance:

- Automatic creation of work packages for components and replacement tasks.

  When a component is removed from the top-level asset, and there is a maintenance task initialized for the component that specifies the component must be removed from the asset, CAMO Module automatically creates a component work package for that task. When maintenance tasks are initialized against a component that is installed on an asset, CAMO Module creates replacement requirements on the asset, so that the component is removed from the asset.

  When a maintenance task is initialized for a component on a configuration that has multiple positions, CAMO Module creates the component work packages and the required replacement tasks for each of the positions. The name of the component work packages includes the position name.

  Users can also create the component work packages and replacement tasks manually.
- Ability to identify component tasks that should be performed at the next convenient opportunity, but that are not critical to the point of preventing the use of a component when the tasks are not completed by their due date. This feature is called Next Shop Visit.
- Enforcement of the order in which the sub-tasks of a component requirement must be performed, and the ability to route components to different specialized shop locations as needed.
- Creation of repair orders for component maintenance work to be performed by external vendors.

For repairing faults and managing ongoing maintenance related to fault repairs, you can use repair reference requirement definitions.

Component work packages and replacement tasks

When you create task definitions for component maintenance, the choice you make for the Must Be Removed scheduling attribute works together with the LRU/SRU identity of the inventory's part

group to determine how CAMO Module automatically creates component work packages and the required replacement tasks to remove components from the higher-level inventory.

You can create component tasks and replacement tasks manually, but in this situation work packages are not created automatically and the component work packages must also be created manually.

Must Be Removed is a scheduling attribute of blocks and all requirement task definitions, except for replacement requirements. It does not apply to Job Instruction Cards. Within this sub-set of task definitions, the Must Be Removed drop-down list is only available when you create or edit the following task definitions:

- Part number type task definitions with an ASSY, TRK, or SER inventory class. Do not use the Must Be Removed field for task definitions you create for kit part numbers.
- Config slot type task definitions for TRK, or SUBASSY config slot

When you schedule requirements, you can specify whether a component must be removed for work to be done on it. You can specify the following values for the Must Be Removed attribute:

- Off-wing: The component itself must be removed or detached from its highest assembly – the aircraft, or, if the component itself cannot be removed directly from the aircraft, the closest parent of the component that can be removed from the aircraft must be removed before the task is performed.
- Off-parent: The component must be removed or detached from its immediate parent in the equipment hierarchy of the assembly before the task is performed. The Off Parent option is only available for:
  - Part number type task definitions with an ASSY, TRK, or SER inventory class.
  - Config slot type task definitions with a TRK config slots.
- N/A: The component does not need to be removed. This is the default setting.

For tasks that can be completed when the component is installed, leave the Must Be Removed setting as N/A. If the setting is N/A, component work packages and replacement tasks are not automatically created. This gives you the option to complete a task while the component is still installed. If you decide to complete the work off-wing, you can use the Convert to Component Replacement button in CAMO Module to create the component work package and replacement task.

If you select off-parent or off-wing, for components that belong to LRU or SRU part groups, then CAMO Module automatically creates work packages and replacement tasks. The combination of the Must Be Removed attribute and the LRU/SRU part group label determine whether and how work packages and replacement tasks are automatically created.

When a task definition that specifies the component must be removed is initialized, CAMO Module also assigns replacement requirements to work packages, or creates work packages when none exist. Maintenance planners can assign more tasks to any work package that CAMO Module creates.

When an off-wing or off-parent task is initialized against a component, that component must be removed before you can start the task. When you install a component on an aircraft or assembly while the component has initialized off-wing or off-parent tasks against it, that component must be scheduled to be removed again, at a later date, before the tasks on the component can begin. CAMO Module automatically creates the necessary replacement tasks to remove components, and packages tasks into new or existing work packages.

The automatic creation of work packages and replacement tasks does not apply to component tasks that are identified as Next Shop Visit tasks, nor does it apply to component tasks that are:

- Created from a task definition that does not specify that the component must be removed off-wing or off parent.
- Created without the use of a task definition. These are referred to as ad hoc component tasks.

How component work packages are created automatically

The combination of the Must Be Removed attribute on task definitions, the LRU/SRU part group labels, and the position of the components in the configuration hierarchy, determine what work packages and replacement tasks are created automatically.

The way in which CAMO Module automatically creates component work packages and replacement tasks depends on whether:

- The task is off-wing or off-parent.
- The component against which the task is assigned is a line replaceable unit (LRU) or a shop replaceable unit (SRU). An LRU is a component or assembly that can be removed from its parent at the line maintenance location, whereas an SRU cannot.
- The component is located below a system or tracked configuration slot of a top-level assembly (such as an aircraft), or below a sub-assembly configuration slot in the configuration hierarchy.
- The sub-assembly configuration slot is currently attached to or detached from its parent system slot.

When an off-wing or off-parent task is initialized against an LRU component, CAMO Module:

- Finds or creates a work package on that LRU component, and then assigns the off-parent or off-wing task to that work package.
- Creates an open replacement task on that LRU's parent component to remove the LRU component.

When an off-parent task is initialized against an SRU component, CAMO Module:

- Finds or creates a work package on the next highest LRU component in the inventory hierarchy, and then assigns the off-parent task to that work package.
- Creates a replacement task on the SRU's parent, to remove the SRU component, and then assigns that replacement task to the work package on the next highest LRU component.
- Creates an open replacement task on the parent component of the next highest LRU to remove the next highest LRU component.

When an off-wing task is initialized against an SRU component, CAMO Module:

- Finds or creates a work package on the next highest LRU component in the inventory hierarchy, and then assigns the off-wing task to that work package.
- Creates an open replacement task on the parent component of the next highest LRU to remove the next highest LRU component.

To create the replacement tasks, CAMO Module uses a replacement requirement definition, if one exists. If there is no replacement requirement in the baseline, CAMO Module creates an ad hoc replacement task, and adds a part requirement to remove the inventory item.

Each time it creates a replacement task, CAMO Module copies the scheduling rules and task priority of the originating off-wing or off-parent requirement to the replacement task. The replacement task has the same deadline as the driving task of the component work package. If the driving deadline of the component work package changes, CAMO Module updates the deadline on the replacement task to match. Users cannot edit the deadline of the replacement task.

If the component is removed by a task other than the auto-generated replacement task, CAMO Module cancels the auto-generated replacement task.

Component work package deadlines work the same way as deadlines for other work packages. The driving deadline for a component work package is the deadline of the task that is due the earliest and that has a hard deadline. If the work package has only tasks with soft deadlines, there is no driving deadline for the work package. The earliest due hard deadline in the component work package is copied to the replacement task as its due date.

Note By default, CAMO Module does not allow off-wing or off-parent tasks to be assigned to aircraft work packages. (Organizations that want this behavior, can enable the ALLOW_OFF_PARENT_TASKS_IN_ACFT_WP configuration parameter).

If the Must Be Removed attribute on a task definition is revised from N/A to Off-wing or Off-parent and the revised definition is initialized, CAMO Module automatically makes required changes including creating a REPL task for the appropriate parent configuration slot and assigning the actual task to an existing or created-for-purpose component work package. If a task definition is revised in reverse fashion - the Must Be Removed attribute is revised from Off-wing or Off-parent to N/A, you must manually manage required changes to tasks and work packages.

Scenario 1: Initializing a task on an SRU component on a system

The following scenario describes the actions that CAMO Module performs when off-wing or off-parent tasks are initialized on an SRU component under a parent SRU.

When an off-wing task is initialized against SRU-2, CAMO Module does the following:

- Assigns the off-wing task to a work package on LRU-1 if one exists, or creates a work package and assigns the off-wing task to that work package.

- Creates an open replacement task on the system slot, to remove LRU-1. The due date of the off-wing task is copied to the replacement task for LRU-1.

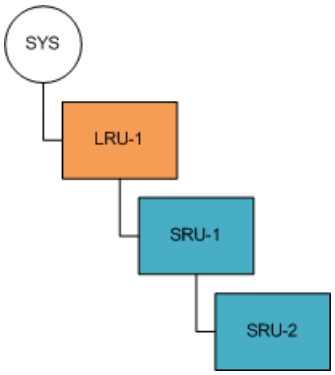
  When the replacement task on LRU-1 is due soon, a maintenance planner assigns it to an existing work package for the aircraft or other top-level assembly, or creates a new work package for the task.

When an off-parent task is initialized against SRU-2, CAMO Module does the following:

- Assigns the off-parent task to a work package on LRU-1 if one exists, or creates a work package and assigns the off-parent task to that work package.
- Creates a replacement task to remove SRU-2 from SRU-1, and assigns it to the work package on LRU-1.
- Creates an open replacement task on the system slot, to remove LRU-1 from the aircraft or other assembly. The due date of the off-parent task is copied to the replacement task for LRU-1.

  When the replacement task on LRU-1 is due soon, a maintenance planner assigns it to an existing work package for the aircraft or other top-level assembly, or creates a new work package for the task.

The following diagram shows a partial inventory hierarchy for an SRU component on a system or tracked configuration slot of a top-level assembly, such as an aircraft.

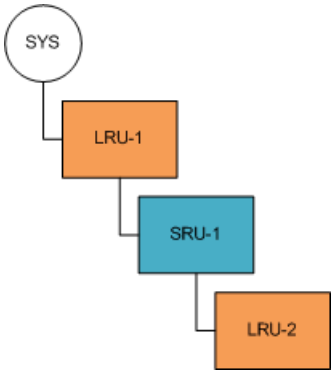


Scenario 2: Initializing a task on an LRU component on a system

The following scenario describes the actions that CAMO Module performs when off-wing or off-parent tasks are initialized on an LRU component under a system or a tracked configuration slot of a top-level assembly.

When either an off-wing or off-parent task is initialized against LRU-2, CAMO Module assigns that task to a work package on LRU-2. CAMO Module also creates an open replacement task on the SRU-1, to remove LRU-2.

The following diagram shows a partial inventory hierarchy for an LRU component on a system or tracked configuration slot of a top-level assembly.



Scenario 3: Initializing a task on an SRU component on a sub-assembly

The following scenario describes the actions that CAMO Module performs when off-wing or off-parent tasks are initialized on an SRU component under a sub-assembly.

When an off-wing task is initialized against SRU-2, CAMO Module does the following:

- Assigns the off-wing task to a work package on the sub-assembly if one exists, or creates a work package and assigns the off-wing task to that work package.
- If the sub-assembly is currently attached to an aircraft system configuration slot (not pictured), CAMO Module creates an open replacement task to remove the sub-assembly from the aircraft. The due date of the off-wing task is copied to the replacement task for the sub-assembly. If the sub-assembly is currently detached, no replacement task is created.

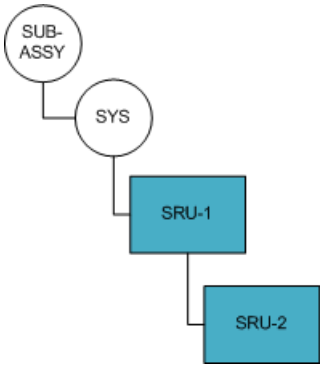
  When the replacement task on the sub-assembly is due soon, a maintenance planner assigns it to an existing work package for the aircraft if one exists, or creates a new work package for the task.

When an off-parent task is initialized against SRU-2, CAMO Module does the following:

- Assigns the off-parent task to a work package on the sub-assembly if one exists, or creates a work package and assigns the off-parent task to that work package.
- Creates a replacement task to remove SRU-2 from SRU-1, and assigns the task to the sub-assembly work package.
- If the sub-assembly is currently attached to an aircraft system configuration slot (not pictured), CAMO Module creates an open replacement task to remove the sub-assembly from the aircraft system slot. The due date of the off-parent task is copied to the replacement task for the sub-assembly. If the sub-assembly is currently detached, no replacement task for the sub-assembly is created.

  When the replacement task on the sub-assembly is due soon, a maintenance planner assigns it to an existing work package for the aircraft if one exists, or creates a new work package for the task.

The following diagram shows a partial inventory hierarchy for an SRU component on a sub-assembly configuration slot.

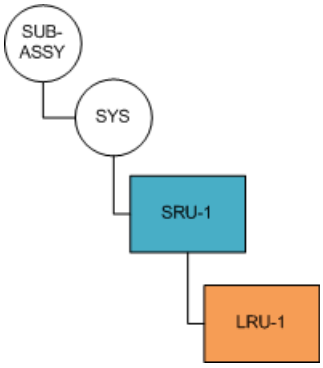


Scenario 4: Initializing a task on an LRU component on a sub-assembly

The following scenario describes the actions that CAMO Module performs when off-wing or off-parent tasks are initialized on an LRU component under a sub-assembly.

When either an off-wing or off-parent task is initialized against LRU-1, CAMO Module assigns that task to a work package on LRU-1. CAMO Module also creates an open replacement task on the SRU-1, to remove LRU-1.

The following diagram shows a partial inventory hierarchy for an LRU component on a sub-assembly configuration slot.



Component removal due to faults

A component can be removed from an aircraft prior to its scheduled removal due to a fault.

When a component is removed because of a fault raised on an aircraft in CAMO Module, a copy of the fault is automatically created on the component, a component work package is created, and the fault is assigned to that work package.

If a scheduled component task was assigned to a scheduled component work package, that task is reassigned to the component work package created because of the fault. The component replacement task that was created for the scheduled removal is canceled because the component is no longer installed on the aircraft.

Manual creation of component work packages and replacement tasks

Users can create replacement requirements manually; for example, a maintenance planner who needs to rob a component from one aircraft to install it on another, or to replace a component identified as a Shop Replaceable Unit (SRU) directly from the aircraft without removing the SRU's parent component.

When replacement tasks are created manually, CAMO Module does not create component work packages automatically. If a component work package is required to repair the removed component, it must be created manually.

Replacement requirements are created in the same manner as any other on condition tasks. Replacement requirement definitions do not have scheduling rules; therefore, the replacement tasks created manually from the definitions cannot have hard deadlines. However, you can set a Plan By Date. This date is displayed as the due date for the replacement task in the Open Tasks list for the parent aircraft. It is identified as a Plan By Date, and it does not become overdue.

Next shop visit tasks

Next Shop Visit (NSV) is an option that you can enable on block and requirement definitions created for components.

Tasks that are initialized from such task definitions are referred to as NSV tasks. NSV tasks are useful to model work that needs to be performed the next time the component is in the shop, but the task is not critical enough to pull an aircraft out of service just to get at the component. The Next Shop Visit option is a way of expressing that the component task must be done at the next convenient opportunity, for example, the next time the component is sent to a maintenance shop for some more critical work.

Because they should not affect the serviceability of an aircraft, NSV tasks always have a soft deadline. Unlike most other tasks, the deadline on an NSV task indicates the earliest date by which the task must be performed, not the drop-dead date. If you provide a deadline on an NSV tasks, the task can safely be ignored until that deadline has passed.

To avoid forcing maintenance planners to manage NSV tasks as part of their work packaging activities, CAMO Module does not create a replacement task (REPL) automatically to drive the removal of the component from the aircraft or from its parent component, and CAMO Module does not automatically create a component work package for the task.

However, whenever a work package is created on a component (either manually, or automatically because a non-NSV task exists for the component), CAMO Module automatically looks for NSV tasks to include in the work package.

Enforcing job card order in the workscope

When creating a requirement definition for component maintenance work for which the sub-tasks must be done in a specific order, you select the Enforce Workscope Order option. This ensures

that the order of the job cards in the requirement cannot be changed when the requirement is initialized and included in a committed work package.

When you create or revise the requirement definition, you can adjust the order of the job cards included in the requirement, as long as the job card definitions are in the build or revision status, not active.

The order that is enforced is that of the job cards in the requirement in relation to each other. In the component work package that includes the requirement, maintenance planners can add other executable tasks, and move them in the workscope so that they are between the job cards of the requirement, as long as the relative order of the job cards of the requirement is maintained.

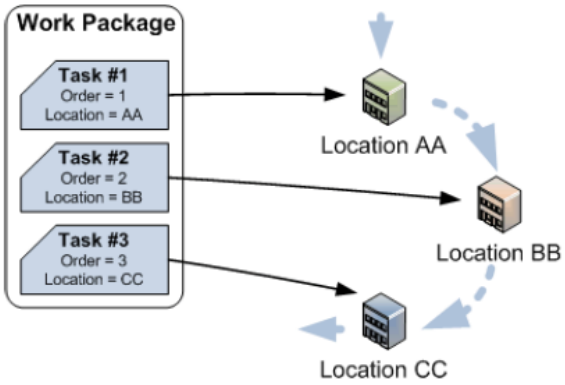
On the Work Package Details page, the order of job cards specified in the requirement definition is listed in the Baseline Order column on the Assigned Tasks tab.

Enforcing the order of the job cards in component work packages is particularly useful when each task must be done at different maintenance shops that have different specialties, because it also allows maintenance planners to assign a different location to each job card.

Workscope Ordering for Repair Routing

You can create a shop visit workscope that includes routine and estimated non-routine work, and you can use workscope ordering to ensure that the tasks in a component work package are completed in a specific order, and that each task is completed at a specific shop location.

The following diagram depicts workscope ordering. Each task in the work package is assigned an order and a location. Task #1 is set to be completed first at location AA. Task #2 is set to be completed second at location BB. Task #3 is set to be completed last at location CC. If workscope ordering is not enforced, each task could be completed in any order, and logical repair routing is not ensured.



Enforcing Workscope Order

You can enforce workscope ordering when creating a component work package, or you can use the **Toggle Enforce Workscope Order** button to enable workscope ordering after the work package is committed and the workscope is generated. You can turn enforce workscope ordering

off, but if the task ordering was violated while the workscope ordering was not enforced, you cannot turn the enforce workscope ordering back on.

When a work package is committed, tasks that are not already assigned to a location are automatically assigned to a location with the capability for the task's work type within the work package supply location. See *Automatic Assignment of Tasks to Shop Locations*.

Each time a task is started, paused, or finished, CAMO Module verifies that the task order is not violated. When tasks are batch completed or auto-completed, the workscope order is ignored.

Automatic Assignment of Tasks to Shop Locations

When a component work package scheduled to be done internally is committed, CAMO Module assigns the tasks automatically to shop locations that are within the supply location where the work package is committed, and that have the capability to perform the tasks. You can change the assigned locations manually. Only the tasks that were not already assigned to a location are assigned.

Tasks are matched to a location whose capabilities match the work type and assembly of the task. A location that has a work type associated with the "Any Part" assembly is suitable for any task that has that work type, regardless of the assembly of the task. If the task is for a part that is not associated with a specific assembly—for example a serial-controlled part that can be installed on all assemblies—the suitable shop locations are those that have the same work type as the task, and for which the work type is associated with Any Part.

When the component work package is committed, CAMO Module assigns locations to each task in the work package as follows:

- If there are several shop locations that have the work type and the assembly of the task, CAMO Module sorts the locations alphanumerically based on their location codes, and it assigns the first location in the sorted list.
- If there are several locations that have the work type of the task and Any Part, and the task is for a part that is not associated with a specific assembly, CAMO Module sorts the locations alphanumerically based on their location code, and it assigns the task to the first location in the sorted list.
- If one location matches the work type and assembly of the task, and another matches the work type but has Any Part, CAMO Module selects the location that matches both the work type and the assembly.

Tip If you have two locations—Shop A and Shop B—that can perform the same work type on any assembly, but Shop B is particularly efficient at doing that work on a tracked part that is only installed on Assembly X, you can do the following:

- Assign the capability of "Work Type + Any Part" to both locations.
- Assign the capability of "Work Type + Assembly X" to Shop B.

A task of that work type for the Assembly X part will be assigned to Shop B, despite the fact that both shop locations can do the work, because Shop B has the capability explicitly for the assembly of the task, and is therefore considered more suitable than a location with Any Part.

- If a capability is not specified in the task, then no location is assigned. You must assign the task to a location manually.

Tags

You can link blocks, requirements, and other types of task definitions together in CAMO Module by using tags.

You can create tags from the Tags tab or menu page, and on the specific Tag Details page you can search for and tag task definitions to link them together under a specific tag. Tags are identified by their name, a unique tag code, and a description.

Task definitions can be tagged for the purpose of generating tagged task definition reports. The task definition report will list all the task definitions assigned to that specific tag and it indicates the following information: the status, the revision number, the configuration slot, the task originator, and the work type.

Tags are also used in the IFS Fleet Planner integration for identifying which blocks or task definitions must be exported from Maintenix to IFS Fleet Planner.

Create a new tag

You can create a new tag for linking task definitions together.

Steps

1. Go to the **Tags** tab.
2. Click **Create Tag**.
3. On the **Create Tag** page, provide the following information:
   - **Code**: Enter the unique code for the tag.
   - **Name**: Enter the name for the tag.
   - **Description**: Enter a text description for the tag.

> **Tip** If you want to edit the tag afterwards, go to the **Tag Details** page and in the **Identification** area click the **Edit Tag** icon.

4. Click **OK**.

Tag a task definition

You can link task definitions together by applying a tag.

About this task

Steps

1. Go to the **Tags** tab.
2. Click the tag code.
3. On the **Tag Details** page, click the **Task Definition Search** button.
4. On the **Task Definition Search** page, select the search criteria, and click **Search**.
5. Select the task definition check box and click **Tag Task Definition**
6. In the **Tag Task Definition** pop-up window, select the check box for the tag and click **Tag**.

On the **Tag Details** page, the newly added task definitions definitions are displayed in the **Task Definitions** area.

Tag a block definition

You can link block definitions together by applying a tag.

About this task

Steps

1. Go to the **Tags** tab.
2. Click the tag code.
3. On the **Tag Details** page, click the **Block Search** button.
4. On the **Block Search** page, select the search criteria, and click **Search**.
5. Select the block check box and click **Tag Task Definition**.
6. In the **Tag Task Definition** pop-up window, select the check box for the tag and click **Tag**.

On the **Tag Details** page, the newly added blocks are displayed in the **Task Definitions** area.

Tag a requirement definition

You can link requirement definitions together by applying a tag.

About this task

Steps

1. Go to the **Tags** tab.
2. Click the tag code.
3. On the **Tag Details** page, click the **Requirement Search** button.
4. On the **Requirement Search** page, select the search criteria, and click **Search**.
5. Select the requirement check box and click **Tag Task Definition**.
6. In the **Tag Task Definition** pop-up window, select the check box for the tag and click **Tag**.

On the **Tag Details** page, the newly added requirement definitions are displayed in the **Task Definitions** area.

Generate a tagged task definition report

After you create tags and tag task definitions, blocks, or requirements, you can generate a tagged task definition report.

Prerequisite

You must create a tag with assigned task definitions, and the **Tag Details** menu item must be assigned to your user role.

About this task

Information on assigning menu items to user roles is described in the *Maintenix Administration Guide*

Steps

1. Go to the **Tags** tab.
2. Click the tag code.
3. On the **Tag Details** page, navigate to your user role's drop-down list and click the **Tag Details** menu item.

   The **Tag Details** menu item is context sensitive. It will only display if you are on the **Tag Details** page (from the **Tags** tab). If you are on any other CAMO Module page, this menu item will not display on your user role's drop-down list.

A new browser window appears, displaying a PDF copy of the tagged task definition report. Depending on your browser settings, you may be able to directly print the PDF or download it to your device or desktop.

Task dependencies and links

In addition to the relationships that exist between tasks because of their respective task definition types (requirements grouped into blocks and job cards grouped in requirements), you can create other relationships between tasks by creating dependencies or informational links between task definitions.

Task dependencies

Task dependencies cause a requirement, called the following task in the Maintenix UI, to be created, terminated, or completed when the prerequisite requirement is completed.

For example, a task dependency is used for a repair task that requires a follow-on inspection. When the repair task (the prerequisite) is completed, the inspection task (the following task) is created.

Both the prerequisite task and the following task must belong to the same organization, or share the same non-root parent organization.

In CAMO Module, you create a task dependency by identifying the following task that is associated with a requirement definition. On the Details tab of the task definition in CAMO Module, you can see all dependencies a requirement definition has to other requirement definitions, whether the requirement definition is the prerequisite task or the following task:

- When a requirement is the prerequisite task in a dependency, the following requirement definition is listed in the Following Tasks area.
- When the requirement is the following task in the dependency, the prerequisite requirement is listed in the Previous Tasks area.

You can create following task dependencies on requirement task definitions that are in Build or Revision status. You should not create following task dependencies in reference documents definitions because they are never initialized as active tasks; the work described in reference documents is executed and completed using linked requirement definitions.

There are four types of task dependencies in CAMO Module:

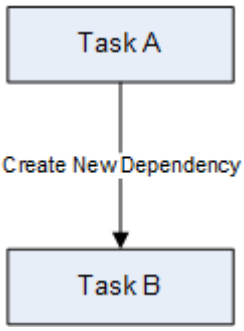
- Create New (CRT)
- Terminate Task (TERMINATE)
- Complete Task (COMPLETE)
- Post-Create (POSTCRT)

Create New (CRT) dependency

In a create new dependency, when the prerequisite task is completed, an instance of the following task is created automatically.

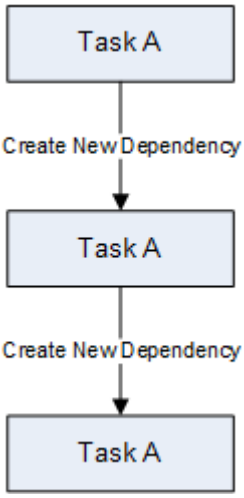
To ensure accurate usage-based deadlines on following tasks, CAMO Module enforces rules for this type of dependency. You can define Create New (CRT) dependencies only between two requirement definitions that are associated with the same tracked configuration slot, any two system configuration slots, or any combination of the root configuration slot and a system configuration slot on the assembly.

In the following diagram, Task A is a modification task that fixes a problem on an aircraft, but the fix must be verified once the aircraft has been able to fly with it for a period of time. Task B is an inspection task to be performed 120 flights after Task A is completed. Therefore, Task A must have a following task dependency to create Task B. After Task A is completed, Task B is created, and has a deadline of 120 flights.



Create New (CRT) dependency

A recurring task definition—one that is repeated at regular intervals—has a create new task dependency to itself. Task A in the figure below has the dependency onto itself. A recurring task definition does not show itself in the Following Tasks or Previous Tasks areas on their Details tab.



Recurring task definition

Using CRT dependencies, you can create a task definition chain that includes a repair task followed by an inspection task that is scheduled to occur at an initial interval and at a recurring interval. In this scenario, Task Definition A has a CRT dependency to Task Definition B:

1. When repair Task A is complete, inspection Task B is created.
2. According to the scheduled initial interval, Task B is completed and the first recurring instance of Task B is created.
3. According to the scheduled recurring interval, the first recurring instance of Task B is completed and the second recurring instance of Task B is created, and so on.

If you require an inspection (or other) task to be performed at one interval, then at another interval, and then on a recurring basis, you must model the inspection task with different task definitions. For the first required inspection, you have a task definition to create a one-time task. For the second required inspection and the recurring inspections, you have a second task definition to create an initial (in this case it's actually the second) and the recurring tasks. So your task definition chain, including a repair with CRT dependencies to inspections, is as follows:

1. Task Definition A (repair) is initialized creating Task A.
2. When Task A is complete, Task Definition B (inspection) is initialized, creating Task B.
3. When Task B is complete, Task Definition C (inspection) is initialized, creating Task C.
4. When Task C is complete, Task Definition C is initialized again, creating the first recurring instance of Task C and so on.

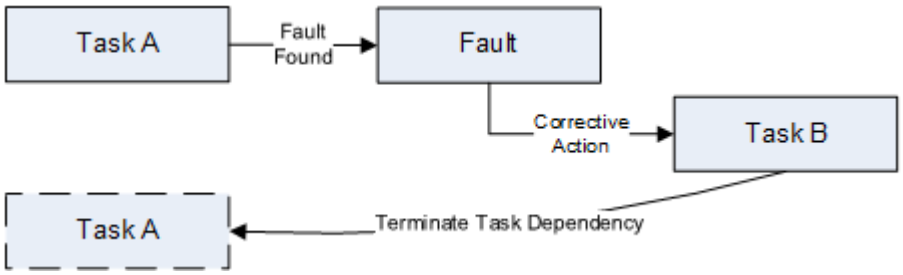
In these scenarios, because of the prerequisite and following relationships between the task definitions, only one of these task definitions is initialized at a time on the same configuration slot. If, on the other hand, you have a task chain in which two different prerequisite task definitions have CRT dependencies to the same following task (all are on the same configuration slot), both of the prerequisites can be initialized at the same time.

Terminate Task (TERMINATE) dependency

In a terminate task dependency, when the prerequisite task is completed, the following task is terminated.

In the following diagram, Task A is a recurring inspection task that is needed because there is a potential failure in a component on an aircraft. Therefore, this inspection is performed every month to monitor the component and ensure that it is not failing.

If the inspector finds a fault, the fault is created with a corrective action consisting of the specified repair procedure. Once the repair procedure—Task B—is performed, future instances of the inspection task are unnecessary. To terminate all future instances of Task A, you create a following task dependency on the repair task (Task B) to terminate Task A.



Terminate Task dependency

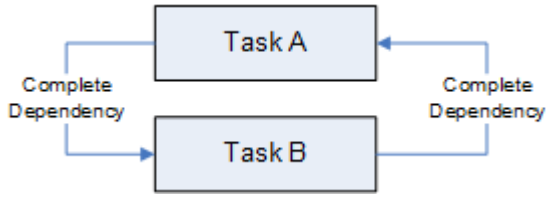
Task A will never be executed again on that inventory because it is no longer needed, and by terminating the task, CAMO Module will never initialize it again for that inventory item.

Note Terminating a task prevents it from initializing permanently. This is different from canceling a task, which indicates that the task will be scheduled again for its next due date.

Complete Task (COMPLETE) dependency

In a complete task dependency, when the prerequisite task is completed, the following task is also completed automatically.

Suppose that a service bulletin (SB) is issued, which requires you to complete either Task A or Task B. Because you do not know ahead of time which task you will complete, you must initialize both Task A and Task B in CAMO Module. Each of these tasks must have a complete task dependency to the other, as shown in the diagram below.



Complete Task dependency

If you complete Task A, CAMO Module completes Task B. In the process of completing Task B, CAMO Module:

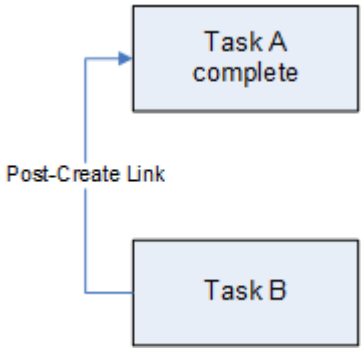
- Removes unfinished labor requirements from Task B.
- Cancels any part requirements for Task B.
- Auto-completes Task B's parent task, if Task B is packaged and is the last open task.
- Executes all other task dependencies Task B has, if any.

Post-Create (POSTCRT) dependency

Post-create dependencies produce the same result as create new dependencies—upon completion of a task, an instance of another task is created—except that you create the dependency on the following task, rather than creating it on the prerequisite task.

You might use this approach when you need to create a dependency, but you don't want to create a revision of the prerequisite task definition. Since you can only add task dependencies to task definitions that are in build or revision status, post-create dependencies provide flexibility for you to do what's easiest.

In the following diagram, Task B has a post-create task dependency to Task A. When Task A is completed, Task B is initialized—an instance of the task is created.



Post-Create dependency

Linked tasks

A task link is an informational relationship between two tasks used for reporting compliance, or for helping maintenance planners find opportunistic tasks to include in maintenance visits when there is extra capacity available.

Unlike with task dependencies, when you create links, there is no automatic logic wherein an action to one task affects the state of the task it's linked to. These links are for information purposes. You link from one task to another or to multiple others, but the task link relationship is visible in both or all linked task definitions.

To link configuration slot type task definitions, the task definitions must be assigned to the same assembly and belong to the same organization, or share the same non-root parent organization. You cannot link between task definitions on different assemblies, because links between definitions on different assemblies break if a sub-component is removed from its parent.

Complies link

This type of link is used to indicate that the work covered by a requirement definition is required to comply with a directive from a manufacturer, for example a service bulletin, or one from a

regulatory body, such as an airworthiness directive. Links of this type are also used to generate the compliance report in CAMO Module.

You can create this type of link between two reference document definitions, or between a requirement definition to a reference document definition.

Opportunistic task link

This type of link indicates that the work described in the task at the end of the link—the one that you link to in CAMO Module—is non-mandatory work that can be done at the same time as the task from which it is linked. It is a way to let maintenance planners easily identify additional work that fits well with the work that is planned in an upcoming maintenance visit, and make optimal use of the resources—technicians, parts and tools— that are available at the maintenance location. To see and assign tasks that are opportunistically linked to tasks in a work package, planners click the View Opportunistic Tasks button on a work package details page.

This type of link can be created between two blocks, between two requirements, between a block and a requirement, and between a requirement and a block.

Other link types

The link types are configurable, so you might see other types such as Replaces, Actioned, or custom ones that your organization has added in the Ref_task_dep_action table.

For example, some organizations use a Supersedes link type between two different task definitions that represent different revisions of an airworthiness directive (AD). In CAMO Module, you can't link to specific revisions of a definition created for an airworthiness directive. Since you must track compliance to specific revisions, you might create a new task definition when the revised AD is issued and link the new definition to the existing one with a Supersedes link.

Link task definitions

You can create informational relationships between task definitions by linking them. You can add complies type links to support compliance reporting, opportunistic type links to alert planners about a task they might add to a work package, or replaces type links between definitions that represent the same Structural Repair Manual (SRM) repair.

About this task

You add links to definitions after the definitions are created. To add a link, the definition must be in BUILD or REVISION status, but the task that you link to can also be in ACTV status.

To link definitions, you create the link on (from) one of them - the link is then seen on both task definitions. You can link a task definition to multiple other task definitions.

Steps

1. Go to the task definition's Details page, **Details** tab.

2. In the **Link to Tasks** area, click the ⊞ button.
3. Select a **Link Type** from the drop-down list.
4. Click the 🔍 button.
5. (Optional) Enter or select search and filter information.
6. Click **Search** and then select one task definition.

> **Note** If this is a config slot type definition, you only see other task definitions that are defined on the same assembly.

7. On the **Add Linked Task** page, click **OK**.

> **Tip** To remove a link, on the task definition Details page, in the Link to Tasks area, click the ⊟ button.

On this task definition, the Linked To Tasks area displays the task you linked to.

On the task you linked to, the Linked From Tasks area displays this task.

Scheduling

Scheduling information is used to determine how often you do a task and when a task is due. You can calculate the due date of a task by adding its start value with the scheduling interval. All blocks and requirements need scheduling (other kinds of task definitions like job cards, reference documents, and master panel cards do not require scheduling information).

Recurring requirements

A recurring requirement is a requirement that must be repeated periodically, such as an inspection or an overhaul. A recurring requirement has a task dependency to itself. CAMO Module makes a new active requirement from the same task definition once the current task is completed.

Forecasting requirements

When a recurring block or requirements definition is initialized, CAMO Module creates the first occurrence of the actual task, and assigns it the status of ACTV (Active). Subsequent occurrences of the task have the status of FORECAST (Forecast). When the active task is completed, CAMO Module changes the status of the first forecasted task to ACTV.

The number of forecasted tasks CAMO Module creates depends on the forecast range specified in the block or requirement definition, and the scheduling interval. The forecast range is the number of days based on which you want CAMO Module to create forecasted tasks. If a requirement definition specifies that a task is due every 100 days and it has a forecast range of 450 days, CAMO Module creates six actual tasks, one active task and five forecasted tasks. This means that depending on the scheduling interval, CAMO Module adds one additional forecasted task beyond the forecast range. If you change the forecast range of the same requirement definition to anywhere between 300 to 399 days, CAMO Module will create one active task and four forecasted tasks.

An CAMO Module job that runs regularly creates the required number of forecasted tasks in the system; by default this job runs daily. For information about CAMO Module jobs, see the *Maintenix Administration Guide*.

Determining the Scheduling Start Value

To calculate a requirement's deadline, CAMO Module must determine the scheduling start value.

For one-time tasks, and for the first occurrence of a recurring task, the scheduling start value is based on the Schedule From field of the task definition. For subsequent occurrences of recurring tasks, the scheduling start value is based on the Reschedule From field of the task definition.

There are four possible Schedule From values:

- Manufactured date: Calendar-based deadlines will be calculated from the inventory's manufactured date. Usage-based deadlines will be calculated from 0.
- Received date: Calendar-based deadlines will be calculated from the inventory's received date. For usage-based deadlines, CAMO Module will look through the inventory's usage history and determine the usage on that received date; the deadline will then be calculated from that value.
- Effective date: Calendar-based deadlines will be calculated from the inventory's effective date. For usage-based deadlines, CAMO Module will look through the inventory's usage history and determine the usage on that effective date; the deadline will then be calculated from that value.
- Maintenance program activation date: This option is only available for requirement definitions that are assigned to a maintenance program.Calendar-based deadlines will be calculated from the maintenance program's activation date. For usage-based deadlines, CAMO Module will look through the inventory's usage history and determine the usage on the maintenance program's activation date; the deadline will then be calculated from that value.

The following tables provide a detailed description of how the scheduling start values are calculated based on the various Schedule From options.

Schedule From: Manufactured date

Scenario	Interval based on	Scheduling start value
The inventory has a manufactured date.	Calendar	Manufactured date
	Usage	0
The inventory does not have a manufactured date.	Calendar	January 1, 1950
	Usage	0

Schedule From: Received date

Scenario	Interval based on	Scheduling start value
The inventory has a received date.	Calendar	Received date
	Usage	For aircraft and assemblies, the value is set to the usage value at the received date. For dates in the past, usage value is calculated from historical flights and usage records. For dates in the future, the forecast model and information about planned flights are used. For tracked components, this value is set to 0. You must update the value manually.
The inventory does not have a received date.	Calendar	January 1, 1950
	Usage	0

Schedule From: Effective date

Scenario	Is "Use Manufactured Date if Later" Option Enabled?	Interval based on	Scheduling start value
The effective date is not specified and the task definition does not have On-Condition enabled.	TRUE/FALSE	Calendar	January 1, 1950
		Usage	0

Scenario	Is "Use Manufactured Date if Later" Option Enabled?	Interval based on	Scheduling start value
The effective date is not specified, and the task definition has On-Condition enabled.	TRUE/FALSE	Calendar	Date when the user creates the task, or date the user selects when creating the task.
		Usage	Usage at the date the user creates the task, or the usage at the date the user selects when creating the task.
The effective date is specified	FALSE	Calendar	Effective date
		Usage	For aircraft and assemblies, the value is set to the usage value at the effective date. For dates in the past, usage value is calculated from historical flights and usage records. For dates in the future, the forecast model is used.
The effective date is specified. It is later than the inventory's manufactured date.	TRUE	Calendar	Effective date
		Usage	For aircraft and assemblies, the value is set to the usage value at the effective date. For dates in the past, usage value is calculated from historical flights and usage records. For dates in the future, the forecast model is used.
The effective date is specified. It is before or the same as the inventory's manufactured date.	TRUE	Calendar	Manufactured date
		Usage	0

Add missing manufactured date or received date

About this task

When actual tasks are created, the records for some of the applicable inventory might be missing the manufactured and/or received date. If this is the case, CAMO Module will initialize calendar-based deadlines that have Schedule From manufacture date or Schedule From received date from a default scheduling start value; this default value is very old and will cause the requirement's deadline to become immediately overdue. You will need to manually edit the deadline start values in order to correct this.

Steps

1. Navigate to **Inventory Details** page of the required inventory.
2. Click **Edit Inventory**.
3. On the **Edit Inventory** page, edit the following fields:
   - **Manufactured Date**: The date that the inventory was manufactured.
   - **Received Date**: The date that the inventory was received.
4. Click **Finish**.
5. Add notes as required in the Notes field and click **OK**.

Add missing effective date or initial usage value

About this task

If a requirement has Schedule From set to effective date, but no Effective From Date is provided, CAMO Module will initialize the task from a default scheduling start value; this default value is very old and will cause the requirement's deadline to become immediately overdue. For usage-based scheduling, Maintenix will initialize the task from 0 usage. If you want to set the initial date or usage, you can use the Create Task and Set Deadlines feature. Or, you can manually edit the deadline start values in order to correct this.

Steps

1. Navigate to the **Task Details** page of the required task.
2. Click the **Scheduling** tab.
3. Click **Edit Deadline Start Values** and edit the required information
4. Click **OK**.

Reschedule From values

The first occurrence of a recurring task is scheduled based on the Schedule From values. Subsequent occurrences of the task are scheduled based on the Reschedule From values, which can be the following:

- EXECUTE: Calendar-based deadlines will be calculated from the task's completion date.
- WPSTART: Calendar-based deadlines will be calculated from the work package's start date.
- WPEND: Calendar-based deadlines will be calculated from the work package's completion date. If you extend a usage-based requirement that was scheduled from WPEND and you complete the task within the extended window, the next task is scheduled from the LASTDUE date.

Scheduling interval

The scheduling interval is the amount of time or inventory usage that can elapse before a task is due. The start date plus the scheduling interval determines the task deadline.

You can create scheduling interval rules based on different parameters including:

- Usage - calendar hours, days, weeks, months, years, last day of month.
- Usage - cycles
- Usage - flying hours
- Measurements

You also have options to create special rules for specific parts or tail numbers. See the following topics for more information. See related topics for more information on usage parameters.

Threshold, Initial and Repeat intervals

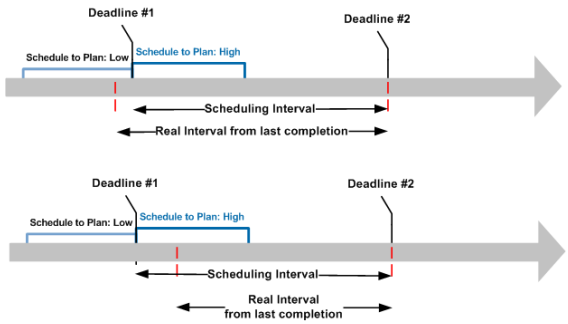
Non-recurring tasks have a Threshold interval. Recurring tasks have an initial interval and a repeat interval. The initial interval dictates when the first occurrence of a task is due. The repeat interval dictates when subsequent occurrences are due.

Schedule to Plan

A recurring requirement can be scheduled either at one interval from the due date of the previous occurrence of the requirement—which is called scheduled to plan—or at one interval from the real date when the previous occurrence of the requirement is completed— which is called scheduled to actual.

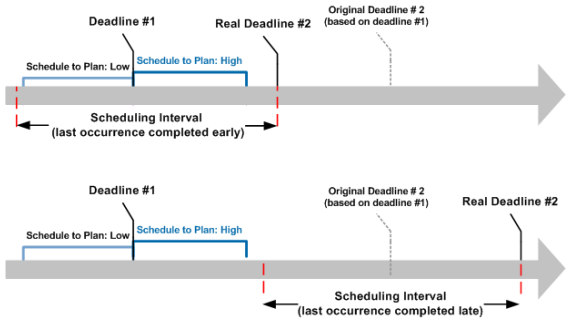
The schedule to plan concept includes a lower bound and an upper bound that are called **Schedule to Plan: Low** and **Schedule to Plan: High** in CAMO Module. If a task is completed within the window defined by the lower and upper bound, it is within its planned schedule, and the next occurrence of the task is scheduled from the due date for the occurrence that was just completed.

The diagram below shows two scenarios using schedule to plan, both tasks being completed within the schedule to plan window. The deadline of the next occurrence is the same in both scenarios, because it is scheduled from the previous occurrence's due date using the scheduling interval of the task definition; only the real intervals are different.



Schedule to plan scenarios

If the task is completed outside of the scheduled to plan window, it is treated automatically as a task that is scheduled to actual. The diagram below shows two scenarios where the task is completed outside of its schedule to plan window. Note that the deadlines of the next occurrence are different in each scenario but the interval is the same. By default in CAMO Module, the schedule to plan lower and upper bounds are set to zero (0) in task definitions; when both are set to zero, the task is always scheduled from the actual date, not the planned date.



Task completed outside of scheduled plan window

Month and year intervals

Recurring tasks can have a scheduling rule with repeat intervals of months or years.

CAMO Module calculates the deadline for the next occurrence of a task with repeat interval of months (CMON) as follows:

- If the previous task is completed on the last day of a month, the next due date is the specified interval of months later, on last day of the month. Given the uneven number of days in calendar months, the number of days that pass in the interval of months before the next task is due, varies.
- If the previous task is completed on any other day of the month (except January 29 and 30), the next due date is the specified interval of months later, on the same day of the month.
- If the previous task is completed on January 29 or on January 30 and the interval is one month, the next due date is February 28, or February 29 if it's a leap year. However, if the interval is

more than one month, then the next occurrence is the specified interval of months later, on the same day of the month.

The following examples show previous task completion dates, monthly repeat intervals, and the resulting next due date for tasks.

Completion date of the previous task	Repeat interval	Next due date
September 30	6 months	March 31
March 31	6 months	Sept 30
November 30	3 months	February 28
July 15	4 months	November 15
January 29	1 month	February 28
January 29	2 months	March 29
January 30	1 month	February 28
January 31	1 month	February 29 (leap year)

For tasks that have a deadline repeat interval specified in calendar years (CYR), CAMO Module considers the months with different number of days, and the leap years. The following table provides examples of how CAMO Module schedules such tasks.

Completion date of the previous task	Repeat interval	Next due date
February 28, 2015	1 year	February 29, 2016 (leap year)
February 29, 2016	1 year	February 28, 2017
March 15, 2015	1 year	March 15, 2016
January 1, 2016	10 years	January 1, 2026

Measurement-specific scheduling intervals

Measurement-specific scheduling rules let you define multiple different scheduling intervals, and then specify which scheduling interval to use based on a measurement recorded during task execution. In other words, when this requirement is performed the technician will take a measurement and the value of that measurement will determine how long until the next iteration of this requirement is due.

You can setup a measurement-specific scheduling rule where the interval is 0. This means that if the measurement falls within a particular range, the next iteration of the requirement will become immediately overdue. You would do this to indicate that a particular measurement value is unacceptable. Whatever problem caused this extreme measurement value will need to be fixed and a new measurement taken, in order to stop the interval from being 0.

You must also indicate the extreme measurement value at which this requirement is no longer required. For example, if the tire pressure is over 100 PSI, cancel this particular requirement. This is used to indicate a measurement so good that the requirement is no longer needed. If this requirement should never be canceled, then specify a measurement range so extreme that maintenance execution will never record this value.

Measurement-specific scheduling intervals only apply to recurring requirement definitions. They do not apply to one-time requirements, nor do they apply to blocks of any kind.

For example, here is an on-condition requirement (a crack inspection) that would be initiated when a small crack is found. Every time this requirement is performed, the maintenance technician will be asked to measure the crack length.

- If the crack length is greater than 10cm, the next occurrence is due in 0 hours (ie. The next requirement will become immediately overdue).
- If the crack length is greater than 5cm but smaller than 10cm, the next occurrence is due in 100 hours.
- If the crack length is greater than 0cm but smaller than 5cm, the next occurrence is due in 500 hours.
- If the crack length is 0cm (no crack), then cancel this requirement.

  In this example, the scheduling interval becomes smaller as the measurement increases. You can also use decreasing measurement values to change the scheduling interval, for example, you could specify that the scheduling interval becomes shorter as the tire thread depth measurement decreases.

Note

Measurement-specific scheduling rules do not work with the CAMO Module forecasting capability.

When you create a measurement specific rule, you select the following information:

- The scheduling interval parameter to use on this requirement.
- The measurement parameter which will be collected during execution.
- Whether you want to create increasing scheduling intervals as the measurement value increases, or increasing scheduling intervals as the measurement value decreases. For example, when measuring the length of a crack, you would set different scheduling intervals

as the measurement value increase, whereas when measuring tire tread depth, you would set different scheduling intervals as the measurement value decreases.

- The measurement value at which the requirement will be canceled.

Part-specific scheduling interval

You add part-specific scheduling rules to make exceptions to the general scheduling rule for specific part numbers. For example, if there are three different parts that can be installed on a configuration slot, and one of these parts requires less frequent maintenance than the others, you create a part-specific scheduling rule for that part number.

Part-specific scheduling rules can use only the parameters that are already set for the general scheduling rules. For example, if the general scheduling rules do not include cycles, the part-specific rules cannot either. In part-specific scheduling rules, you can set the values for all fields—intervals, notification, deviation, schedule to plan low and high—for any of the parameters that are used in general scheduling rules.

Tail number-specific scheduling interval

You add tail number-specific scheduling rules to make exceptions to the general scheduling rules for specific aircraft tail numbers.

Tail number-scheduling intervals can only use the parameters that are already set for the general scheduling rules of the task definition. For example, if the general scheduling rules do not include cycles, the tail number-specific rules cannot either. In tail number-specific scheduling rules, you can set the values for all fields—intervals, notification, deviation, schedule to plan low and high—for any of the parameters that are used in general scheduling rules.

Manual scheduling

The manual scheduling feature is available for block, requirement, and reference document definitions. It allows users to manually edit the scheduling interval of actual tasks that are based on the definition. Users must have the correct permissions to be able to edit the scheduling interval on the actual tasks.

The following table explains the way in which CAMO Module baseline synchronization updates actual tasks when you activate a new revision of the task definition involving manual scheduling.

Making revisions of task definitions with Manual Scheduling

Manual Scheduling option		Effect on actual tasks based on definition
In Previous Revision	In newly activated revision	
Disabled	Enabled	Baseline synchronization applies all changes you made to the task definition on all existing actual tasks. Authorized users are able to edit the scheduling interval on all actual tasks based on the task definition.
Enabled	Enabled	For actual tasks that existed before you activated the new revision, including forecasted tasks, baseline synchronization updates all information except any changes you made to the task definition scheduling rules. All new actual tasks are created based on the new revision of the task definition.
Enabled	Disabled	Baseline synchronization updates all information on the existing actual tasks. Users are no longer able to manually edit the scheduling interval on the actual tasks.

Maintenix uses two manual scheduling strategies: the standard Allow Manual Scheduling and the improved Enable Manual Scheduling.

The Allow Manual Scheduling implementation sometimes has issues related to over-flown deadlines, compliance, and general loss of scheduling.

Enable Manual Scheduling is used on an as-needed-for-task basis. In the Enable Manual Scheduling strategy, there are permissions to add, remove, and edit ad hoc deadlines. Also, there is an additional permission called ACTION_EDIT_MANUAL_INTERVAL that controls whether the ad hoc permissions you have are unlocked for baseline tasks. It's like an overlay permission.

List of permissions:

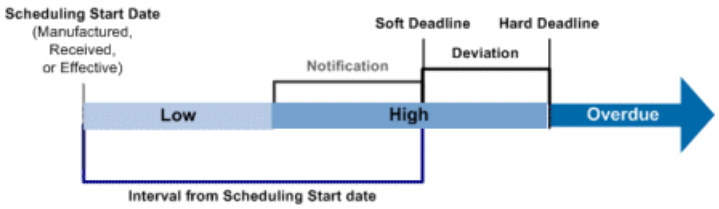
1. ACTION_ADD_TASK_DEADLINE
2. ACTION_EDIT_MANUAL_INTERVAL
3. ACTION_EDIT_TASK_INTERVAL
4. ACTION_ENABLE_MANUAL_SCHEDULING
5. ACTION_REMOVE_TASK_DEADLINE

Hard and soft deadlines, deviation, and notification

In addition to the scheduling start value and the interval, you can specify the following in task definitions:

- Whether the deadline is a soft or hard deadline.
- How much deviation from a deadline is allowed before a task is considered overdue.
- How long in advance of the deadline should CAMO Module provide notification by changing the schedule priority on the task from LOW to HIGH.

The following figure illustrates the concepts involved in scheduling tasks and task deadlines.



Scheduling tasks and task deadlines

A hard deadline is a deadline that cannot be exceeded; if the task is not completed by its hard deadline, CAMO Module considers the task as overdue. A soft deadline means that the completion of the task is allowed to exceed its deadline without becoming overdue. All deadlines calculated by CAMO Module—based on the scheduling start value, or the previous occurrence of the tasks for recurring tasks, and the interval specified in task definitions—are hard deadlines, unless a deviation is specified in the task definition, or the Soft Deadline option is enabled in the task definition.

By selecting the Soft Deadline option in the task definition, you specify that the deadline is always a soft deadline, meaning that the tasks never become overdue in CAMO Module. Use this to represent tasks for which there is no execution interval or frequency mandated by a regulatory body.

The notification interval determines when CAMO Module notifies users about the approaching deadline for a task —the deadline as set in the task definition, not the hard deadline at the end of the deviation. At the notification point, the Schedule Priority of a task switches from LOW to HIGH. The notification interval is measured in the same units as the scheduling interval, such as calendar days, hours, cycles or number of landings. There is a notification interval for each deadline specified in the task definitions. Notification is not set for tasks that always have soft deadlines.

Overdue tasks are those whose driving deadline has been exceeded. A task whose deadline is based on a calendar parameter is overdue when the current date is later than the task due date, plus the deadline deviation when one is specified. A task whose deadline is based on a usage parameter is overdue when the inventory's current accrued usage exceeds the usage value at the driving deadline, plus the deadline deviation when one is specified.

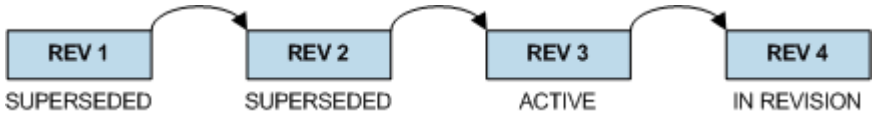
Maintenance programs for aircraft and assemblies

A maintenance program is a collection of requirements and reference documents for a particular aircraft or assembly such as an engine or APU. The same maintenance program can be used by one or more operators. They are not intended for use with individual, trackable components (TRK components), which can be moved across different assemblies and are not directly tied to a specific operator when loose.

Note Assigning a Maintenance Program to requirements (REQs) for a TRK configuration slot is not recommended since TRK components do not inherently have an operator assignment. This will introduce complexities that can affect maintenance tracking and task applicability.

When a maintenance program is applied to an operator, it is applied to all of the operator's applicable aircraft and assemblies.

Maintenance programs are version-controlled in the same way as task definitions. If the program is assigned to only one operator, the revision status is straight forward. You have one active revision, one in revision status, and there can be multiple superseded revisions.



Maintenance Program Revisions

The typical life cycle for a maintenance program is as follows:

- Create the maintenance program for an operator.
- Assign requirements to the maintenance program.
- Lock the maintenance program and request approval.
- Activate the maintenance program.
- Revise the maintenance program for an operator then lock, get approval, and activate.
- For more urgently required changes, issue a temporary revision of a requirement to an active program.

Creating maintenance programs

When you create a maintenance program it's in Build status and you can assign requirement definitions and reference document definitions to the program. REQ and REF are the only classes of task definitions that you can assign to maintenance programs. When you assign a definition to a maintenance program, the active revision of the definition is what's assigned. (You can also add definitions that are still in BUILD status.)

A requirement can be assigned to only one maintenance program.

You can use group codes to bundle several requirements and related reference documents which serve a common purpose such as responding to a regulatory obligation. A maintenance program can have more than one group code. You can label each requirement and reference document with a group code as you add it to a maintenance program and afterwards, filter by group code on the Maintenance Program page, Requirements tab.

You can move individual requirements, and related reference documents, in and out of maintenance programs or groups as you revise a maintenance program.

From the Maintenance Program page, Requirements tab, you can see which revision of a requirement is assigned to the program. You can filter the list of requirements and reference documents by group code and configuration slot, and you can choose to show only definitions that have a revision in REVISION status, or definitions that are applicable to the assembly.

Locking and printing the program

By default, maintenance programs in build or revision status are unlocked. You can edit the program, assign or assign requirements or make other changes, and requirements are automatically updated to their latest revisions.

Locking a maintenance program prevents manual changes and automatic updates.

While building or revising a maintenance program, you can lock and unlock it as required. The lock history is displayed on the Maintenance Program Details page, Details tab.

After you are done building or revising a maintenance program, you lock it to prevent any changes to the program while the maintenance program is being validated and approved by the regulatory authorities. To ensure that the program isn't altered, leave it locked until it's activated. If you unlock an approved program prior to activating it, the assigned task definitions will be updated to their latest revision, which might invalidate the approval.

When you are ready to send the maintenance program for approval, or as you develop the program, you can print the following reports:

- Maintenance Program Report: lists all the requirements in the program and is available for maintenance programs in any status.
- Maintenance Program Impact Report: lists all active tasks whose deadlines will change if the maintenance program was activated. The report shows the current task deadlines and the new deadlines that would be in effect. This report is available for maintenance programs in build or revision status.
- Maintenance Program Differences Report: lists the differences between one revision and another revision of the same maintenance program.

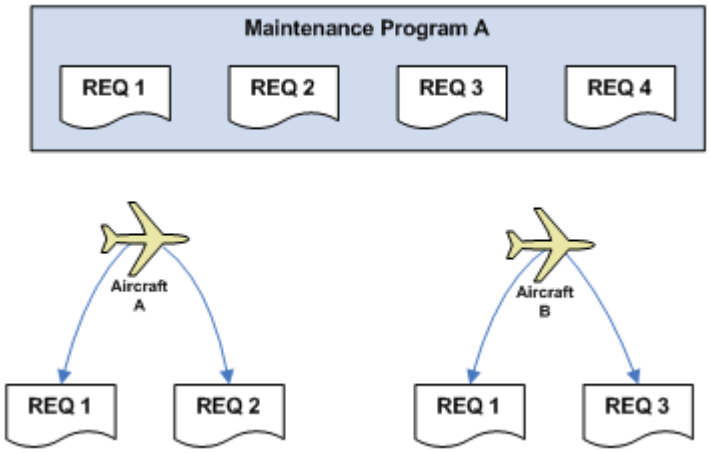
Activating maintenance programs

Activating a maintenance program triggers baseline synchronization and initializes tasks for the maintenance program. The tasks that are created are based on the revisions of the task

definitions that were active when the maintenance program was locked. (If the program wasn't locked prior to requesting approval, then tasks are based on the revisions of task definitions that were active when the maintenance program was activated.) If new revisions of the task definitions are later activated, they are not updated in the active maintenance program until you revise the maintenance program.

When the program is active, you can't make any changes to it, except to issue temporary revisions of requirements.

When the maintenance program requirements are initialized, they are only initialized for the applicable aircraft. In the following diagram, a maintenance program is assigned to an operator who owns Aircraft A and Aircraft B. REQ1 is applicable to both aircraft, but REQ4 is applicable to neither aircraft. CAMO Module initializes the tasks based on their applicability of each aircraft.



Aircraft requirements in a Maintenance Program

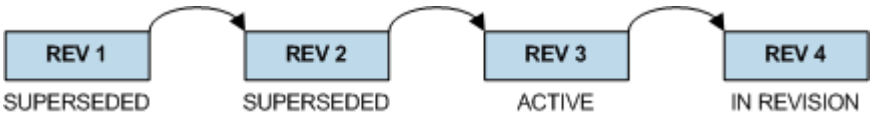
When you activate a revision, CAMO Module creates another revision with the REVISION status. This is the revision you will use when you need to modify the maintenance program.

Multiple operators sharing the same maintenance program

If your instance of CAMO Module includes multiple operators, the same maintenance program can be used by multiple operators that have the same type of aircraft, but slightly different maintenance needs or processes. When you create a maintenance program, you can only select one operator, but after the program is activated for one operator and there is now another revision in REVISION status, you can assign the new revision to the different operator.

When the revision that's assigned to a different operator is activated, the status of an earlier revision assigned to another operator shows as superseded - but it isn't necessarily. The latest revision, that isn't in REVISION status, for any one operator is active for that operator. The maintenance program revision history shows both the maintenance program revisions and the revisions for each operator. The following figure shows the history for a maintenance program

with different revisions assigned to two different operators. (The revision record you are currently viewing is listed in bold, red font).



Maintenance program revisions for multiple operators

- Rev 4 is in revision
- Rev 3 is activated
- Revs 1 and 2 are superseded

Although the revision status of Rev 1 is superseded, tasks for OTA are initialized based on the definitions in Rev 1. Tasks for ECA are initialized based on the definitions in Rev 3.

The tasks created for the applicable inventory of one operator are based on the revisions of the task definitions that are in the latest (not including the revision that's in REVISION) maintenance program revision for that operator. Changes to one operator's revision don't affect another operator's revision.

Revising maintenance programs

When you retrieve and view the task definitions in the REVISION status revision of a maintenance program, the task definitions listed are the active revisions. With the updated requirements as a starting point, you can then add new requirements, unassign requirements, or create revisions of task definitions in the program and assign the revised definitions to the program.

If there are multiple operators using the same maintenance program, you must assign the maintenance program revision to the operator whose program you want to update.

When you are working with an in REVISION maintenance program, an Unassign Requirement button is available. However, if the requirement you want to unassign is used in another operator's latest revision of the maintenance program, you can't unassign the requirement directly. This restriction is also true if the requirement was temporarily assigned to another operator's revision of the maintenance program. To unassign a requirement that is in use by one or more other operator revisions of the maintenance program, you create a revision of the requirement, add an applicability rule that specifies which operators the requirement applies to, and activate the requirement. The requirement is then visible in the maintenance programs of all operators, but it is applicable or not – and tasks are created in the operator's revision of the maintenance program or not – according to the rule you created.

When you're done revising a maintenance program, you lock the program, get it approved, then activate it. Baseline synchronization initializes tasks for the program based on the task definitions that are in this latest revision.

When working with a revision status maintenance program (that's unlocked), if you want to delete all the changes you've made, you can use the Revert to Previous Revision button.

Temporary revisions to active maintenance programs

Revising a maintenance program is typically a lengthy process. If you need a change to take effect before the revised maintenance program is approved and activated, you can issue a temporary revision of a requirement to one or more operator revisions of an active, approved maintenance program. To issue a temporary revision of a requirement to an active maintenance program, the revised requirement must already be assigned, unassigned or revised in the REVISION version of the maintenance program. In other words, you can't make a temporary change that you're not planning to make in the next revision of the maintenance program. You might issue temporary revisions of requirements for the following reasons:

Reasons for issuing temporary revisions of requirements

Reason for revision	Result of issuing temporary revision
A brand new requirement definition	New tasks based on the requirement are added to the maintenance program.
A newer revision of an existing requirement definition that is already in the maintenance program	Existing tasks are updated to the newer revision of the requirement, except for tasks in a work package that's committed or in work.
A requirement definition was made obsolete	The requirement is marked as obsolete in the maintenance program. Existing tasks based on the now obsolete requirement are terminated, except for tasks in a work package that's committed or in work.

Maintenance program revision numbers

Maintenance programs have a revision number, an operator revision number, and an external revision number. In the context of a maintenance program, you can also see which revision of a task definition is currently assigned and the number of times a definition has been issued to a program for an operator.

The following numbers are all displayed on the Maintenance Program Details page, in the Details area.

Revision number

The Revision number is the auto-incrementing number assigned to the maintenance program each time a new revision is created, regardless of the operator to which the revision is associated. If a maintenance program has been revised ten times, sometimes for operator A and sometimes for Operator B, the latest revision number is 10.

Operator revision number

The Operator revision number is the auto-incrementing number assigned to the maintenance program each time a revision is made for a specific operator. If a maintenance program has been revised ten times, twice for Operator A and eight times for Operator B, the Operator Revision number for Operator A is 2, whereas for Operator B, it is 8.

External revision number

The External revision number is an optional and customizable revision number that your organization can use however it sees fit. For example, if different operators prefer different numbering schemes, you can use their preferred scheme for the external revision number of maintenance revisions that apply to them. Or, you might use this field to indicate that a particular revision has been submitted for external approval.

On the Requirements tab of a maintenance program, each requirement and reference document has a revision number and an issue number.

Revision number (requirement)

The Revision number of a requirement is the auto-incrementing number assigned by CAMO Module to each revision of the requirement or reference document definition created, regardless of which maintenance program or operator it is assigned to. The Requirements tab on the Maintenance Program Details page displays the revision number currently assigned to each task definition included in the maintenance program.

Issue number

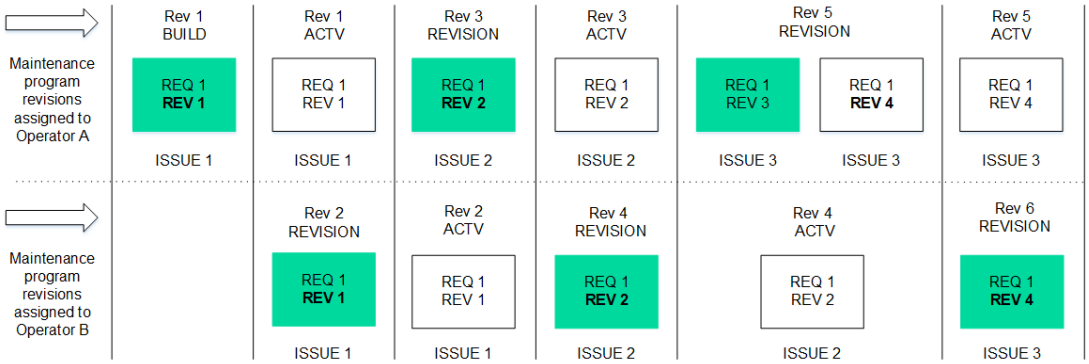
The issue number indicates how many times a different revision of a task definition is (or will be) activated in a maintenance program for an operator's fleet. The definition revision number might change multiple times while a maintenance program is revised, but when the program is activated, only the last revision of a definition is included in the active program. The issue number auto-increments once during the build when you assign a definition to a maintenance program and afterwards once per maintenance program revision if the definition revision number is different than in the prior active revision of the program for the same operator.

When multiple operators share a maintenance program, the issue numbers can be different for the different operators. If one operator is on revision 2 of a maintenance program and then revision 3 of the maintenance program is assigned to a different operator, all the definitions in the new operator's maintenance program have an issue number of 1.

While a maintenance program is in Build or Revision status, you can change the number that is assigned as the issue number for any requirement or reference document that is included in the maintenance program, and that is active.

The figure below shows how task definition revision and issue numbers are incremented in a multiple operator maintenance program. The colored squares show when there's a change to the numbers. You can see in Revision 5 for Operator A that REQ Rev 3 is never initialized on any

aircraft because Rev 4 is created and activated before Revision 5 of the maintenance program is activated.



Revision numbers and issue numbers in a multi-operator maintenance program

Create a maintenance program

You create maintenance programs for aircraft or other assemblies.

About this task

When you create the program you select only one operator. If you are trying to assign another operator to the same program, you work with a revision of the maintenance program.

Steps

1. On the **Engineer - To Do List** page, click the **Assembly List** tab.
2. In the **Assembly** column, click an assembly link.
3. On the **Assembly Details** page, click the **Maintenance Programs** tab.
4. Click **Create Maintenance Program**.
5. On the **Create Maintenance Program** page, provide the required information. Note the following:
   - **Code**: Type the code for the maintenance program. This code must be unique per assembly.
   - **Name**: Type the name for the maintenance program.
   - **Operator**: Select the operator.
   - **External Revision Number**: Different organizations use this optional field to enter relevant information. For example, you might use this field to indicate that a particular revision has been submitted for external approval.
   - **Description**: Optional field.
6. Click **OK**.

The default status for the new maintenance program is Build. You can now modify its details and assign requirement and reference document definitions to the maintenance program.

Assign requirements to a maintenance program

When a maintenance program is in BUILD or REVISION status, you can assign requirement (REQ) and reference document (REF) class task definitions to the program. When you assign REQS and REFS to a maintenance program, it is the active revision of each definition that is assigned.

About this task

You are not prevented from assigning requirements and reference documents in BUILD status, but you can't edit the issue numbers or the reason and notes for definitions in this status.

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab.
2. In the list of Maintenance Programs, click a maintenance program link.
3. On the **Maintenance Program Details** page, click the **Requirements** tab.
4. Click **Assign Requirement**.
5. On the **Assign Requirement** page, provide the required information. Note the following:
   - **Group Code**: An optional, free-text label that you can use to identify requirements that serve a common purpose such as responding to a regulatory obligation. Group code is a filter option on the Maintenance Program page, Requirements tab.
   - **Reason**: You have the option to select the reason for assigning the requirements.
   - **Note**: Optional. The information you enter here can later be viewed on the Maintenance Program Details page, Requirements tab, Details column for the requirement.
   - **Requirement Code**: Type the code of the requirement to assign and press Enter, or click to search for the code.
6. Select the check box next to the requirement you want to add to the maintenance program.
7. Click **Assign Requirement**.

> **Tip** If the requirements are not visible on the Requirements tab, in the Filter Options, click **Retrieve**.

View a maintenance program

You can see all the requirements and reference documents in a maintenance program or filter the list by group code, configuration slot, definitions that have a revision in REVISION status, and definitions that are applicable to the assembly.

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab.
2. (Optional) Enter or select **Filter Options**.

3. Click **Retrieve**.

Change group code on a REQ or REF

Steps

1. Go to the **Maintenance Program Details** page, **Requirements** tab.
2. Select the check box for a requirement or reference document.
3. Click **Edit Reason and Notes**.
4. Edit the **Group Code** and click **OK**.

Lock a maintenance program

To prevent maintenance programs in build or revision status from being manually changed or having requirements and reference documents automatically updated to their latest revisions, you lock the program. When you are ready to get the program approved, you lock it to prevent changes while the program is being validated by authorities.

About this task

Note When a locked maintenance program is approved, you should activate the program without unlocking it. If you unlock the program the assigned requirements and reference documents will be updated to their latest revisions which can invalidate the approval.

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab, and click a maintenance program link.
2. On the **Maintenance Program Details** page, click **Lock Maintenance Program**.
3. On the **Confirmation Required** page, click **Yes**.

Note After you lock a maintenance program, you will see an **Unlock Maintenance Program** button on the Maintenance Program Details page. To unlock the program, click this button and confirm by clicking **Yes**.

Activate a maintenance program

After you receive approval for a maintenance program from the regulatory authorities, you activate it in CAMO Module. This changes the program status to Activated and triggers baseline synchronization to initialize tasks based on the requirements in the program.

About this task

If the maintenance program is locked, leave it locked when you activate it. You can activate an unlocked program, but typically, approved programs are locked.

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab, and click a maintenance program link.
2. On the **Maintenance Program Details** page, click **Activate Maintenance Program**.
3. On the **Activate Maintenance Program** page, provide the following information:
   - **Description**: Type the activation description.
   - **Activate Reference**: Type the activation reference.
   - **External Revision Number**: Type the external revision number.
4. Click **OK**.

The status of the revision is now ACTV. A new maintenance program revision with the status of REVISION is automatically created for the same operator (but you can assign a different operator to the revision).

Revise a maintenance program

After you activate a maintenance program that was in Build or Revision status, a revision of the program is automatically created for the same operator. To revise a maintenance program you work with the REVISION status revision of the program.

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab, and click a maintenance program.
2. Verify that the **Status** for the record you are viewing is REVISION.

> **Tip** If you are not viewing the REVISION status revision, click the **Details** tab. In the Revision History area, click the revision with the highest number.

3. (Optional) To change the operator, in the **Details** area, click the edit button. Select an operator from the drop-down list and click **OK**.
4. Click the **Requirements** tab to work with requirements and reference documents.

Assign another operator to a maintenance program

The same maintenance program can be used by multiple operators. To assign a maintenance program to another operator, you edit the REVISION status revision of the maintenance program.

About this task

When CAMO Module creates the REVISION status revision of a maintenance program it automatically assigns the same operator as the revision that was last activated. You will change this with following steps:

Steps

1. Go to the **Assembly Details** page, **Maintenance Programs** tab, and click a maintenance program.
2. Verify that the **Status** for the record you are viewing is REVISION.

> **Tip** If you are not viewing the latest revision (with the REVISION status), click the **Details** tab. Then, in the Revision History area, click the revision with the highest number.

3. In the **Details** area, click the edit button.
4. Click the **Operator** down arrow, select the operator from the list, and click **OK**.
   You can now go to the Requirements tab to work with requirements and reference documents.

Unassign requirements from maintenance programs

When a maintenance program is in build or revision status, you can unassign requirements from the program.

About this task

> **Important** Do not follow these steps when you want to unassign a requirement for a maintenance program that has been activated for more than one operator. See related topic.

Steps

1. On the **Maintenance Program Details** page, click the **Requirements** tab.
2. In the **Filter Options** area, enter the criteria for the requirements to be retrieved.
3. Click **Retrieve**.
4. Select the check box for the requirement you want to remove, and click **Unassign Requirement**.
5. On the **Unassign Requirement** page, provide the required information.
6. Click **OK**.

Unassigned requirements are displayed with a strikethrough on the Maintenance Program Details page, Requirements tab.

Unassign requirements from maintenance programs with multiple operators

To unassign a requirement that is used in other operator revisions of a maintenance program, you create a revision of the requirement, add an operator-specific task applicability rule to the requirement, and activate it. Do not use the Unassign Requirement button because doing this cancels tasks in the other operator's revisions of the maintenance program.

Prerequisite

You can only unassign requirements from the revision of the maintenance program that is in REVISION status.

About this task

> **Important** Do not use the **Unassign Requirement** button in this scenario.

These steps start with getting the code or codes of the other operators in the maintenance program that are still using the requirement.

Steps

1. To get the operator code, on the **Maintenance Program Details** page, **Revision History** area, **Operator** column, click an operator link.
2. On the **Organization** page, in the **Identification** area, copy or note the **Code**. Repeat if there is more than one operator that will continue to use the requirement.
3. On the **Maintenance Program Details** page, **Requirements** tab, enter or select **Filter Options** and click **Retrieve**.
4. Select a requirement to revise and click **Create Revision**.
5. Enter the required information and click **OK**.
6. On the **Requirement Details** page, **Applicability** tab, in the **Identification** area, click the edit button.
7. In the **Applicability** area, **Applicability Rule** box, enter the task applicability rule. Use the following syntax:`[Aircraft Operator]='Operator Code'`
   `For example: [Aircraft Operator]='OT-OTA'`
8. (Optional) Click **Verify Applicability Rule** and click **OK**.
9. Click **OK**.
10. Click **Activate Requirement**, enter requested information, and click **OK**.
11. On the **Requirement Details** page, **Applicability** tab, click **Close**.

On the **Maintenance Program Details** page, **Requirements** tab, the **Applicable** check box is cleared for the requirement you just revised.

After you activate this revision of the maintenance program, tasks are not created in this revision for the requirement you revised.

Issue temporary revisions of requirements

Issuing a temporary revision means to apply the newly activated revision of a requirement definition to an approved and active maintenance program, without applying the latest active revision of all other requirement definitions that are in the maintenance program.

About this task

To issue a temporary revision of a requirement to an active maintenance program, the revised requirement must already be assigned, unassigned or revised in the REVISION version of the maintenance program.

A temporary revision can be issued for a brand new requirement definition, for a newer revision of an existing requirement definition that is already in the maintenance program, or for a requirement definition that has been made obsolete.

In the case of a new revision of an existing requirement definition, all existing tasks are updated to the newer revision, except those that are in a committed or in-work work package.

In the case of an obsolete requirement definition, issuing a temporary revision marks that requirement as obsolete in the maintenance program, preventing its execution immediately rather than waiting for the maintenance program that is in revision to be approved and activated. Any existing task based on the now obsolete requirement is terminated, provided the task is not included in a work package that is committed or in work.

Steps

1. On your to-do list, click **Requirement Search**.
2. On the **Requirement Search** page, provide the required information.
3. Click **Search**.
4. Click the requirement link.
5. On the **Requirement Details** page, click **Issue Temporary Revision**.
6. On the **Issue Temporary Revision** page, select the check boxes of the operators to which you want to assign the temporary revision.
7. Click **OK**.

The revision number you just assigned is now displayed on the Maintenance Program Details page, Requirements tab, in the Temp column for the requirement or reference document.

Print maintenance program reports

About this task

You can generate the following reports that give detailed information about a maintenance program:

- The Maintenance Program Report displays all requirements in the maintenance program. Available for maintenance program revisions in any status.
- The Maintenance Program Differences Report displays all requirements that were added, removed, or revised between two maintenance program revisions.
-
- The Maintenance Program Impact Report displays all active tasks that would be affected if the maintenance program was activated. The impact report displays requirements on the selected operator's aircraft. Available only for maintenance program revisions in REVISION status.

Steps

1. On a **Maintenance Program Details** page, click one of the following buttons:
   - **Print Maintenance Program**, then enter or select parameters.
   - **Print Maintenance Program Differences**, then enter or select parameters. For the **Comp Carrier Rev** parameter, enter the revision number you want to compare with revision you are currently viewing.
   - **Print Impact Report**, then enter or select parameters.
2. Click **Generate Report**.

Interactive Electronic Technical Manuals (IETMs)

Technicians use electronic documents with information on how to perform maintenance tasks on their assets. These documents could be in various formats like MS Word, PDF, links to HTML files or application used to display technical manuals, and so on. All these documents are referred to collectively as Interactive Electronic Technical Manuals (IETM). Examples of such documentation include the appropriate page or chapter of a Maintenance Planning Document (MPD) or Aircraft Maintenance Manual (AMM).

CAMO Module allows you to create IETMs and associate them with existing links and attachments. They are then assigned to configuration slots, part groups, part numbers, task definitions, fault definitions, warranty contracts, vendors, tasks, and faults. You can associate IETMs with any class of requirement, job card, or block. When a requirement is initialized based on a requirement definition, the technical references and attachments of the requirement definition are copied to the newly created requirement as long as they are applicable to the operator and applicability codes of the target inventory of the requirement.

Technical references and attachments not associated with IETMs are referred to as ad hoc technical references and ad hoc attachments.

Creating IETMs

You can create IETM records in CAMO Module and then add their technical references and attachments.

The high-level workflow is as follows:

1. The user creates an IETM and assigns the IETM to one or more assemblies.
2. The user adds IETM Topics to the IETM.

   Each Topic is either a technical reference (a link to an external manual) or an attachment.
3. The user associates the IETM technical references and attachments with the task definitions or with actual tasks to provide technicians all the necessary information on how to perform the task.

IETMs can be updated at any time. All baseline task definitions plus actual tasks in ACTIVE or FORECAST status (tasks that are not started), display current notes and information for associated IETM or technical references. Actual tasks in all other states retain a copy of the notes that were current at the time the task status changed from ACTIVE or FORECAST.

To create or delete IETMs, you must have a role that has the associated permission settings and that have access to the IETM to-do list tab in CAMO Module.

If you need to print the technical reference or attachment at the same time as the job card is printed, it must be a technical reference link to a PDF file or an attachment in the PDF file format.

Adding Technical References to IETMs

Technical references are hyperlinks to the content of an IETM.

Different operators may use different technical references for the same IETM on the same type of aircraft. CAMO Module lets you specify different technical references per operator for a single IETM. Also, you can set an applicability range for a technical reference so that it only applies to a subset of inventory whose applicability codes fall within that range. Therefore, an IETM technical reference can apply to:

- A specific operator's inventory.
- Only the inventory whose applicability code(s) fall within a defined the applicability range.
- The subset of a specific operator's inventory that matches the defined applicability range.

You can create dynamic technical reference hyperlinks for task definitions, and the tasks created from them, using different Contexts and Variables.

Use a Context to specify that the generated URL depends on whether the hyperlink is launched from a task or task definition. Technical references link to IETM content in three different contexts: Task Definition Context, Task Context, or Default Context.

Use a Variable to specify that the generated URL depends on the properties of the task or task definition. CAMO Module populates the variable name with the corresponding CAMO Module field data.

Task Definition Context

The Task Definition Context is the portion of the technical reference URL used when you launch the technical reference URL from a task definition.

The Technical Reference URL = {Common Prefix} + {Task Definition Context}

You can use the following variables within the Task Definition Context portion of the technical reference URL:

Variable Names	Populated Variable
[Technical Reference Name]	Technical Reference Details page: Name field (mandatory field)
[Technical Reference Type]	Technical Reference Details page: Type field (optional field)
[Username]	The current user logged into CAMO Module
[Assembly Code]	Any task definition details page: Assembly field (mandatory field)
[Config Slot Code]	Any task definition details page: Config Slot field (mandatory field)
[Task Code]	Any task definition details page: Code field (mandatory field)

Task Context

The Task Context is the portion of the technical reference URL used when you launch the technical reference URL from a task or fault.

The Technical Reference URL = {Common Prefix} + {Task Context}

You can use the following variables within the Task Context portion of the technical reference URL:

Variable Names	Populated Variable
[Technical Reference Name]	Technical Reference Details page: Name field (mandatory field)

Variable Names	Populated Variable
[Technical Reference Type]	Technical Reference Details page: Type field (optional field)
[Username]	The current user logged into CAMO Module
[Assembly Code]	Task Details page, Assembly field (mandatory field)
[Task Barcode]	Task Details page, Barcode field (mandatory field)
[Config Slot Code]	Task Details page, Config Slot field (mandatory field)
[Task Code]	Task Details page, Task Code field (mandatory field)
[Aircraft Registration Code]	Inventory Details page, Registration Code field (mandatory field)
[Inventory Part Number]	Inventory Details page, OEM Part No field (mandatory field)
[Inventory Serial Number]	Inventory Details page, OEM Serial No field (mandatory field)
[Inventory Lot Number]	Inventory Details page, OEM Lot No field (optional field)
[Applicability Code]	Inventory Details page, Applicability Code field (optional field)

Default Context

The Default Context is the portion of the technical reference URL used outside a task or task definition context or when the task definition Context or the task Context is not specified.

The Technical Reference URL = {Common Prefix} + {Default Context}

You can use the following variables within the Default Context portion of the technical reference URL:

Variable Names	Populated Variable
[Technical Reference Name]	Technical Reference Details page: Name field (mandatory field)

Variable Names	Populated Variable
[Technical Reference Type]	Technical Reference Details page: Type field (optional field)
[Username]	The current user logged into CAMO Module

As an example, if you create a technical reference for an IETM with the following information:

- Common Prefix: *http://MyWebsite.com/*
- Task Definition Context: *MyTaskDefinitions/[Assembly Code]*
- Task Context: *MyTasks/[Aircraft Registration Code]*

You can add this technical reference to any task definition. When this technical reference link is launched from a task definition with an assembly code of 737-200, CAMO Module will generate the following URL for the technical reference target:

http://MyWebsite.com/MyTaskDefinitions/737-200

The technical reference link is added to all tasks that are created from the original task definition. When the technical reference link is launched from a task with an aircraft registration Code of 83, CAMO Module will generate the following URL for the technical reference target:

http://MyWebsite.com/MyTasks/83

Some variables represent optional fields within CAMO Module, which means that they may not contain data. CAMO Module will not populate empty variables. For example, if a URL is comprised of *www.mywebsite.com/[Inventory Lot Number]/[Inventory Part Number]*, and the inventory lot number is not specified for a task, but the inventory part number is PN_123, then CAMO Module will generate the following URL: *www.mywebsite.com//PN_123*.

You can mark technical references that are in PDF as printable. CAMO Module appends printable technical references to the associated job cards when the job card is previewed online.

Note The context link must not contain spaces. Having spaces will result in an error if you try to print the task card containing the technical reference.

Adding Attachments To IETMs

Attachments are files that you upload to an IETM, which can be accessed by tasks and their associated task definitions, to which you assign the IETM.

You can also add attachments that are not associated with an IETM to actual tasks and task definitions. These attachments are referred to as ad hoc attachments.

You can also mark PDF attachments as printable.

Operators and applicability codes for IETMs

You can restrict the inventory to which IETM technical references and attachments apply by specifying an applicability range. Also, you can specify the operator for which each IETM reference and attachment applies. Therefore, in a single task job card definition, you can have several IETM technical references that each apply to different operators and/or different subsets of inventory. When the job card definition is initialized into actual tasks, each task includes only the IETM technical references that have the same applicability range and the same operator as the inventory to which the job card task applies.

If you modify an inventory's operator or applicability code, planned tasks on that inventory are updated to the correct IETM technical reference upon saving changes to the inventory. For example, if you add an operator to an aircraft inventory item, all of the planned tasks that apply to the aircraft, its sub-assembly, and sub-inventory are updated with technical references or attachments, specific to the operator and applicability range.

Baseline synchronization

Baseline synchronization is a background job that runs in CAMO Module to update actual tasks to the most recent changes made in the maintenance baseline.

Any changes made to a task definition should also apply to existing tasks that were created from the previous version of the task definition. When new task definitions are activated, actual tasks must be created for the inventory to which the definition applies. Other changes made to part numbers or inventory items also make it necessary for CAMO Module to apply changes to tasks. CAMO Module makes the necessary changes using a process called baseline synchronization.

When CAMO Module applies baseline synchronization to a task it updates all attributes of the task. Attributes can include priority, work type, labor requirements, and part requirements. The updates use information from the most recent active revision of the associated task definition. However, if the task itself has attributes that have been updated by a user, CAMO Module leaves those attributes unchanged. In other words, user updates to the task take precedence over revisions originating from changes to the task definition.

The following items are not affected by baseline synchronization:

- Master panel cards and reference documents tasks as they are never initialized as active tasks.
- Tasks that are assigned to a work package that is in one of the following statuses: Commit and In Work.

CAMO Module periodically runs baseline synchronization in the background on the CAMO Module server. A CAMO Module administrator can change the settings for this server job.

Baseline synchronization does the following:

1. Identifies the inventory items that require synchronization and the blocks and requirements that may have to be remapped based on the changes made to the baseline.
2. Updates the information for the inventory items that require synchronization. Baseline synchronization cancels, updates, or initializes tasks associated with inventory according to the changes made to the baseline.
3. Updates the mapping between requirements and blocks.

Use the CAMO Module configuration parameters to customize the baseline synchronization process.

Identification of inventory to be synchronized

CAMO Module marks inventory for synchronization when certain conditions apply to that inventory. The following table explains how CAMO Module identifies the inventory that requires synchronization:

Condition	What is marked for synchronization
A user uncommits a work package.	The main inventory for all tasks assigned to the work package.
A user removes a task from a work package that has a status of either Commit or In Work.	The task's main inventory.
Inventory is created under one of the following classes: BATCH, SER, TRK, ASSY, ACFT.	The entire inventory hierarchy.
Inventory is attached using the Attach Inventory button, or installed by completing the installation portion of a part requirement.	The inventory and its sub-inventory.
Inventory is detached using the Detach Inventory button, or removed by completing the removal portion of a part requirement.	The inventory and its sub-inventory.
An aircraft or engine operator is changed.	The entire inventory hierarchy.
An aircraft fin number, line number, or variable number is changed.	The entire inventory hierarchy.

Condition	What is marked for synchronization
The part number or serial number is changed for an inventory item.	For inventory of class ACFT, the entire inventory hierarchy. For inventory of class ASSY, the inventory and its sub-inventory. For component inventory, only the inventory item.
The inventory class associated with a part number is changed.	All inventory for any of the assigned part numbers.
The owner code or owner name is changed for an inventory item.	For inventory of class ACFT, the entire inventory hierarchy. For inventory of class ASSY, the inventory and its sub-inventory. For component inventory, only the inventory item.
The applicability code for an aircraft or assembly is changed.	The entire aircraft or assembly.
The manufacturer is set for a part number.	All inventory for the part number.
The OEM part number is set for a part.	All inventory for the part number.
The manufacturer or lot number is changed for a component inventory item.	The modified inventory.
An inventory item changes configuration slot.	The modified inventory and its sub-inventory.
A configuration slot task definition is activated.	All inventory associated with the configuration slot.
A configuration slot task definition becomes obsolete.	All inventory associated with the configuration slot, and for which there are actual tasks based on the task definition.
A part number task definition is activated.	All inventory for any of the assigned part numbers.
A part number task definition becomes obsolete.	All inventory for the part number, and for which there are actuals tasks based on the task definition.

Condition	What is marked for synchronization
A maintenance program is activated.	All inventory that has the same operator as the maintenance program and that is associated with any task definition that has changed revision since the last approved revision of the maintenance program.
A temporary revision of a requirement definition is issued.	All inventory associated with the revised requirement definition.
The Synchronize Maintenance button is clicked.	The entire inventory hierarchy.
A mandatory task (one that is not on-condition) has been canceled for an inventory item.	The inventory for which the task was canceled.

Allow or prevent synchronization

About this task

There is a lot of information to enter into CAMO Module when you create an inventory. It is possible that the new inventory records are not completed in a single operation. The next time baseline synchronization runs, it could initialize tasks for inventory records that are incomplete. To avoid this, the default CAMO Module behavior is to prevent synchronization for newly created aircraft, assemblies, and loose inventory whose records have the condition of "inspection required" (INSPREQ).

If synchronization is prevented, the entire inventory hierarchy is ignored by baseline synchronization until you allow synchronization.

However, your organization can choose to configure CAMO Module to allow synchronization of new inventory, even if it has the inspection required condition. In this situation, when you create an inventory record and know that it is incomplete, you must prevent synchronization on the inventory.

You can allow or prevent baseline synchronization for aircraft, assembly, or loose inventory that are not locked and are not in one of the following statuses: Archive, Scrap, or Condemn.

To allow or prevent synchronization of an inventory, do the following:

Steps

1. Navigate to the required inventory's details page.
2. Click the Allow Synchronization or Prevent Synchronization button (you will only see one of these).

Applying baseline synchronization

CAMO Module carries out baseline synchronization in two phases:

1. Cancel, update, or initialize the affected tasks.
2. Update the mapping between requirements and blocks.

Inventory records are retrieved for baseline synchronization if the following conditions apply:

- The inventory is marked for synchronization, based on the conditions described in "Identifying the inventory to be synchronized".
- The inventory is not locked.
- Synchronization is allowed—it has not been prevented for that inventory.

Canceling, terminating, updating and initializing tasks

For each inventory record identified for baseline synchronization, CAMO Module performs the following actions with the associated tasks:

- Cancels tasks that were initialized but that are no longer relevant.
- Terminates tasks that will never be executed again.
- Updates tasks that are not on the correct revision.
- Initializes tasks that should be initialized.

If baseline synchronization cancels a task, or moves the due date of the task to a later date, it may also change the condition of the associated inventory in certain conditions. For example, if baseline synchronization moves the due date of a recurring task that was scheduled to meet a maintenance deadline on the inventory to a date which is after the maintenance deadline, the inventory condition for a loose item that was ready for issue (RFI) will change to Repair Required (REPREQ).

Canceling tasks

Baseline synchronization automatically cancels tasks that match one of the following criteria as long as the tasks are not assigned to a work package that has the status of Commit or In Work:

- The task is based on a task definition that is now obsolete.
- The latest revision of the task definition is no longer applicable for the inventory. For example, the task applicability rules were changed and no longer apply to specific inventory items, or the inventory item itself was modified and has a different part number that makes the task no longer applicable to the item.
- The task is a based on a job card that is no longer assigned to the requirement.

If canceled tasks are based on a block or requirement definition, the tasks are identified as requiring remapping.

The following table describes how CAMO Module cancels each type of task.

Canceling tasks

Task type or status	Action
Job card task type	The job card is unassigned from its current workscope and then canceled.
Requirement task type	If the requirement task is assigned to a parent task, it is removed from the parent task and then canceled.
Block task type	All requirements for the block are unassigned and then the block is canceled.
Forecast task status	The task is deleted from the system instead of being canceled.
Active task status	The task is canceled and marked as being canceled by CAMO Module, as opposed to by a user. CAMO Module adds a note to indicate the reason for the cancellation.

Terminating tasks

Terminating a task means that you will never execute the task again. When you terminate a task, baseline synchronization will never again initialize that task for the inventory for which you terminated it.

Updating tasks

Baseline synchronization automatically updates tasks to the correct revision of their task definitions. CAMO Module determines the correct revision using the following criteria:

- Job cards must always be on the active revision of the task definition; this applies to all job cards tasks including those that are associated with requirements that are in maintenance programs.
- Blocks must always be on the active revision of the task definition.
- Requirements not in a maintenance program must always be on the active revision of the task definition.
- Requirements in a maintenance program and initialized on an aircraft must be on the approved version of the task definition for the aircraft's operator.
- Requirements in a maintenance program and initialized on non-aircraft inventory must always be on the active revision of the task definition.

Master panel cards, reference documents and tasks assigned to a work package that have the Commit or In Work status are not updated by baseline synchronization. Users can update job cards in committed or in work work packages manually.

CAMO Module performs the following activities to update a task:

- Update the basic details of the task to reflect the revised task definition. If the user has manually changed the details of the task, CAMO Module does not overwrite those changes. Details that are updated include:
  - Task definition revision link
  - Task subclass
  - Task priority
  - Task originator
  - Task reference
  - Task instructions
  - Estimated duration
  - Issue to account
  - Soft deadline indicator. Next shop visit tasks always retain their soft deadlines.
  - Minimum planning yield
  - Work types
  - Document reference
  - Task name
  - Task description
  - Prevent execution indicator
  - Prevent execution review date
- Update the list of attachments by:
  - Removing attachments from the task that were removed from the revised task definition.
  - Adding attachments to the task that were added to the revised task definition.
- Update the list of technical references by:
  - Removing technical references from the task that were removed from the revised task definition.
  - Adding technical references to the task that were added to the revised task definition.
- For job cards and executable requirements, update the list of labor requirements by:
  - Removing all existing labor requirements from the task.
  - Adding the labor requirements according to the revised task definition.
- For job cards and executable requirements, update the list of steps by:
  - Removing all existing steps from the actual task.
  - Adding the steps according to the revised task definition; the steps added to the tasks have the status value of Pending.
- For job cards and executable requirements, update the list of part requirements by:

  - Removing part requirements from the task that were removed from the revised task definition.
  - Adding part requirements to the task that were added to the revised task definition.
- For job cards and executable requirements, update the list of measurements by:
  - Removing measurements from the task that were removed from the revised task definition.
  - Adding measurements to the task that were added to the revised task definition.
- For job cards and executable requirements, update the list of tool requirements by:
  - Removing tool requirements from the task that were removed from the revised task definition.
  - Updating tool requirements where the scheduled hours changed in the revised task definition.
  - Adding tool requirements to the task that were added to the revised task definition.
- For job cards and requirements, update the list of zones by:
  - Removing zones from the task that were removed from the revised task definition.
  - Adding zones to the task that were added to the revised task definition.
- For job cards and requirements, update the list of panels by:
  - Removing panels from the task that were removed in the task definition revision.
  - Adding panels to the task that were added in the task definition revision.
- For requirements and blocks, update the scheduling rules. The scheduling rules on the task are synchronized to match the scheduling rules on the revised task definition.

  Note

  The scheduling rules of tasks that are based on a requirement or block definition that had the Allow Manual Scheduling option selected, and still have the option selected in the new active revision, are not updated by baseline synchronization.

- For requirements and blocks, update the issue to accounts by:
  - For blocks, setting the issue to account on the block and all of its sub-tasks (requirements and job cards). This in turns sets the issue to account on the part requests for any of those tasks.
  - For requirements, setting the issue to account on the requirement and all of its job cards. This in turns sets the issue to account on the part requests for those job cards.

Initializing tasks

Baseline synchronization automatically initializes missing tasks that meet certain criteria. CAMO Module determines the tasks to initialize using the following criteria:

- The task definition is a block, requirement or job card.
- The task definition is mandatory (not on-condition).
- If the task is a block in a block chain, it is the first block. CAMO Module only auto-initializes the first block in a block chain.
- The task definition is applicable according to the part group applicability range.
- The task definition is applicable according to the task definition applicability range.
- The task definition is applicable according to the task definition applicability rule.
- The task definition has a Complies link to another task definition—such as a reference document —that is applicable to some assets. The linked task definition is initialized even if it has a second Complies link to a historical or non-applicable task, as long as it has one COMPLIES link to an applicable task.
- The task definition is a job card and it has a corresponding requirement that is missing the job card. Job cards are never auto-initialized as loose tasks.
- The task definition was initialized, but the resulting task was subsequently canceled by a user or by CAMO Module, for example, because the task is marked as CANCEL ON INSTALL or CANCEL ON AIRCRAFT INSTALL. In this case, the newly initialized task will not be scheduled from the previously completed task if any, and manual intervention may be required to update its scheduling.
- A non-recurring on-condition task was revised to a recurring on-condition task. In this case, initializing the task (manually, because it's on-condition) will not automatically schedule the task from the previously completed instance if any.

Note

Baseline synchronization may initialize a block or requirement that is scheduled on the manufactured or received date for inventory that does not have these dates recorded. In this case, CAMO Module schedules the block or requirement as explained in "*Determining the Scheduling Start Value*".

CAMO Module does not initialize tasks if any of the following conditions apply:

- The task is a reference document or a master panel card task definition.
- The task class is CORR. Corrective tasks are intended to be used as troubleshooting tasks on fault definitions. They can be initialized manually on their own or as subtasks under faults when the system is configured to allow it.
- The task definition is marked as CREATE ON INSTALL or CREATE ON AIRCRAFT INSTALL.

- The task definition is a job card and its requirement's task class is CORR. You must manually initialize these tasks using the Corrective Actions button on the fault.
- The task definition is a job card and its requirement is assigned to a work package with status Commit or In Work.
- The task definition has been terminated. When a task is terminated—by a user or by CAMO Module, for example because of a Terminate Following Task dependency—baseline synchronization will never initialize that task again for the inventory for which it was terminated.
- The task is already initialized, and it has one of the following status values: Active, In Work, Pause or Inspection Required.
- The task is non-recurring and has already been accomplished.
- The task is a block or requirement that is created upon the completion of another block or requirement.
- The task has a COMPLIES link to a historical or non-applicable task, for example, a requirement that complies with a non-applicable or historical reference document.

Note When a block is initialized, its requirements are not auto-initialized at that time. They are all initialized separately, and then re-mapped.

Updating the mapping between blocks and requirements

As part of the baseline synchronization process, CAMO Module updates the mapping between the blocks and the requirements in a maintenance program, making sure that requirements are assigned to the proper blocks according to the baseline mapping. This process is sometimes referred to as block zipping. CAMO Module only updates the active block and the forecast blocks. Mappings involving requirements in committed work packages are left unchanged.

After all task deadlines have been recalculated and updated for the highest inventory in the inventory hierarchy, baseline synchronization will properly align requirements with the appropriate block.

The re-mapping of blocks and requirements can be configured in the following two ways using the configuration parameter BSYNC_IGNORE_ZIPPING_DATE_MISALIGNMENT:

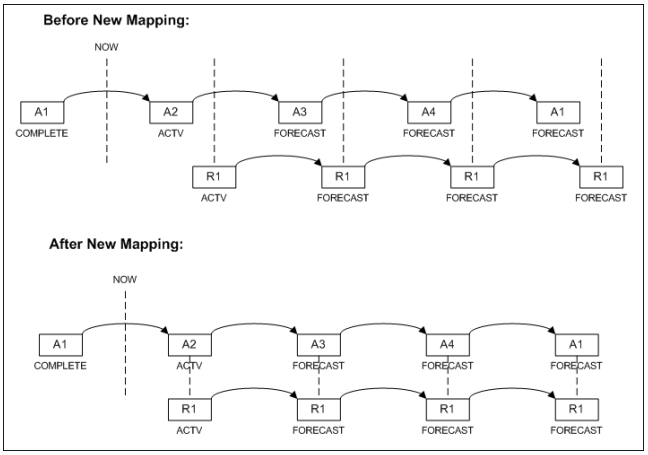
- If this parameter is FALSE, a requirement is not assigned to a block if it is due before the block. The requirement is left out of phase, and the next instance of the requirement will be assigned to a block.
- If the parameter is TRUE, requirements are assigned to blocks regardless of their respective due dates. This affects the due date of the entire block because the due date matches the earliest deadline of all the requirements in the block.

Updating mapping information examples

The following examples illustrate how requirements are mapped when the parameter BSYNC_IGNORE_ZIPPING_DATE_MISALIGNMENT is set to FALSE.

Example 1:

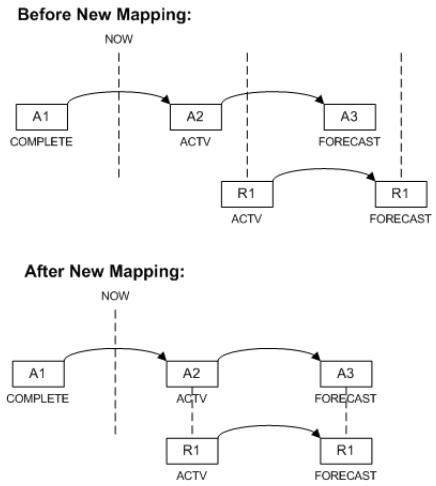
- The A block chain consists of 4 blocks.
- The requirement must be assigned to every block in the chain.
- The active requirement R1 is due after the active block.
- The active requirement R1 is assigned to the active block A2.
- The forecast requirements are assigned to the forecast blocks.



Mapping example 1

Example 2:

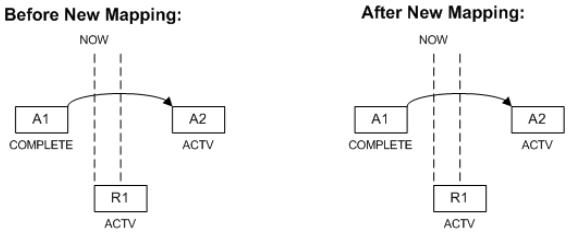
- The A block chain consists of 4 blocks.
- The requirement must be assigned to every block in the chain.
- The active requirement R1 is due after the active block.
- The requirement chain has only one forecast requirement.
- The active requirement R1 is assigned to the active block A2.
- The forecast requirement is assigned to the forecast block A3.



Mapping example 2

Example 3:

- The A block chain consists of 4 blocks.
- The requirement must be assigned to A2 and A4.
- The active requirement R1 is due before its first block A2.
- The requirement is not forecast past the active requirement.
- The active requirement R1 remains loose.



Mapping example 3

Life-limited parts

Life-limited parts (LLP) are parts that have a predictable aging profile and have significant consequences if they fail, and therefore have a specified service life. A life limit can be defined by accumulated cycles, hours, or any other mandatory replacement limit of an LLP. This means each of these LLPs can only operate a certain number of flight hours, flight cycles, or other pre-determined parameters before it is removed from the aircraft and destroyed. LLPs cannot be restored and must be discarded upon expiration.

Typically, the manufacturers determine the life limit of a part, which is described in the manufacturers' maintenance documents or instructions for continued airworthiness. In some cases, the life limits for a part may be updated as described in an SB or an AD. These guidelines

are used to determine the part number's life limit in CAMO Module. Most LLPs are governed by either the number of flight hours operated or the number of flight cycles operated, so in those cases, the part's expiry is reached when the set number of hours/cycles are collected.

In CAMO Module, component life limits are modeled as discard requirements, i.e. requirements with a task class of DISCARD. The life limit itself will be recorded as the discard requirement's scheduling threshold. By using requirements to model life limits, CAMO Module is able to ensure that hard-time discard tasks are visible to all users, usage is properly tracked and accounted for, and the necessary procedures can be invoked when the component's life limit is reached (such as a component removal and scrapping).

Note The term "life-limited parts" is usually used for engine and landing gear parts, but this section is also applicable to all aircraft parts with life limits, commonly referred to as airworthiness limitation items.

Create discard requirements for life-limited parts

You create discard requirements for LLPs to make sure they are discarded upon expiration. After the component has been destroyed (rendered permanently unrepairable), a certificate of destruction is issued for the LLP, after which its status is set to SCRAP in CAMO Module.

About this task

To create a requirement to discard LLPs, do the following:

Steps

1. On the **Requirement Search** page, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot**.

     It is recommended using Config Slot requirements rather than Part Number requirements because CAMO Module cannot include part number requirements in the aircraft's maintenance program.
   - In the **Classification** area, select **Class** to be **DISCARD (Discard)**.
   - In the **Scheduling Details** area, verify that the **Recurring** check box is not selected.
   - In the **Scheduling Details** area, select **Manufactured Date** from the **Schedule From:** list.
   - In the **Planning Details** area, make sure the **On Condition** check box is not selected.
   - In the **Planning Details** area, make sure the **Must Be Removed** is selected as **Off Parent** or **Off Wing**.
3. Click **OK**

   You must now add a scheduling rule to this requirement.
4. On the details page for the requirement, click the **Scheduling** tab.

5. Click **Add Scheduling Rule** ⊞.
6. On the **Add Scheduling Rule** page, provide the required information. Note the following:
   - **Usage Parm**: Select **CYCLES (Cycles)** or **HOURS (Flying Hours)**.
   - **Threshold**: Enter the value for life limit of the part. For example, if the LLP is set to expire after 15000 cycles, enter 15000.
   - **Deviation (Qty)**: Enter 0.
   - **Sched to Plan Low**: Enter 0.
   - **Sched to Plan High**: Enter 0.
7. Click **OK**.

> **Note** A discard requirement is not used to remove the inventory item from an assembly, therefore a replacement requirement must also be defined against the configuration slot. This replacement requirement will then be automatically created by CAMO Module to uninstall the LLP component, so that the discard requirement can be completed.

Prorated life limits

While life limits on components are normally static, there are some cases where a component's life limit dynamically changes depending upon how that component is used.

An example of this can be found in engines. Some engines can be configured to run at different thrust ratings. For example, the CFM56 engine can be configured to run at 24k lbs thrust (for installation on B737-700) or 27k lbs of thrust (for installation on B737-800). In addition, there are certain modifications, sometimes known as tech insertions, that can be made to an engine that may alter its thrust and performance profile.

When an engine runs at different thrust ratings, the life limits of certain components within the engine may change. In particular, these components will typically last longer when the engine runs at a lower thrust rating.

To calculate how many cycles are remaining on each component, you need to take into account what percentage of the component’s life has already been spent, based on the thrust ratings it has undergone. You then use this history to calculate the current usage (or life) of the component prorated to the current thrust rating. The remaining life of the component is calculated based on the current thrust rating and the accumulated usage under one or more different thrust ratings. The life-limit corresponding to the current thrust rating will be used.

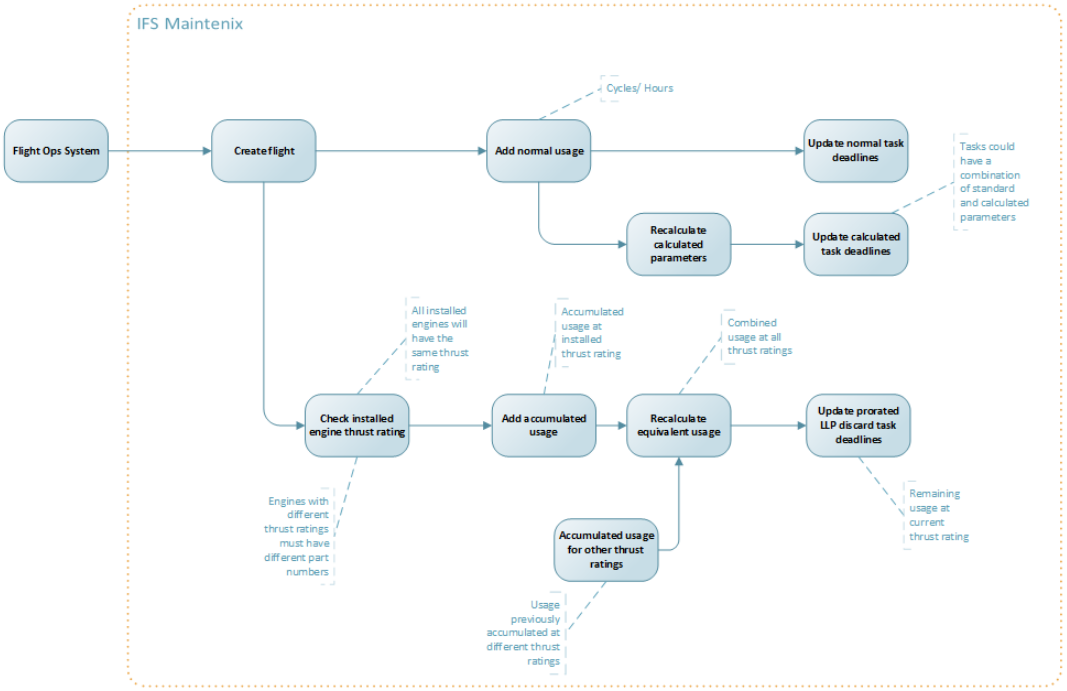
For example, if you are currently operating at 24k thrust rating (a lower thrust rating), then every previous cycle that occurred while the engine was at 27k will count as slightly more than 1 cycle. So if you previously flew 5000 CYCLES at 27k, they would be the equivalent of 7500 CYCLES at the current 24k.

In CAMO Module, life limits are enforced by tracking usage and creating discard requirements. To manage life limits at all thrust ratings in CAMO Module, the following high-level steps are involved:

1. Create a different engine part number for each thrust rating.
2. Create accumulated usage parameters for each thrust rating to track the number of cycles performed at each thrust rating.
3. Create calculated usage parameters for each thrust rating to allow CAMO Module to calculate the prorated usage for components that have spent time at multiple thrust ratings.
4. Create discard requirement definitions against each tracked component that is identified as being a prorated LLP.

Although this section uses examples for engines to describe this functionality, it is applicable to any sub-assembly type like APUs or landing gear.

The following figure displays the workflow of updating task deadlines with usage at thrust rating in comparison with normal usage.



Prorated LLP Workflow

For more information on the prorated LLP solution, see the related task below.

Important

When you are creating or editing flights using the Maintenix Flight API, the prorated life limits solution can only work when you're using flights-2.0 messages. The flights-1.0 messages will not include accumulated parameters in the usage records, thus not providing you with usage at each thrust rating. For more information on flight messages, see the *Maintenix Flight API Guide*.

Accumulated usage parameters

Accumulated usage parameters are parameters that track the number of cycles or hours performed at each thrust rating of an engine.

Accumulated parameters are used as inputs for calculated parameters that calculate equivalent cycles or hours at each thrust rating of an engine. There must be one accumulated usage parameter for each thrust rating-based part number.

Create accumulated usage parameters

You create accumulated usage parameters to track the number of cycles performed at each thrust rating. There must be one accumulated usage parameter for each thrust rating based part number.

Prerequisite

There must be one part number for each thrust rating of the engine. These part numbers are required to allow the accumulation of cycles against the correct thrust rating usage parameter. This procedure is a part of the process of setting prorated life limits for engine components. For more information, see *Prorated life limits*.

Steps

1. Navigate to the **Assembly Details** page of the required engine and then click the **Usage** tab.
2. Under **Usage Parameters**, select the appropriate usage parameter such as**CYCLES (Cycles)** or **HOURS (Flying Hours)**.
3. Click **Create Accumulated Parameter** .
4. On the **Confirmation Required** page, click **Yes**.

   New accumulated usage parameters will be created for each assembly part number with the format: **<standard usage parameter name>-ACC-<assembly part number>**.

Set up prorated life limits

In CAMO Module, life limits on inventory items are tracked by discard components. For inventory items that require some form of life proration, these discard requirements are the same as those for non-prorated LLPs. However, before you can set up the discard requirements on prorated LLPs, additional setup steps are required. These involve creating calculated and accumulated usage parameters, so CAMO Module can correctly calculate the proration of the LLP inventory item.

About this task

To perform the initial setup required to properly manage life limits on prorated LLPs, do the following:

Steps

1. Create a new part number for each thrust rating of the engine within the engine assembly part group. For example, if the CFM56 engine has three thrust ratings (7B24, 7B26, and 7B28), you will create three part numbers to represent these thrust ratings (CFM56-7B24, CFM56-7B26, and CFM56-7B28). These part numbers are required to allow the accumulation of cycles against the current thrust rating usage parameter.
   - Assign each part number as an alternate part, in the part group defined at the root configuration slot of the engine assembly.
   - Assign each part number to the engine SUBASSY configuration slot on the aircraft assembly that the engine is installed on.

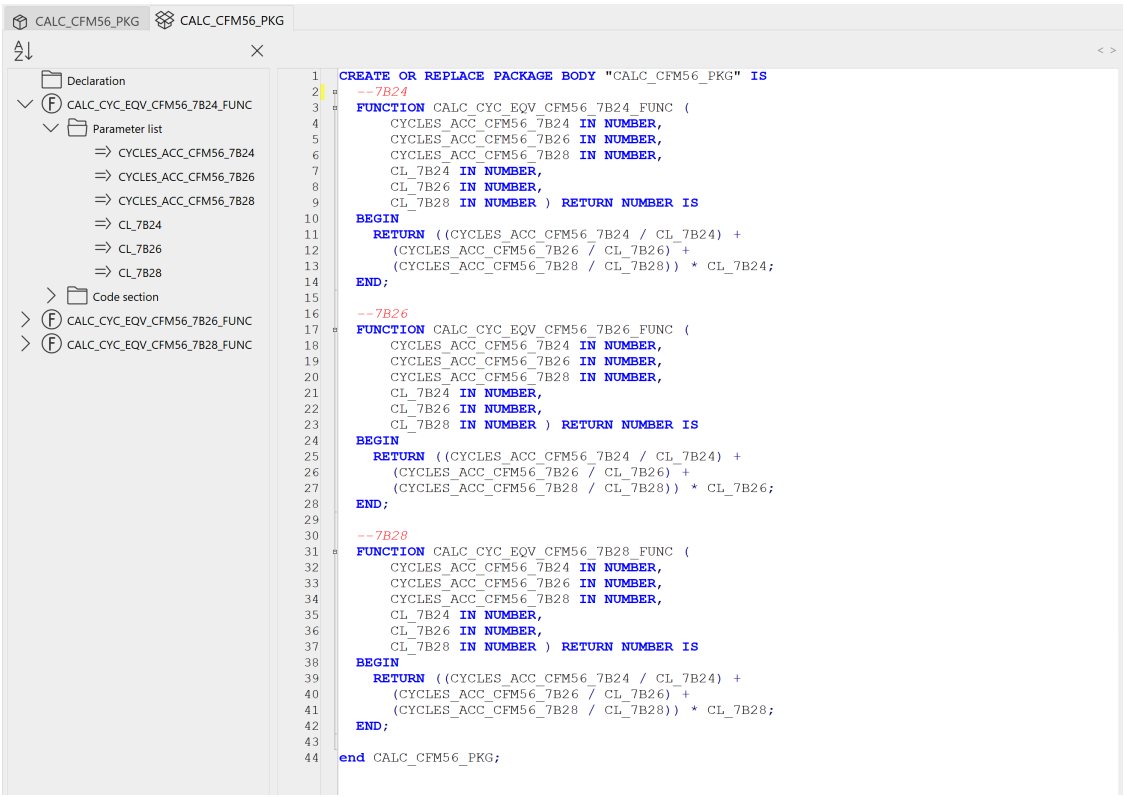
   Note The part number must be added to both the assembly and aircraft sub-assembly part groups because the assembly part group controls if the part is valid in that assembly, and adding the part number to both the part groups lets CAMO Module know that this part is allowed to be installed on the aircraft.

2. Create accumulated usage parameters that will track the number of cycles performed at each thrust rating. There must be one accumulated usage parameter for each thrust rating based part number. For example, for the CFM56 engine part numbers defined above, you will create three accumulated usage parameters (CYCLES_ACC_CFM56-7B24, CYCLES_ACC_CFM56-7B26, and CYCLES_ACC_CFM56-7B28).
3. Create calculated usage parameters that will be used to calculate the equivalent cycles at each thrust rating. For example, for the CFM56 engine part numbers defined above, you will create three calculated usage parameters (CYCLES_EQV_CFM56-7B24, CYCLES_EQV_CFM56-7B26, and CYCLES_EQV_CFM56-7B28). Note the following while creating the calculated usage parameters:
   - For the database function, add every accumulated usage parameter as an input. For example, CYCLES_ACC_CFM56-7B24, CYCLES_ACC_CFM56-7B26 and

CYCLES_ACC_CFM56-7B28 are all inputs for CYCLES_EQV_CFM56-7B24. See the sample function below for more details.

- For the database function, add a calculation input constant for each thrust rating; this will be used to record the life limit of the component at that thrust rating. Default this value to 1.
- Create part-specific constants for each prorated component part number and each thrust rating. Set this constant's value to the life limit of that part number at the given thrust rating.

The following sample function includes the example inputs mentioned above:



4. Assign each of these calculated usage parameters to the engine assembly and the prorated LLP sub-components (cascade each calculated usage parameter).

> **Note** You use the Cascade Parameters button to cascade calculated usage parameters down to all sub-configuration slots. This assigns the calculated parameters to each sub-component in the assembly hierarchy in one step.

5. Create discard requirements against each prorated LLP configuration slot, one for each thrust rating. For example, if there are two prorated LLP configuration slots, you will create six discard requirements (three discard requirements for three thrust ratings on each configuration slot).

   Whenever there is a change to the thrust rating of an engine, the system engineer sets up maintenance requirements that are issued to technicians. Once these requirements are completed, the part number of the engine will be changed automatically.

You create modification requirements to change the part numbers for engines that can change thrust ratings.

Create discard requirements for prorated LLPs

Discard requirements are used to model the life limits of a part in CAMO Module. A discard requirement needs to be defined on each prorated LLP configuration slot, one for each thrust rating.

Prerequisite

Ensure you have set up accumulated usage parameters and calculated usage parameters for each prorated LLP.

About this task

For each of the prorated LLP configuration slot, do the following:

Steps

1. On the **Requirement Search** page, click **Create Requirement**.
2. On the **Create Requirement** page, provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot**.
   - In the **Identification** area, select the appropriate assembly from the **Assembly** menu.
   - In the **Identification** area, select the appropriate configuration slot from the **Config Slot** menu.

     You will create one discard requirement for each of the prorated LLP configuration slots.
   - In the **Classification** area, select **Class** to be **DISCARD (Discard)**.
   - In the **Scheduling Details** area, make sure the **Recurring** check box is not selected.
   - In the **Scheduling Details** area, select **Schedule From:** as **Manufactured Date**.
   - In the **Applicability** area, in the **Applicability Rule** box, enter an applicability rule so that it only applies if the engine has the equivalent thrust rating part number (for example, `[Assembly Part No] = 'CFM56-7B24'`). Adjust the applicability for the default thrust rating so that it will be initialized on new or loose components (for example, `[Assembly Part No] = 'CFM56-7B24' or [Assembly Part No] is null`).
   - In the **Planning Details** area, make sure the **On Condition** check box is not selected.
   - In the **Planning Details** area, make sure the **Must Be Removed** is selected as **Off Parent** or **Off Wing**.
3. Click **OK**.

What's next

You must now add a scheduling rule to this requirement.

Add scheduling rules to discard requirements

You add scheduling rules to discard requirements for prorated LLPs to ensure they are discarded upon expiration.

Steps

1. On the details page for the required discard requirement, click the **Scheduling** tab.
2. Click **Add Scheduling Rule** .
3. On the **Add Scheduling Rule** page, provide the required information. Note the following:
   - **Usage Parm**: Select the calculated usage parameter for the prorated LLP.
   - **Threshold**: Enter the value for life limit of the part. For example, if the prorated LLP is set to expire after 15000 cycles, enter 15000.
   - **Deviation (Qty)**: Enter 0.
   - **Sched to Plan Low**: Enter 0.
   - **Sched to Plan High**: Enter 0.

   Important If there are alternate part numbers with different life limits at the requirement's thrust rating, you need to create the required part-specific scheduling rules based on the life limit of each part at the given thrust rating.

4. Click **OK**.
5. On the **Requirement Details** page, click **Activate Requirement** .

4

Repair management

Repair management

Engineers create requirements that are used to repair faults and to manage ongoing maintenance related to repaired faults.

Maintenance organizations use the terms *non-routine*, *finding*, and *discrepancy* to describe the discovery of a problem. These problems might be found at different times:

- During inspections.
- By the flight crew.
- While other repairs are being performed.

CAMO Module uses the term *fault* as a synonym of these terms. While faults are not necessarily expected, many of them are known problems that are encountered frequently within a fleet. As maintenance technicians or inspectors find problems, or receive logbook entries from the flight crew, they must raise them in CAMO Module as faults, so that the problem can be monitored and resolved.

To resolve a fault, a technician performs a *repair*. CAMO Module allows engineers to define repair procedures, including the various follow-on inspections and/or permanent repairs that will be required. These repairs can be used for both one-time repairs such as an EA (Engineering Authorization), or for frequently used repairs such as those found in the SRM (Structural Repair Manual).

To ensure that follow-on tasks are kicked off after a repair is complete, use the following workflow:

1. Create a repair reference requirement (REPREF) for a configuration slot.
2. Create a requirement with the FOLLOW class for the same assembly or for a tracked sub-assembly.
3. Return to the repair reference. On its Scheduling tab, add one or more Following Tasks. These follow-on tasks have the CRT (Create New) Action on Completion.

When a technician works on a fault with a REPREF selected, if the REPREF links to follow-on tasks, these are displayed when work is captured. When the repair is completed, the specified follow-on tasks are initialized.

For faults that occur frequently, engineers can create non-routine baselines, known as a *fault definitions*. These fault definitions contain the proper labeling and categorization, as well as links to relevant troubleshooting and corrective actions.

Finally, in integrated systems that use CAMO Module and the Diagnostics API, possible faults can be detected by systems on the aircraft and raised automatically in CAMO Module so that they are reviewed and addressed by maintenance personnel.

Repair references

Repair references are defined by engineering and are used to represent any form of repair that can be carried out by a technician.

Repair references are used to model one-time repairs such as EAs (Engineering Authorizations) as well as re-usable repairs such as those found in the SRM (Structural Repair Manual) or re-usable EAs. Repair references are setup as follows:

- Repair references are a type of requirement.
- They must have a requirement Class of REPREF.
- They usually have a requirement Subclass, which is used to define the type of repair such as EA or SRM. The sub-class is not required to create the requirement, but it is required to allow technicians to filter by type when they select references.
- They can only be defined against a configuration slot, not against a part number.
- When you select the REPREF class on the Create Requirement page, the Config Slot radio button is selected automatically and the Part Number radio button is disabled.
- They must be set up as executable requirements, and cannot have job cards. When you select the REPREF class on the Create Requirement page, the radio button is selected automatically. The radio button is disabled.
- They are always on-condition. When you select the REPREF class on the Create Requirement page, the On Condition check box is selected and cannot be unselected.
- They are always marked as Prevent Manual Initialization, meaning that they cannot be initialized as tasks. Instead, they are always selected in context of a fault using the Select Reference button. The Allow Manual Initialization button is not available for these requirements.
- They cannot be created or canceled upon installation or removal. When you select the REPREF class on the Create Requirement page, the Create/Cancel on Install and Create/Cancel on Removal list boxes are set to Do Nothing on Install/Removal and hidden from the page.
- They cannot be assigned to blocks or maintenance programs.

- They can have Following Task links to follow-on inspections or replacement repairs. Unlike follow-on tasks for other classes of requirements, follow-on tasks for REPREF requirements can be created against sub-assemblies of the assembly that was repaired. For example, the REPREF might be on an aircraft (SYS config slot), but the follow-on task can be on a TRK component of the sub-assembly such as a door, panel, fairing, control surface, etc. When adding following tasks to REPREF requirements, you can select only FOLLOW class tasks with a CRT (Create New) Action on Completion. After a repair associated with a REPREF reference is completed, only FOLLOW class tasks are initialized.

Steps and labor on repair references

Steps and labor that engineers add to repair references, are copied to faults when technicians select repair references or, if the selected reference requires MOC authorization, the information is copied to the fault when the reference is approved. Technicians and inspectors then sign off on their skills in labor rows and steps when they record work done to repair the fault.

When CAMO Module copies information from the repair reference to the fault, the steps are appended to the fault. A fault can show a combination of ad hoc steps and steps from one or more repair references. A step in a reference that doesn't apply to the inventory item is copied to the fault, but marked as not applicable when the work package that contains the fault is committed. For example, if there are two steps, one for an engine with a 27k thrust rating and another for a 24k thrust rating, one of the steps is not applicable and is marked N/A.

Labor rows from the repair reference are either added to the fault as additional rows or they replace existing rows with the same skill, depending on the status of the labor rows.

Repair reference attributes

In addition to the standard requirement attributes like Originator and Task Priority, a repair reference has additional attributes. You can view or edit them from the **Requirement Details** page, **Details** tab, **Repair Reference Details** area.

- **MOC Authorization Required**: Select this check box if technicians must request and receive MOC Authorization before a fault can be closed with the repair. If selected, CAMO Module prevents repairs from being completed without MOC approval. By default, the check box is unselected.
- **Damage Record Required**: Select this check box if technicians must provide a damage record, such as for a structural repair. If selected, CAMO Module prevents repairs from being completed when damage records are not provided.
- **Damaged Component Required**: Select this check box if a damaged component must be specified for the repair. This is used for repairs that have follow-on tasks that are applicable to removable components or surfaces (doors, panels, radome, etc.). If selected, CAMO Module prevents repairs from being completed if a technician has not recorded a damaged component

on the damage record, ensuring that the follow-on tasks get created properly. This check box is only visible if **Damage Record Required** is selected.

- **Operational Restrictions**: Enter any operational restrictions that must be applied to the aircraft based on the type of repair being applied to a fault.
- **Performance Penalties**: Enter any performance penalties that must be applied to the aircraft because of the unresolved faults.

Create repair reference requirement definitions

You create repair reference requirement definitions so that technicians can perform their work and sign off their faults using that repair reference.

Steps

1. On your to-do list, click **Create Requirement**.

   You can also find this button if you do a search for existing requirement definitions.
2. In the **Classification** area, provide the required information. Note the following:
   - **Class**: Select **REPREF (Repair Reference)**.
3. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

What's next

Once the repair reference requirement definition is created, you can modify its attributes from the Requirement Details page. You can add follow-on tasks that are initialized when the repair is completed. You do this on the **Scheduling** tab in the **Following Tasks** area. You must activate the requirement before it can be used.

Follow-on tasks

Follow-on tasks handle the scheduling and planning of tasks, such as recurring inspections or replacement repairs, which are initiated from fault deferrals and repairs.

Follow-on tasks are set up as follows:

- Follow-on tasks are a type of requirement.
- They must have a requirement class of FOLLOW.
- They can only be defined against a configuration slot, not against a part number. When you select the FOLLOW class on the Create Requirement page, the Config Slot radio button is selected automatically and the Part Number radio button is disabled.
- They are always on-condition. When you select the FOLLOW class on the Create Requirement page, the On Condition check box is selected and cannot be cleared.
- They cannot be created or canceled upon installation or removal. When you select the FOLLOW class on the Create Requirement page, the Create/Cancel on Install and Create/

Cancel on Removal list boxes are set to Do Nothing on Install/Removal and hidden from the page.

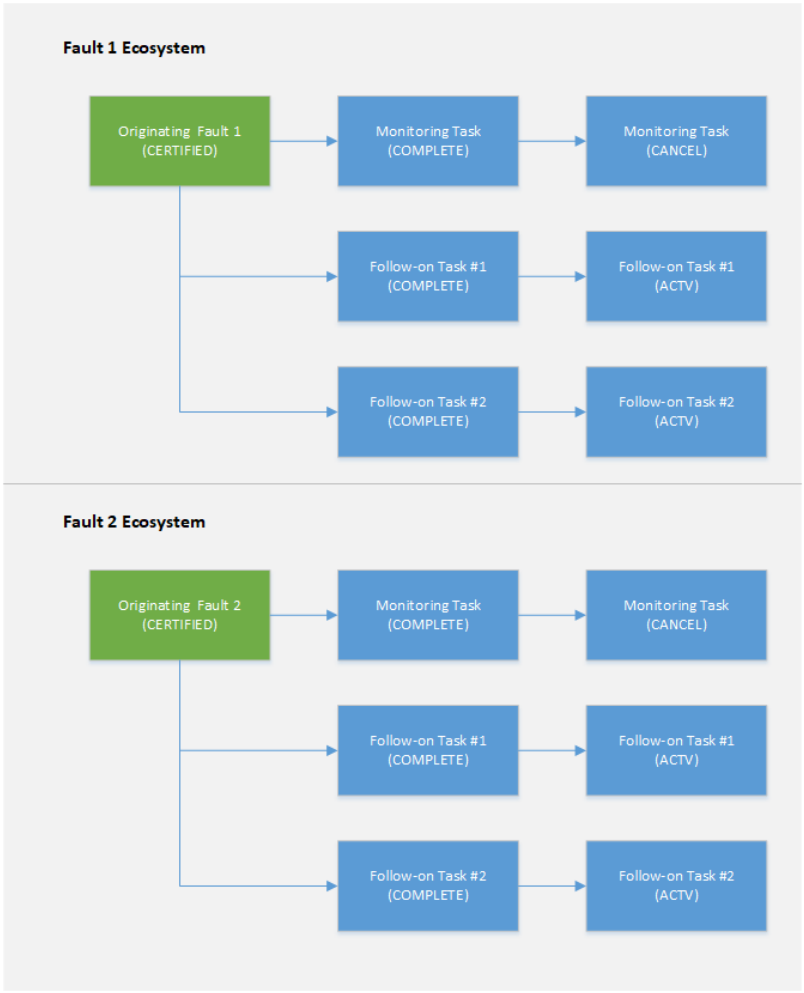
- They cannot be assigned to blocks or maintenance programs.

Follow-on tasks should be linked from the Repair References using Following Task links, or from Deferral References using Recurring Inspection links.

Duplicate follow-on tasks for multiple faults

CAMO Module allows creation of multiple copies of active tasks, provided the task class is FOLLOW. This means that multiple faults will trigger the same follow-on tasks, or multiple faults on the same inventory will have links to copies of tasks that are based on the same task definition.

This is illustrated in the diagram below with two follow-on tasks 1 and 2 created and active in relation to different faults.



To support this, if there are TERMINATE or COMPLETE links between tasks in the same fault ecosystem, the link will only TERMINATE or COMPLETE the tasks in the same ecosystem. It will not affect tasks that are in a different ecosystem.

However, if multiple actual tasks have been created against a single inventory item, and they have TERMINATE or COMPLETE links, and they are not related to a fault, the TERMINATE and COMPLETE links will terminate or complete all of the tasks that are not related to a fault.

Handling duplicate follow-on tasks

A duplicate task is one that is based on the same revision of the same definition as another task in the same work package.

Normally, duplicates are found on the job card level, but multiple follow-on requirements can be created, allowing a work package to contain multiple copies of the same follow-on requirement. If the follow-on requirement is defined as a non-executable requirement, the task suppression doesn't apply, as suppression only applies to executable tasks. But even when the follow-on requirement is defined as an executable requirement, the requirement will not be suppressed when two or more are put into the same work package.

Create follow-on requirement definitions

You create follow-on requirements using the class FOLLOW.

Steps

1. On your to-do list, click **Create Requirement**.
2. On the **Create Requirement** page, Provide the required information. Note the following:
   - In the **Requirement Type** area, select **Config Slot**.
3. In the **Classification** area, Provide the required information. Note the following:
   - **Class**: Select **FOLLOW (Follow-on Task)**.
4. In the **Scheduling Details** area, Provide the required information. Note the following:
   - **Recurring**: Select this check box to allow tasks based on this requirement to be repeated at regular intervals.
   - **Schedule From**: Select whether CAMO Module is to schedule the requirement starting from the manufactured date of the inventory, the received date of the inventory, or from an effective date. If you select effective date, specify the **Effective From Date**.
   - **Reschedule From**: Select date from which to schedule occurrences of tasks based on this requirement.
     - The date when the previous occurrence of the task is completed on the same inventory item (EXECUTE).
     - The start date of the work package in which the previous occurrence of the task is packaged (WPSTART).

    - The completion date of the work package in which the previous occurrence of the task is packaged (WPEND).
- **Use Manufactured Date if Later**: This check box is visible only for task definitions that are scheduled from the effective date. Select it if you want CAMO Module to schedule the tasks based on the manufactured date for inventory that is manufactured after the specified effective date.
- **If this task is created from a different task**: Select the appropriate radio button according to the scheduling rule you want to apply to following tasks. The selected value will be ignored for all tasks other than or those based on follow-on requirements or created using CRT or POSTCRT links.
- **Schedule to Latest Deadline**: If the requirement has multiple deadlines, you can select this check box to have CAMO Module schedule the requirement to the latest of the deadlines.
- **Soft Deadline**: Select this check box if the deadline of the tasks based on this requirement can be exceeded without making the tasks overdue in CAMO Module.
- **Allow Manual Scheduling**: Select this check box to allow authorized users to edit the scheduling interval manually on tasks based on this requirement definition, therefore change the tasks due date.
- **Min Forecast Range**: Enter the number of days into the future. CAMO Module should forecast tasks based on this requirement. Based on the scheduling interval provided, CAMO Module initializes tasks that are due within their forecast range.

In the **Planning Details** area, the **On Condition** check box is always checked and disabled for follow-on requirements.

5. Provide the information requested in the remaining areas of the **Create Requirement** page, and click **OK**.

What's next

Once the follow-on requirement is created, you need to set up scheduling rules for the requirement, activate it and then initialize it to create tasks based on the follow-on requirement definition.

Create follow-on tasks manually

Follow-on tasks can be initiated as a result of completing a repair, but other follow-on tasks are not created until some time after a repair is complete. If a repair is already completed, you can create follow-on tasks manually.

About this task

Follow-on tasks are always based on requirement definitions of class FOLLOW created against the same assembly or against a sub-assembly.

Steps

1. Navigate to the details page of the completed fault.

2. Click **Create Follow-on Task**.
3. Start typing the first few characters of the name, code, or, configuration slot code of the follow-on task definition, then click the required task definition from the list that appears.
4. Click **OK**.

The follow-on tasks for the fault are created and listed in the Follow-on Tasks table.

Fault definitions

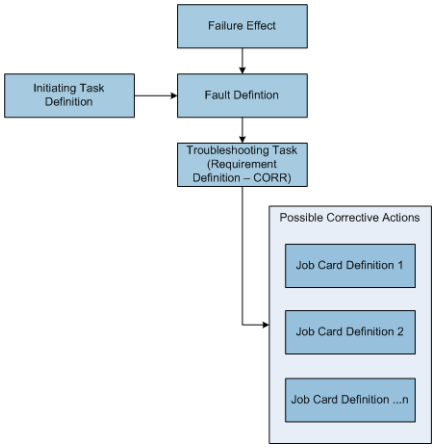
Fault definitions, much like other types of task definitions, are reusable templates that describe common and frequently encountered faults and provide information for solving the problem. Maintenance personnel who encounter a problem can raise a fault using a fault definition.

Also, fault definitions are used to create possible faults automatically through the Diagnostics API; this is achieved through the use of failure effects, which are symptoms of problems that are reported by systems on-board an aircraft.

Every fault definition can be associated with one troubleshooting requirement definition. The troubleshooting requirement definition must have a class of CORR (Corrective Action) and a status of ACTV or BUILD. When a fault is raised from a fault definition, the associated troubleshooting requirement is automatically initialized in CAMO Module. To provide all possible corrective actions to attempt to solve the fault, you create job card definition subtasks in the troubleshooting requirement.

You can associate each fault definition to other task definitions during which it is possible to encounter the problem covered by the fault definition, for example, an inspection job card. These are referred to as the *initiating task definitions*. When finding a fault during the execution of a task (the inspection), the technician can search in CAMO Module for fault definitions associated with the task, which saves time.

The following diagram depicts the relationships between initiating task definitions, failure effects, fault definitions, troubleshooting tasks, and possible corrective actions.



Fault Definition Model

Other attributes you can specify in fault definitions include the severity, failure category, failure type, priority, description and operational restrictions. Depending on the severity of a fault, you might also be able to specify a deferral class, which is the type of deferral, and a deferral reference. Deferral references are deferral authorization numbers, usually obtained from maintenance control. CAMO Module provides preset values for these attributes; your CAMO Module administrator can add more values if necessary.

Unlike other types of task definitions, fault definitions do not have a life cycle—they do not go through the Build, Active, In Revision, Superseded, and Obsolete statuses. If a fault definition is no longer applicable, and you do not want the technicians to reference this fault definition when logging new faults, you can delete the fault definition if it has not been used already, or update the name of the fault definition to indicate that it should not be used, for example, by adding a prefix such as OBSOLETE or DO NOT USE for those that have been referenced.

The following are the benefits of using fault definitions:

- Less data entry for technicians because fault properties are automatically populated in CAMO Module based on the fault definition.
- More timely and appropriate fault resolution because information is provided in the fault definition, such as the parts, tools, work instructions, labor skills, and Minimum Equipment List (MEL) details, as well as troubleshooting and corrective actions.
- Improved reliability analysis by standardizing the recording of the faults, which results in historical consistent data.

Fault Severity

The *fault severity* indicates how critical a fault is. The severity of a fault determines whether users can defer the fault or of they have to leave it open; some severity values allow users to defer a fault, as long as they supply a deadline for the fault resolution, while other severity values do not require a deadline.

CAMO Module uses the severity of the most severe open fault to calculate the aircraft operating status. The default severity values range from minor to AOG, and have the following implications:

Fault Severity

Severity code	Description	Aircraft status	Can defer fault?
MINOR	The fault has no operational impact.	No change.	Yes; no deadline.
MEL	The failure is MEL related.	MEL no restriction.	Yes with deadline.
MINR-WD	The fault has no operational impact.	MEL	Yes with deadline
MINR-WND	The fault has no operational impact.	No change	Yes; no deadline
CDL	Configuration deviation list fault.	MEL	Yes with deadline
CDL-WND	Configuration deviation list fault.	No change	Yes; no deadline
AOG	The fault is severe enough to ground the aircraft.	AOG	No
UNKNOWN	Unknown severity.	OPEN	No

Fault Priority

Each fault definition has an associated priority which is used to indicate to a technician the importance of a fault diagnosis.

When defining a fault definition, several factors are considered to determine the fault definition's priority. For example, part cost, flight delay, and operational impacts all contribute to the priority of the fault definition.

Every fault definition has a priority reference term associated with it. Since fault diagnosis is used when raising faults, this priority tells a technician how important or likely a particular fault diagnosis is (as defined by the reliability experts). You can edit the priority of a fault definition.

Create fault definitions

Prerequisite

- You know the assembly and configuration slot to which the fault definition relates.
- If you want to associate a troubleshooting requirement definition as you create the fault definition, the troubleshooting requirement already exists in CAMO Module.

About this task

Create fault definitions for frequently encountered faults to reduce the amount of data entry required, and to provide relevant and consistent troubleshooting and corrective action information each time the problem occurs. Fault definitions can be created only for configuration slots, not for part numbers.

Steps

1. On your to-do list, **Assembly List** tab, click an assembly.
2. On the **Assembly Details** page, click the **Config Slot** tab.
3. Click the link of the configuration slot for which you are creating the fault definition.
4. On the **Config Slot Details** page, click the **Fault Definition** tab.
5. Click **Create Fault Definition**.
6. On the **Create Fault Definition** page, in the **Identification** area, provide the information requested.
7. In the **Classification** area, Provide the required information. Note the following:
   - **Severity**: Select how critical the fault is. Some severity levels make it impossible to defer a fault, others make it possible as long as users specify a deadline, and others let user defer faults without specifying deadlines. Depending on the severity level you select, you might have to specify a Deferral References and a Deferral Class. Note that the list of Deferral References is limited to legacy Deferral References only.
   - **Manually Raised**: Select this check box if the fault is one that is raised manually by users. Do not select if the fault definition is to be used by the integration of CAMO Module with on-board diagnostics systems, which can automatically raise possible faults when specific symptoms are encountered.
   - **Troubleshooting Task**: Select the troubleshooting requirement definition to associate with the fault definition, if one exists. You can assign a troubleshooting task to the fault definition at a later time.

   > **Note** The selected troubleshooting requirement definition must have a class of CORR (Corrective Action) and a status of ACTV or BUILD.

8. In the remaining areas, provide the information requested, and click **OK**.

Now you can assign a troubleshooting requirement to the fault definition. Each fault definition can have only one troubleshooting requirement definition assigned to it.

9. On the **Fault Definition Details** page, click the **Details** tab.
10. Click **Edit Fault Definition** .
11. On the **Edit Fault Definition** page, in the **Classification** area, click **Select Troubleshooting Task** .
12. On the **Select Task Definition** page, select the applicable troubleshooting task definition.
13. On the **Edit Fault Definition** page, click **OK**.

Troubleshooting tasks and corrective actions

A troubleshooting task provides technicians with information on how to assess a fault and find the most appropriate corrective action to address it. Technicians also use the task to record the work they do to troubleshoot the task. A troubleshooting task is automatically initialized when a fault is raised. When the fault is raised from a fault definition, the troubleshooting task can be based on a requirement definition of class CORR and status of ACTV or BUILD, if one is associated with the fault definition.

A fault definition can only have one troubleshooting task definition associated with it. However, the same troubleshooting task definition can be associated with several fault definitions. For faults that are raised in an ad hoc fashion—not from a fault definition—the troubleshooting task is a generic empty task linked to the fault.

The possible corrective actions to resolve the fault are job card definitions that are associated with the troubleshooting task. The corrective tasks are often extracted from the OEM's troubleshooting manual or standard repair manuals. The job card definitions must be on the same configuration slot as the troubleshooting task definition they relate to.

When a fault is raised from a fault definition, its troubleshooting task is automatically initialized, but not the possible corrective actions, because it is possible that the technician will not have to execute all of them, but rather a single one or a subset. The technician must initialize corrective actions manually, as needed, after the fault has been investigated. Often, the technician initializes only one or a subset of the corrective actions. Also, technicians can create additional corrective action tasks within a troubleshooting task, by selecting an existing task definition, or creating an ad hoc task.

As part of using a fault definition, and its associated troubleshooting task and corrective actions, the technician can, and should identify in CAMO Module the corrective action that was successful. When a similar fault is raised in the future, the success rates for each corrective action across the fleet and for the assembly is available to the technician.

The job card definitions for corrective actions can be used as a regular maintenance task outside the context of a fault.

Failure effects and possible faults

Failure effects represent the symptoms of a problem observed during flight. Failure effects can be recorded by an aircraft's on-board systems, or other diagnostics systems, and then input to CAMO Module using the Maintenix Diagnostics API. Failure effects cannot be recorded in CAMO Module through the user interface. For more information about the Diagnostics API, see the *Maintenix Diagnostics API Guide*.

In CAMO Module, you record a list of all possible failure effects for an assembly. You can then assign any of the failure effects to any fault definition you create for that assembly. The failure effects assigned to a fault definition represent the symptoms that would indicate that the associated fault has occurred. When an aircraft experiences a set of failures matching those in a fault definition, a possible fault is automatically created in CAMO Module. The following is an example of failure effects assigned to a fault definition:

- Fault definition: Failed battery
  - Failure effect A: Visible corrosion on battery.
  - Failure effect B: Cracked battery casing

In this example, visible corrosion and a cracked casing are the two symptoms that define a failed battery.

When CAMO Module receives failure effects from an aircraft during flight, it presents maintenance personnel with a possible fault. These faults are created in the database automatically. Execution personnel review and evaluate the possible faults, and they can accept or reject the CAMO Module diagnosis of a problem.

Each failure effect has a code, a name, a severity and a type. The code of a failure effect must match the code used by the external diagnostics system. The failure effect severity is distinct from the severity of a fault definition; this severity value indicates the criticality of each individual failure effect. The type is a categorization of the failure effect. CAMO Module includes preset severity and type values, but your CAMO Module administrator can add more values if needed.

5

AD/SB management

Monitoring AD and SB compliance status

To assess progress across your fleet, in complying with airworthiness directives (ADs) and service bulletins (SBs), you can view the compliance report.

In CAMO Module, ADs and SBs are modeled as reference documents (a type of task definition) with a task class of AD or SB. You can view the compliance report for a reference document or you can view all reference documents that apply to an aircraft or to another type of assembly.

In the compliance report table, all related task definitions appear in a tree view hierarchy on a single row that includes:

- The root reference document
- The requirements linked to the reference document with complies type links
- The job cards included in the requirements

For each task definition, the table shows the task class, amendment number, disposition, the compliance status, applicable configuration slot and configuration position number, as well as the barcode and date when the task was last done, and when it is due next.

The compliance status of the reference documents is based on the status of the linked requirements:

Compliance statuses

Requirement compliance status	Reference document compliance status
There is at least one OPEN requirement linked to the reference document. (The task status of the requirement might be ACTV, FORECAST, or IN WORK.)	OPEN

Requirement compliance status	Reference document compliance status
There are no open requirements. Requirements have compliance status: • COMPLETE - The last task exists and there is no next task • OBSOLETE - the task definition was obsoleted • TERMINATE - the last task was terminated • N/A - the requirement is no longer applicable to the inventory. Requirements can show a last done task link and date if the task was completed before applicability changed.	COMPLETE
All requirements have TERMINATE status	TERMINATE
All requirements have OBSOLETE status	OBSOLETE
All requirements have N/A status and are no longer applicable to the inventory. Requirements can show a last done task link and date if the task was completed before applicability changed.	N/A

6

Records management

Accurate technical records keeping is essential to providing audit trails for tracking compliance, planning maintenance activities, and analyzing the operation of the maintenance organization.

Technical records include the condition and usage of assets, and the maintenance work performed on assets including the removal and installation of components.

Most record keeping occurs as a normal by-product of using CAMO Module, as personnel in various organizations perform actions, enter data, and modify data in CAMO Module. For example, engineering personnel record new maintenance directives and their applicability to specific tail numbers, and maintenance personnel record the work they perform and the parts they remove and install.

In addition to the normal day-to-day record keeping performed by personnel throughout the organization, technical records personnel are called on to record information for some activities. These activities include entering technical records for newly acquired aircraft and components, and responding to record discrepancies or problems encountered by other maintenance personnel.

Recording flights

Flight records help you keep aircraft inventory records accurate by recording the aircraft usage accrued, and the movement of aircraft from airport to airport. Flights are often created automatically in CAMO Module through integration with external systems using the Flight API. You can also record flights on aircraft inventory manually.

You can record the most recent flight, edit historical flights, or if required, you can create a record for a flight that occurred before the most recent. Based on the flight dates that you enter, CAMO Module adds the flight to the flight history in the appropriate sequence. If there are following flights already recorded, CAMO Module updates their accrued usage values.

Flight records include the following general information used for tracking purposes:

- Flight name and master flight number: The flight name is mandatory. The master flight number is optional and is used to indicate that this is one leg in a multi-leg flight.

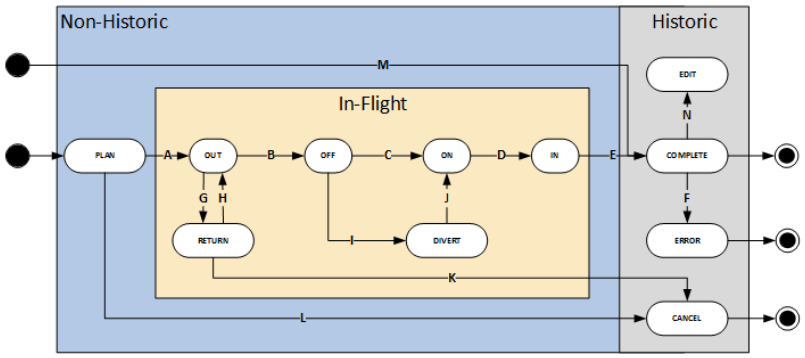
  Note You can assign each flight in CAMO Module to a master flight. The master flight number (a text value that can have numbers or letters) is recorded on the Flight Details page. If there is a master flight number recorded for a flight, clicking the master flight number takes you to the Master Flight Details page. The Master Flight Details page displays a list of all flights with that master flight number. The flights are listed according to whether or not they are historical. Summary information is provided, and you can click the hyperlink to go to the Flight Details page for each flight listed on the Master Flight Details page.

- Operation type: The operation type categorizes the flight according to its operational purpose. For example, is it revenue-generating, a ferry flight, or a test flight?
- Flight reason: The reason for the flight.
- Log reference: The log reference provides a link to the flight's entry in the flight log-book.
- Departure and arrival details: The actual departure and arrival locations and dates and possibly the scheduled departure and arrival dates.
  - The actual departure date is the date and time that the aircraft leaves the gate. The actual arrival date is the date and time that the aircraft arrives at the gate. These dates determine the where a flight record is added in the flight sequence for the aircraft and are used to calculate usage accrued during the flight.
  - The up and down dates record when weight is off the wheels at take-off and when weight is on the wheels at landing. These dates are used to automatically calculate usage accrued during the flight.

When you create a flight, the up and down dates are optional, but if you leave them blank, CAMO Module populates these fields with the values entered for the actual arrival and departure dates.

Life cycle of a flight

Flight legs in CAMO Module have a state property that describes the current status of a flight leg within its life cycle. For example, the initial status for a flight leg is PLAN, but once it leaves the gate, its status changes to OUT.



Life cycle of a flight

The following table describes each flight status.

Status	Description
PLAN	The initial state for a planned flight leg. This is where locations, dates and initial tail assignments are recorded for a new flight leg in CAMO Module. If a flight leg is canceled, it could return to this state.
OUT	A flight leg enters this state once it pushes out from the gate onto the runway. At this point, the tail cannot be reassigned, and departure information is fixed.
OFF	This state is defined by weight off wheels for the aircraft, or when the aircraft has taken off.
ON	This state is defined by weight on wheels for the aircraft, or when the aircraft lands on the runway.
IN	A flight leg enters this state when it pulls up to the arrival gate. **Note** This is a very temporary state. Once the aircraft pulls up to the gate, the state will change to IN and then immediately change to COMPLETE.
RETURN	This state occurs when the aircraft returns from the runway to the gate. This would normally occur for maintenance reasons when the aircraft fails a safety check while on the runway and must return to the gate.
DIVERT	This state occurs when the flight leg is air-born, and the aircraft cannot land at the original destination. Once a new destination is assigned to the flight leg, it enters a DIVERT state to warn the ground crew at the new location that an unexpected flight leg is set to land.

Status	Description
COMPLETE	This state signifies that the flight leg record is now up to date in the system, and the flight leg usage has been applied to the aircraft inventory.
EDIT	This state indicates that the flight leg record that was once marked as COMPLETE needed a change and has now been updated. The flight status will now remain as EDIT.
ERROR	Once a flight leg has been completed, if it is deemed to be incorrect for any reason, the flight leg can be marked as in error, which will update the flight leg record in CAMO Module accordingly, and remove the usage accrued on the aircraft's current configuration. A flight leg could also be marked as in error when its status is OUT, OFF, ON or DIVERT.
CANCEL	While a flight leg is in a planned state, it can be canceled to remove it from the flight leg plan, to indicate that the flight leg will no longer occur.

Flight API

Although you can use the CAMO Module pages to create or update flight records in your system, the most common and effective way to manage flight records is through the Maintenix Flight API.

CAMO Module Application Programming Interfaces (APIs) support logical integration between CAMO Module and external business applications.

Flight APIs are used to integrate to Flight Following Systems. Flight APIs relay flight planning, flight tracking, and aircraft usage information to CAMO Module, and notify flight operations of significant maintenance activities. You can use Flight APIs for:

- Loading flight information from external systems
- Notifying external systems of significant maintenance activities

Flight APIs are the only way to load planned flights into CAMO Module. Planned flight information is used by planners to schedule maintenance and is viewed on the **Inventory Details** > **Open** > **Open Flights** tab for an aircraft. Planned flights are typically completed through flight APIs, but if there is a disruption in relaying a Flight API message, technical records users can complete flights in the CAMO Module user interface.

Flight APIs simplify the task of integration through messaging scenarios used by the external systems to interact with CAMO Module and exchange information. For more details, see the *Maintenix Flight API Guide*.

Flight measurement parameters

CAMO Module can record a configurable list of measurements against a flight. This feature allows you to record values such as number of passengers, takeoff weight, and oil consumption. When a flight is created, all measurements assigned to the assemblies that were flown (like the aircraft and engines) are listed on the flight record. These measurements are always optional. You can record any or all of the measurements for each flight. Measurements are also editable on historical flights.

Measurement parameters are stored in a global list of parameters, and you can create as many as you need. You can assign them to assemblies, so that the values are recorded for every flight completed by matching inventory.

Measurements can be collected for informational and reporting purposes. For example, you may want to record certain characteristics for every flight an aircraft completes.

When you create a measurement parameter, you give it a name and code, and specify the following:

- Domain Type: Specifies how the measurement value is recorded into the flight records in CAMO Module (a drop-down list box, a check box, a date, some free form text, or a numeric value).
- For measurement parameters where the technician enters a numeric value representing a measurement or a quantity, you also set the following:
  - Engineering unit: the unit of measurement in which the finding is recorded.
  - Precision: the number of decimals that are stored for the measurement. Although the precision only affects numeric measurements, a precision value must be specified for all measurements.

The following table describes the domain types you can choose from:

Domain Type	Description
CH (Characteristic)	The technician records the measurement by selecting the correct value from a drop-down list box. When you create this type of measurement parameter, you also specify all the possible values to list in the drop-down list box by selecting data values. This is useful to record information such as take off signal values of *busy* or *clear*, or to record the corrosion level of a component.
CHK (Check Boxes)	The technician records the value by selecting a check box, or leaving it unselected, depending on the findings applicable to the flight, or those detected during the maintenance task.
CME (Calendar Measurements)	The technician records the value by selecting a date from a pop-up calendar. This is useful to record information such as a curing date.

Domain Type	Description
ME (Measurement)	The technician records the measurement by typing the correct number of the selected units in a field. This is the domain type to choose to create assembly measurements.
TEXT (Free Form Text)	The technician records the measurement by entering free form text in a text field.

Edit flight records

On the Edit Flight page, you can modify important flight information like name, arrival and departure dates, and usage accrued.

About this task

If you update the Actual Arrival Date and your update changes the flight sequence for the aircraft, TSN usage values are updated on the flight record and on following flights and tasks. Usage values are updated if you edit the up and down dates.

Steps

1. On your to-do list, **Fleet List** tab, click the link for the aircraft whose flight record you want to edit.
2. On the **Inventory Details** page, click the **Historical** tab and then click the **Flight** tab.
3. On the **Flight** tab, click the **Name** link of the flight you want to edit.
4. Click beside **Flight Information**, **Departure & Arrival**, or **Usage Accrued**.
5. (Optional) Enter the reason for your change in the **Note** field.
6. Modify the information as needed and click **OK**.

> **CAUTION** While the system updates values and the progress message is displayed, do not use the browser back or forward buttons. If you leave the page before it reloads with updated data, the information you entered will be lost.

7. When the progress message disappears and the values are updated, click **Close**.

The flight is updated and a record of the change is displayed on the History tab. Any notes manually added or any changes made to the usage are displayed under the Note column of the History tab.

Create flight records

Flight records are often created through Flight APIs, but if you have complete paper records, you can enter this information manually into CAMO Module. You can create flight records for historical flights – for latest flight or for a flight that occurred earlier.

About this task

If you have the correct permission, you can create flight records from the Inventory Details page, Flight History tab.

If you are creating more than one flight record for the same aircraft, create them in any order, but create only one flight per aircraft at a time. If flights for the same aircraft are created simultaneously, the usage accrued values (which are updated based on arrival dates) can be inconsistent.

When you create a flight, the up and down dates are optional, but if you leave them blank, CAMO Module populates these fields with the values entered for the actual arrival and departure dates.

To save you time when you enter flight dates, your administrator can enable the FLIGHT_ENTRY_COPY_ACTUAL_DT global parameter. When this parameter is enabled, the date that you enter in the Actual Departure Date field is copied to the other date fields in the Departure & Arrival area. You then edit the copied dates and times which updates the usage accrued values.

Steps

1. On your to-do list, **Fleet List** tab, select the radio button for the aircraft whose completed flight record you want to create.
2. Click **Create Flight**.
3. On the **Create Flight** page, **Flight Information** area, provide the following information:
   - Type a **Flight Name** in the following format: < *flight number*> <*destination airport code*> < *date*>.

     Note This field is auto-populated in the following format: <*aircraft OEM part number*> <*aircraft serial number*> <*current date*><*flight number*>. The flight number is set to 1 if you create a flight for an aircraft which has no flights logged yet for the current date. The flight number is incremented for every subsequent flight created on the current date. You can keep this name or modify it if needed.

   - Type a **Description** for the flight.
4. On the **Create Flight** page, **Departure & Arrival** area, provide the following information and click **OK**:
   - Type a **Departure Airport** code.
   - Type the **Departure Gate** number.

- Select an **Actual Departure Date** by clicking and selecting the date from the calendar, and then typing in the time.
- If needed, change the **Scheduled Departure Date** and the **Up Date** if they are different form the actual departure date.
- Type an **Arrival Airport** code.
- Type the **Arrival Gate** number.
- Select an **Actual Arrival Date**, by clicking and selecting the date from the calendar, and then typing in the time.
- If needed, change the **Scheduled Arrival Date** and the **Down Date** if they are different form the actual arrival date.
- Select the **Move aircraft to arrival location** check box if you want CAMO Module to update the location of the aircraft and all its installed items to the arrival location specified.

  With this check box selected, CAMO Module changes the current location of the aircraft to the specified arrival location. If the check box is cleared, the current location of the aircraft is not changed. The check box is normally cleared if your system is using a flight following system. The check box is normally selected if your system is not using a flight following system.

After you enter the actual arrival date, the **Usage Accrued** area displays usage values that are based on the actual arrival date. The CYCLES delta defaults to 1, but you can change this value. After you enter either the actual departure date or the up and down dates, the HOURS usage values update. By default the hours delta value is the difference between the up and down dates (or the arrival and departure dates if the up and down dates are not entered), but you can change the delta value. For more information, see *Recording usage* .

Note It is possible for the TSN usage values to change between the time that you enter the actual arrival date and the time that you click OK. This can happen when a preceding or following flight record is created and the usage values are updated in the database (which updates the values that appear for the date that you entered in your record).

Complete flights

Planned flights are loaded into CAMO Module through Flight APIs and are typically completed through Flight APIs. If there is a disruption in relaying a Flight API message, you can complete flights manually in the CAMO Module user interface.

About this task

If you are completing more than one flight record for the same aircraft, complete them in any order, but complete only one flight per aircraft at a time. If flights for the same aircraft are completed simultaneously, the usage accrued values (which are updated based on arrival dates) can be inconsistent.

Steps

1. On the **Inventory Details** page, **Open** tab, **Open Flights** tab, click a flight name.
2. On the **Flight Details** page, edit usage accrued values if required and then click **Complete Flight**.

> **Note** By default the hours delta value is the difference between the up and down dates (or the arrival and departure dates if the up and down dates are not entered). If the TSN usage values change between the time that you enter the actual arrival date and the time that you click OK, this can happen when a preceding or following flight record is completed and the usage values are updated in the database (which updates the values that appear for the date that you entered in your record).

Based on the flight dates in the record, CAMO Module adds the flight to the flight history in the appropriate sequence and updates the accrued usage values (including values for following flights if the flight you added was not the latest).

Recording usage

In CAMO Module, usage is the amount of time that an item has operated, or the number of times that an item has undergone a specific situation.

A typical aircraft will have usage measured in many different ways, including flying hours (HOURS), cycles, landings and engine operating time (EOT). A take-off and landing sequence of an aircraft is one cycle. Tracking usage information is essential to the proper calculation of maintenance deadlines and activities.

Usage parameters and usage values

Each assembly includes a list of usage parameters tracked on each assembly. There are three usage values recorded in CAMO Module:

- Time Since New (TSN): The measure of usage (in any usage parameter) since the inventory was manufactured.
- Time Since Install (TSI): The measure of usage (in various usage parameters) since the inventory item was installed into its current location.
- Time Since Overhaul (TSO): The measure of usage (in any usage parameter) since the inventory item was last overhauled.

In CAMO Module, TSN, TSO, and TSI are generic terms that can replace a series of previous terms, such as Cycles Since New (CSN) or Landings Since Overhaul (LSO).

TSN, TSO, and TSI are tracked against the current usage of inventory items.

The following historical values are displayed on a component's Inventory Details page, Historical tab, Installation sub-tab. These values are calculated on page load, as opposed to retrieved from the database, so any out-of-sequence edits to the records don't interfere with accuracy of the displayed values:

- The TSI value upon removal or installation. For installations, the value is always 0. For removals, the value is the difference between the component TSN value at removal and at the most recent installation of the component.
- The TSN value of the highest parent assembly.

Ways to record usage

You can correct and adjust usage on any inventory including aircraft, assemblies, or components.

The following methods are available in CAMO Module to adjust usage information:

Recording usage: Creating and editing flights

The most common method to modify usage information is when you create or edit flights. You can create a flight record for the most recent flight or for one that occurred before the most recent flight. After you enter the actual arrival date, the Usage Accrued area displays usage values (based on the actual arrival date) for the aircraft and sub-assemblies. You can change the cycles and hours values when you create or edit flights.

The usage accrued tables show the usage parameters that are currently included in the usage definition assigned to each assembly at the time you create the flight.

Each flight record in CAMO Module includes the usage accrued during a flight. CAMO Module adds the same amount of usage to each component installed on the aircraft. In this way, each component accrues the same amount of usage as the assembly, and usage-based maintenance can be scheduled as required. Usage values recorded on a flight cannot be negative.

CAMO Module automatically calculates the flying hours parameter's delta value based on the difference between the up date and the down date provided in the flight record (or between the arrival and departure dates if the up and down dates are not entered). The flying hours value

is calculated when these date fields are edited. If you do not want to use the default values calculated by CAMO Module, you can manually override the flying hours, cycles, or landings by typing a new value in the delta field.

When you edit the dates on a COMPLETE flight and your edit changes the flight sequence, usage values for the flight are updated depending on which dates you change:

- If you edit the actual arrival date, the TSN values are updated, but the hours delta values are not updated.
- If you edit the down date, the TSN values and the hours delta values are updated.

The change in the flight sequence is highlighted in the UI with a red warning.

If you edit the dates on a COMPLETE flight, but the flight sequence doesn't change, the TSN values and hours delta values are only updated if you edit the down date.

Recording usage: Creating usage records

You can use the creating usage records method to modify the aircraft cycles, hours, and other usage parameters. Usage records can only be created against assemblies. When you create a usage record, you need to ensure that the usage delta is applied to every component that was installed on the assembly on the collection date. You can create usage records for specific scenarios such as updating APU usage.

Recording usage: Editing inventory

You can use the Edit Inventory page to edit the exact usage values of a single inventory item. Any changes made to usage will not be applied to the inventory's sub-components. You normally use this method to make data corrections or to initialize usage on a newly received item.

When you edit usage, enter the corrected value, not the change to the value. You do not apply negative counts directly. When you enter the corrected value, CAMO Module re-calculates the values based on the difference between the old value and the new value. In this way, CAMO Module can apply negative counts as required.

Edit usage on historical flights

If you change the flight's dates, the TSN values on the flight and on following flights and tasks are corrected, but you can also edit incorrect usage on a flight through the Flight API or the Edit Flight page.

About this task

When you edit a historical flight, the usage for the following records is updated automatically according to the changes specified. This process is commonly referred to as "out of sequence" usage. The following corrections apply when creating and editing historical flights:

- Usage of aircraft, installed sub-assemblies, SYSTEM class inventory, installed components.
- Usage snapshot of all following flights, usage records, and usage corrections through editing inventory.
- Usage snapshot of complete maintenance, all raised faults, and work packages.
- Deadlines and time remaining.
- Calculated parameters dependent on any modified usage snapshots or deadlines.

Note The TSN, TSO, TSI values are updated accordingly for changes made in every scenario.

To edit usage on historical flights, do the following:

Steps

1. On your to-do list, **Fleet List** tab, click the link for the aircraft whose flight record you want to edit.
2. On the **Inventory Details** page, click the **Historical** tab and then click the **Flight** tab.
3. On the **Flight** tab, click the **Name** link of the flight you want to edit.
4. On the Flight Details page, click beside **Usage Accrued**.
5. Enter the difference in the **Delta** field to reflect the correct usage.

   You can also modify the values for the **Up Date** and **Down Date** fields to correct the usage.
6. Click **OK**.

The flight and its associated records (as mentioned above) are updated according to the Delta value.

Create a usage record

To update usage on an assembly, you can create a usage record. When you create a usage record, you need to ensure that the usage delta is applied to every component that was installed on the assembly on the collection date.

Steps

1. On your to-do list, **Fleet List** tab, select the radio button for the aircraft whose usage you want to record.
2. Click **Create Usage Record**.
3. On the **Create Usage Record** page, provide the following information:
   - Enter a **Collection Date** to identify the date that the usage accrued.
   - Enter a **Name** for the record. The name defaults to a sequential value, but you can provide a name that describes the reason for the usage record.
   - Enter a **Delta** or **Total** for each usage parameter as required. Entering one value automatically updates the other.
4. Click **OK**.
5. For aircraft, verify that a REAL_TIME_AIRCRAFT_DEADLINE_UPDATE work item is created and then completed. For assemblies other than aircraft, verify that a REAL_TIME_INVENTORY_DEADLINE_UPDATE work item is created and then completed.
6. Return to your task and review the scheduling.
7. Verify that the task deadline, Usage Remaining and Estimated Date (as applicable) have been updated.

Updating APU usage

APU usage is not normally recorded with flight records or with other small incremental usage records. It is recommended that you record APU usage by creating a usage record on the APU itself. Alternatively, you can create a usage record on the aircraft, and use it to add usage to only the APU.

In most cases, CAMO Module lists the parent assembly and any sub-assemblies installed on the parent assembly. However, if you are creating a usage record on the APU, only the APU assembly is listed. If you are creating a usage record on the aircraft, the aircraft assembly, the APU assembly, the engine assemblies, and any other assemblies installed on that aircraft are listed.

Applying negative counts

There are two ways to apply negative counts to an inventory item. One is to create a usage record with negative delta values, and the other is to use the Edit Inventory page. For more details, see *Ways to record usage*.

Editing usage for assemblies and parent inventory

You can edit the usage of an entire assembly or of inventory with sub-components by setting the usage values on the parent inventory. You can also choose to apply the usage to all sub-components.

If the Apply Deltas to Sub-Components check box is selected on the Edit Inventory page, all of the values for the current usage of the component are incremented by the change to the assembly usage.

You can edit the usage of any sub-component separately from the parent inventory. If you make a subsequent change to the parent inventory usage, the sub-component values are re-calculated, and you must again make individual changes to the sub-components. Changes to the values of the sub-components do not change the values of the parent inventory.

Due dates for tasks on the inventory are automatically updated by CAMO Module after usage changes are made.

An assembly's current usage is displayed on the Inventory Details page in the Current Usage area. An assembly's usage at the time of completion, for tasks in a work package, is displayed on the Task Details page in the Usage at Completion band.

Edit inventory usage

Steps

1. On the **Edit Inventory** page, in the **Assembly Usage** area, provide the following information:
   - Update the **TSN** (Time Since New), **TSO** (Time Since Overhaul), and **TSI** (Time Since Installed) values for the aircraft or sub-assembly.
   - **Apply Deltas to Subcomponents**: If checked, all of the values for the current usage on the component are incremented by the change in the assembly usage.
2. On the **Edit Inventory** page, **Subcomponent Usage** section:
   - Type **TSO** and **TSN** values for **Component Usage At Install** and **Assembly Usage At Install**.
   - Type **TSN**, **TSO**, and **TSI** values for **Current Usage On Component**.

> **Note**
>
> Multiple sub-components can be updated simultaneously. CAMO Module automatically calculates the other values.

Editing usage for single components

You can edit one component at a time by modifying the details of an inventory item directly. If the component is not installed on another inventory item, the highest inventory section of the CAMO Module page contains the usage for that component. The sub-component section is blank unless the component you are editing also has sub-inventory installed. If the component that you are editing is installed on a parent inventory item, the highest inventory section contains the usage details for the parent inventory, but the values are not editable. The sub-component section contains the inventory's usage values in an editable state.

CAMO Module lists the Component Usage at Install and Assembly/Highest Usage at Install values, in addition to the Current Usage on Component values. If you do not have the current usage values for the component, you can enter the component usage and assembly usage at install, and CAMO Module calculates the other values. When one field is changed, CAMO Module automatically updates the TSN, TSO, and Time Since Install (TSI) fields using variations on the following calculations:

- Component TSN = Component TSN at install + Component TSI
- Component TSO = Component TSO at install + Component TSI
- Assembly TSN = Assembly TSN at component install + Component TSI
- Assembly TSO = Assembly TSO at component install + Component TSO

Recording historical maintenance

You can capture historical maintenance by recording or editing technical incidents and faults after they have occurred, or by recording tasks and work packages after completion.

Recording historical tasks

You can record maintenance tasks after they have been completed using one of the following methods:

- Create a work package and assign the tasks to the work package. Then, carry out all required steps for its completion:
  - Schedule the work package
  - Start the work package
  - Complete the tasks
  - Complete the work package
- Use the Package and Complete functionality which automatically creates a work package, adds the selected tasks to the work package, and completes both the tasks and the work package, unless there are conditions that prevent the completion. This functionality provides a fast way to complete open tasks. Also, you do not have to assign labor to each labor line on a job card, and then complete each labor line for each task.

- Use the Create Historical Task functionality to create a historical task and assign the task to a work package. When you are creating historical tasks, applicability rules and transformation rules are enforced for tasks based on part numbers and are ignored for tasks based on configuration slots.

With each of these methods, you must specify the date and usage of the performed work package. There are two ways to record this information:

- Using the Start Work Package button or the Package and Complete button, you can open the relevant tabs and enter a start date without specifying usage at completion. In this case, CAMO Module automatically calculates the usage on the work package, and every task within the work package. In addition, CAMO Module automatically calculates the correct usages on the components that were installed and removed during the work package. Removed components' usage is rolled back, and installed components' usage is rolled forward, if the aircraft took flight between the time the work was completed and the time each task was recorded. This includes test flight and bench test usage accruals that occur within the life of the work package.
- Using the Start Work Package and Enter Usage button or the Package and Complete and Enter Usage button, you can enter the start date and manually enter the usage at the time of repair of the inventory item (the usage is defined as hours and cycles for the root assembly and any sub-assemblies). Components removed and installed will have usage adjustments according to these values. For future out-of-sequence usage accruals, CAMO Module will not adjust the usage for the work package or the tasks in it. To indicate that these usage values will not be automatically adjusted in the future, CAMO Module adds a comment to the completed task and work package usage snapshots stating that the usage values were manually entered.

Editing the details of technical incidents

Any action taken in the case of a reported or observed failure or malfunction of an airframe, engine, propeller, or appliance that is critical to the safety of a flight must be recorded in the aircraft's maintenance log. You can record these actions in CAMO Module as a flight safety impact either at the time when you create the fault for the technical incident (on the Raise Fault page) or at a later date, when the fault has been in the system for some time.

You can also edit some of the details of an existing fault. For example, you can specify an ATA chapter different from the chapter that was originally recorded as a resolved system.

Edit fault details

You can edit the details of a fault after it has been created. For example, you can change the Resolution Config Slot field if a mechanic resolved the issue by fixing something on a different ATA chapter.

Steps

1. Find the fault.

2. Click the **Fault Information** tab.
3. Click Edit Fault .
4. In the **Fault Registration** area, provide the required information. Note the following:
   - **Resolution Config Slot**: If the fault was resolved on a different ATA chapter (resolved system) than the initially reported ATA chapter (failed system), start typing the name or ATA code of the config slot on which the issue was resolved, and then click the result from the list.
5. In the **Fault Details** area, provide the required information. Note the following:
   - **Recurrence Of**: If this fault is possibly a recurrence of a fault that occurred in the past on this aircraft, the name of the previous fault is shown.
6. In the **Resulting Events** area, click the plus sign to add resulting events (if required).
7. Click **OK**.

CAMO Module records this change in the Fault History area.

Record technical incidents and occurrences

About this task

Record any action taken in the case of a reported or observed failure or malfunction of an airframe, engine, propeller, or appliance that is critical to the safety of flight in the aircraft's maintenance log as a flight safety impact. You can do this at the time you create a fault for the technical incident, on the Raise Fault page, or add the information later, when the fault already exists in the system.

Steps

1. On the **Fault Details** page, **Fault Information** tab, click Edit Fault .
2. On the **Edit Fault** page, select the **Flight Safety Impact** check box.
3. In the **Flight Safety Impact - Nature of Condition** area, click Create .
4. On the **Add Nature of Condition** page, select the check boxes for the appropriate conditions.
5. Click **OK**.
6. In the **Flight Safety Impact - Precautionary Procedures** area, click Create .
7. On the **Add Precautionary Procedure** page, select the check boxes for the appropriate procedures.
8. Click **OK**.

Record a work package that occurred in the past

You can record a work package after the maintenance visits are completed by either letting CAMO Module auto-calculate the accrued usage at start time or by manually entering the usage.

Prerequisite

- Ensure there are no other work packages currently in progress on the aircraft for the inventory item whose maintenance work you are about to record.

Steps

1. Create a work package.
2. Find the tasks that were completed in the past and assign them to the work package.
3. Schedule the work package.
4. On the **Work Package Details** page, click one of the following:
   - **Start Work Package** - opens a dialog box where you can specify only the Actual Start date of the work package, and CAMO Module automatically retrieves the usage accrued for the affected inventory at the specified date. Note that the default value for the **Actual Start Date** is the scheduled start date of the work package.
   - **Start Work Package and Enter Usage** - opens a page where you can specify both the Actual Start date of the work package and the accrued usage for each component.

   If you click **Start Work Package** , go to step 7.
5. (Optional) If you opened the **Start Work Package and Enter Usage** page, in the **Usage at Completion** area, enter the correct values for each component as they appear in the records from that start date. Note that if you are entering aircraft usage, the usage for sub-assemblies will automatically calculate based on the assembly calculation.
6. (Optional) To override the auto-calculated values, click the **Auto Calculate** field on either the **CYCLES** or **HOURS**.
7. Click **OK**.
8. If necessary, edit the details of the individual tasks included in the work package.

   Tip When using Start Work Package, usage adjustments applied to components take place based on the completion date of the task containing the part requirement. Therefore, take due care when entering these dates.

9. Complete the work package.
   - If you chose the option of CAMO Module auto-calculating the usage, but need to correct it in the future, you can do so by editing the Usage at Completion snapshot on the **Task History Details** page or Usage snapshot on the **Work Package Details** pages.

Package and complete tasks done in the past

You can package one or more tasks that were completed in the past on an inventory item, and record their completion date in a single operation. Since packaging and completing in one step does not let you record details in individual tasks, it is best to use this feature to record the completion of simple tasks.

About this task

Doing these steps automatically creates a work package, adds the selected tasks to the work package, and completes both the tasks and the work package, unless there are conditions that prevent the completion. For example:

- The aircraft has missing components or overdue tasks; in these cases, the packaged tasks are completed but the work package remains in work.
- One or more of the selected tasks contains a part request with an invalid inventory serial number in these cases, the affected tasks remain active and the work package remains in work.

Note that, if at the time the work was completed, a tracked component was installed on the aircraft but it has since been removed, the work package that is created automatically shows the component that is currently installed, not the one that was installed at the completion date.

The package and complete options are also available on the corrective task pages of faults.

Steps

1. Go to the **Fleet List** tab, and click the aircraft name.
2. On the **Inventory Details** page, click the **Open** tab > **Open Tasks** tab.

   The list includes all open tasks that are not assigned to a work package. You can select only tasks that are active (ACTV).
3. Select the check box beside the open tasks that were completed, and click one of the following:
   - **Package and Complete Task**
   - **Package and Complete and Enter Usage**

   > **Tip** You can also click **Package and Complete Task** and the **Package and Complete and Enter Usage** from the Task Details or Task Search pages.

4. On the **Complete Task** page, provide the following information and click **OK**:
   - **Repair Location**: Enter the location where the work was done.
   - **Completion Date**: Select the completion date, which occurred in the past. All selected tasks will have this date as their completion date.
   - **Current Usage**: Enter the correct usage as it appears in the records from the start date. If you clicked **Package and Complete and Enter Usage**, enter the correct usage as it appears in the records from the start date.

Tip When entering aircraft usage after selecting **Package and Complete and Enter Usage**, the usage for sub-assemblies is automatically calculated based on the assembly calculation. To override the auto-calculated values, click the **Auto Calculate** field on either the **CYCLES** or **HOURS** row and enter the adjusted value.

5. If prompted, enter your user name and password, and press ENTER.

- The selected tasks are completed and are no longer shown in the **Open Tasks** tab.
- The work package that was automatically created is also completed, unless there are conditions that prevent the completion as outlined above.
- If you chose the **Package and Complete and Enter Usage** option, the following comment appears in the usage snapshot area of the completed work package: "These values were manually entered", indicating that CAMO Module will not be auto-adjusting these values in the future.
- On the **Inventory Details** page, **Historical** tab, **Usage** sub-tab, a usage record is created for any removed or installed components.

Performing record corrections

You might need to correct or adjust inventory records in the course of maintenance activities.

Base or line maintenance technical records clerks are responsible for performing records corrections for inventory details, tasks, faults, sub-components, and work packages. For task deadlines, this involves correcting usage and manufactured or received dates. You can also edit labor history

Adjust and correct task deadlines

About this task

The following procedures outline situations that may occur during the operation of CAMO Module where a task deadline is incorrect. CAMO Module task deadlines are based on the equation: starting point + interval (baseline) = deadline. Therefore, the proper course of action is to adjust either the starting point or the interval, not the deadline itself.

This procedure applies to a calendar-based recurring task, that is not at its first iteration. In this scenario, the ACTV task deadline is incorrect, the task is calendar-based, and is a recurring task. It has been determined that the task definition is correct. This is not the first time the task has been completed, so there is a dependency on the previous task. Since the baseline information is correct, but the current active deadline is incorrect, it means that the last accomplished task was not properly recorded. This procedure corrects the information on the historical last accomplished task. When this occurs, the deadline of the ACTV task is automatically updated.

Steps

1. On the **Task Details** page for the ACTV instance of the task, click the **Task Information** tab.
2. Click the link for the **Previous Task**.
3. On the **Task Details** page for the previous task, click the **History** tab.
4. On the **History** tab, in the **Usage at Completion** area, click **Edit Usage Snapshot**.
5. On the **Edit Usage Snapshot** page, update the **Completion Date** to the correct value.
6. Click **OK**.
7. On the **Task Details** page, in the **Task Information** area, verify that **Actual Start Date** and **Actual End Date** have been updated.
8. On the **Task Details** page, click the link for the **Next Task**.
9. On the **Task Details** for the next task, click the **Scheduling** tab.
10. Verify that all the values have been updated.

> **Note** Based on the Last Task Completion Date, the Custom Date is updated. Due Date is updated based on the new Last Task Completion Date/Custom Date and the original Baseline Interval. Forecast values are updated.

Correct usage at the last task completion date

About this task

This procedure applies to a usage-based recurring task that is not at its first iteration. In this scenario, the ACTV task deadline is incorrect, the task is usage-based, and it has been determined that the task definition is correct and the task is a recurring task. This is not the first time the task has been completed so there is a dependency on the previous task. Since the baseline information is correct, but the current active deadline is incorrect, it means that the last accomplished was not properly recorded. Therefore the information on the historical last accomplished task should be corrected. When this occurs, the deadline of the ACTV task is automatically updated.

Steps

1. On the **Task Details** page for the ACTV instance of the task, click the **Task Information** tab.
2. Click the link for the previous task.
3. On the **Task Details** page for the previous task, click the **History** tab.
4. On the **History** tab, in the **Usage at Completion** area, click Edit Usage Snapshot
5. On the **Edit Usage Snapshot** page, update the **Component TSN** to the correct value.
6. Click **OK**.
7. On the **Task Details** page, verify that the **Usage At Completion** has been updated.
8. On the **Task Details** page, click the link for the next task.
9. On the **Task Details** for the next task, click the **Scheduling** tab.
10. Verify that all the values have been updated.

> **Note** Based on Last Task Completion Date, the Custom Date is updated. Due Date is updated based on the new Last Task Completion Date/Custom Date and the original Baseline Interval. Forecast values are updated.

Correct usage at the effective date

This procedure applies to a task at its first iteration or a non-recurring task, with a usage-based deadline, scheduled from the effective date.

About this task

In this scenario, the usage-based deadline of an ACTV task is incorrect, it has been determined that the task definition is correct, and this is the first instance of this task and it is scheduled from an effective date. In this case, the starting point usage information on the active task should be updated. When this information is corrected, then the deadline on the ACTV task is automatically updated.

Steps

1. On the **Task Details** page for the ACTV instance of the task, click the **Scheduling** tab.
2. In the **Deadline Start Values** area, click Edit Deadline Start Values
3. On the **Edit Start Values** page, update the **Component TSN** to the correct value.
4. Click **OK**.
5. On the **Task Details** page, click the **Scheduling** tab.
6. Verify that the Effective Date (Custom Date) has been updated.
7. Verify the **Forecast** values have been updated.

Correct manufactured or received dates

About this task

This procedure applies to a calendar-based task at its first iteration or a non-recurring task, scheduled from the manufactured or received date. For example, that the baseline task definition is correct and the task is scheduled from the manufactured or received date; however, the actual Manufactured/Received Date for the inventory item is incorrect. When this information is corrected on the inventory, the deadline on the ACTV task is automatically updated. The Manufactured Date is mandatory for ACTV tasks that are scheduled from the manufactured date. The Received Date is mandatory for ACTV tasks that are scheduled from received date.

Steps

1. On the **Task Details** page for the ACTV instance of the task, click the **Inventory** link.
2. On the **Inventory Details** page, click **Edit Inventory**.
3. On the **Edit Inventory** page, update the **Manufactured Date** or the **Received Date**.
4. Click **Finish**.
5. Type a note as required, and click **OK**.
6. If prompted, type your password, and click **OK**.
7. On the **Inventory Details** page, click the **Details** tab.
8. Verify that the **Manufactured Date** and/or **Received Date** are updated.
9. Click **OK**.
10. On the **Task Details** page, verify that the **Due Date** is updated.

Add deadlines to ad hoc tasks or faults

Steps

1. On the **Task Details** page for the ACTV instance of the task, or on the Fault Details page, click the **Scheduling** tab.
2. Click **Add Deadline** in the **Due** area.

3. On the **Add Deadline** page, select one of the following **Deadline Types** in the **Deadline Details** section:
   - **Known deadline date**: Select this option to specify the deadline date.
     - **Start Date**: Type the start date for the task or fault. For ad hoc tasks, the start date defaults to the current date; for ad hoc faults, it defaults to the date the fault was found.
     - **Due Date**: Type the deadline date for the task or fault. The due date cannot be earlier than the start date.
     - **Notes**: Optional. Type a note if needed.
   - **Known Deadline Usage**: Select this option to specify the usage values to use as the deadline.
     - Select a **Usage Parameter** to set the deadline.
     - The **Deadline Usage** table shows the current value of the usage parameter for the inventory assembly and component:
       - **Start Usage**: Type the start value for the usage. For ad hoc tasks, the start usage values default to match the current usage values; for ad hoc faults, they default to the values entered when the fault was found. Note that the component TSN cannot be set to a value lower than zero.
       - **Deadline Usage**: Type the usage values to use as the deadline for the task or fault. Note that the deadline usage component TSN cannot be set to a value lower than the start usage component TSN.
   - **Known start date & interval**: Select this option to specify a time interval between a start date and the deadline:
     - **Calendar Parameter**: Select a calendar parameter.
     - **Start Date**: Type a start date to use to calculate the deadline.
     - **Interval**: Type a number to use as the interval between the start date and the deadline.
     - **Notes**: Type a note if needed.
   - **Known start usage & interval**: Select this option to specify a usage interval between a start usage value and the deadline:
     - **Usage Parameter**: Select a usage parameter from the drop-down list to set the deadline.
     - The **Deadline Usage** table shows the current value of the usage parameter for the inventory assembly and component:
       - **Start Usage**: Type start value for the usage. For ad hoc tasks, the start usage values default to match the current usage values; for ad hoc faults, they default to the values entered when the fault was found. Note that the component TSN cannot be set to a value lower than zero.
4. Click **OK**.

Inventory items and inventory records

Inventory items are the physical assets and parts owned or used by your organization.

Aircraft, engines, parts, and consumable supplies are all inventory items. Inventory items are associated with a part number, and each inventory item has a tail number, a serial number, or a batch number by which it is identified.

You can create and manage maintenance history by performing various actions on inventory records. Each inventory item must have an inventory record in CAMO Module.

Inventory classes

All part numbers, part groups, inventory, and stock numbers in CAMO Module have an *inventory class*. The inventory class identifies the functional class of the item, and dictates the manner in which CAMO Module handles inventory, for example, the extent to which CAMO Module tracks the inventory details, or whether it verifies and enforces that parts are installed on the correct configuration slot.

The inventory class that is assigned to a part number must match the inventory class of the part group to which the part belongs. All inventory of the part must also have the same inventory class as the part number and the part group. For example, you cannot assign a part that has the serial-controlled inventory class to a part group that has the tracked inventory class.

The inventory class is separate from, but related to, the configuration class associated with configuration slots. There are rules in CAMO Module that determine which inventory class can be defined, used, and installed on each type of configuration class.

The following table describes the inventory classes, and lists the type of configuration slot(s)—identified by the configuration class—with which each inventory class can be associated. In other words, the configuration slots that can have part groups, part numbers, and inventory of each inventory class.

Inventory classes

Inventory Class	Code	Description	Configuration Class
Aircraft	ACFT	Used exclusively for aircraft. Aircraft inventory have special logic in CAMO Module, which allows them to have flights, and to be released from maintenance. You can track usage for each serial number, and create maintenance programs in CAMO Module. CAMO Module keeps full history of aircraft inventory.	ROOT
Assembly	ASSY	Used for items, other than aircraft, that have their own logbook, and that can accrue usage even when they are not installed on a parent assembly. Engines and APUs are examples of part numbers and inventory that should have the assembly inventory class. You can track usage for each serial number, and create maintenance programs in CAMO Module. An assembly consists of several parts and components that have lower inventory classes such as tracked, serial-controlled, and batch. The user roles and authorities determine which assemblies users can access and update in CAMO Module.	ROOT or SUBASSY

Inventory Class	Code	Description	Configuration Class
Tracked	TRK	Used for items that have serial numbers, that are repairable, and that are: • High-value items. • Items that are significant in terms of safety. • Items for which you want to record the complete cradle to grave history—receipt, installation, removal, and repair. You can track usage for each serial number while it is installed on an assembly. Tracked parts can be mandatory in determining the completeness of a parent assembly. Configuration control applies to tracked parts; CAMO Module tracks and enforces the configuration slot position where the tracked part are installed, ensures that only the quantity of parts specified in the assembly baseline are recorded as installed on the inventory, and strictly validates the serial numbers installed and removed. All major components—often referred to as rotables or key repairables—should be classified as tracked inventory.	TRK
Serial Controlled	SER	Used for items that have a serial number but that do not require the detailed record keeping of tracked items. CAMO Module collects usage against serial-controlled components while they are installed on an assembly. However, configuration control is not applied in CAMO Module. You cannot tell exactly which serial numbers are installed on a given aircraft.	Any (ROOT, SUBASSY, TRK, SYS)

Inventory Class	Code	Description	Configuration Class
Batch Controlled	BATCH	Used for items that are not tracked individually—they do not have serial numbers—but that are tracked as a batch with a quantity. Every time a new batch is received, CAMO Module generates a batch control number. Batch control numbers are used much like serial numbers, but they refer to a collection of items rather than a single item. Because batch parts are controlled by quantity, CAMO Module splits the batch into sub-portions under several circumstances, for example when some of a batch is transferred to a different location, or when some of the items in a batch are sent for repair and have a different inventory condition than the items that are still serviceable. When batches are split, attachments and technical references are copied to the splits. At any time after a batch is split, if an attachment or technical reference is added, edited, or deleted on one batch inventory record, all other records in the split batch are updated. In some situations, a document might only apply to one portion of a split batch. In this case, you will need to add a note to the inventory record. Unless they are marked as repairable, batch items are treated as consumables that are not tracked after they are issued. When a repairable batch inventory is issued, CAMO Module expects a turn-in. Note that although batch inventory can be marked as repairable, this does not change its financial type.	Any (ROOT, SUBASSY, TRK, SYS)

Inventory Class	Code	Description	Configuration Class
Kit	KIT	Used for groups of parts, consumable items, and tools that are assembled to complete a particular task, or address an event. The items in a kit are stored together and move through the system as a single entity. Kits can be purchased, shipped, reserved, issued and turned in just like regular inventory. However, kits differ from regular inventory, in that they are assembled and disassembled; they are never installed on wing. It is the individual items within the kit that are installed, consumed and expensed. The kit itself has no financial value, its value is the sum of the individual items it contains.	Any (ROOT, SUBASSY, TRK, SYS)

Creating and editing inventory records

You can create inventory records after your equipment baseline (assemblies and their hierarchy of configuration slots, part groups, and part numbers) is created.

Inventory records provide detailed information about your assets, including sub-inventory, open maintenance tasks, faults to be resolved, and historical data. Historical data includes completed maintenance tasks, closed faults, flight information, usage, and more.

Inventory records are created at different times, by people in various roles, and through several different methods:

- When CAMO Module is first implemented, inventory records are usually created in bulk as part of the migration of data from legacy systems in your organization.
- Materials management personnel create inventory records when they receive new inventory, for example, as the result of a purchase order, a borrow order, or a consignment order.
- As parts or components are removed from assemblies during maintenance activities, it is possible that some do not already have an inventory record, for example, due to an omission by material receipt personnel. Authorized users can create inventory records for such items as they are removed from an assembly.

To create an inventory record, enter high-level information about the item such as the part number, unique identifier, and location. After you enter this information, CAMO Module opens a sequence of pages on which you can edit the details of the inventory item, including purchasing information and usage details.

CAMO Module matches the serial number, manufacturer, and part number with existing inventory records to check for any duplicate records for inventory items. The serial number may be a direct match, or a near match, depending on CAMO Module configuration. The Part Number may be a direct match, or an alternate part number. For more information, see related topics.

When complex inventory items such as aircraft or engines are involved, you can also edit the subcomponents of the inventory. If you omit mandatory information, CAMO Module displays a message indicating the information that is missing.

Inventory records can be edited at any time by authorized users. You might edit inventory records to correct information that affects the future maintenance schedule of inventory items, or that affects compliance with industry regulations.

There are different permissions required for editing aircraft inventory verses other inventory classes (ASSY, TRK, SER or BATCH). Access to aircraft records is more highly controlled with four separate permissions, one for each of the edit inventory pages.

Create an inventory record manually

Most inventory records are created automatically, but when necessary, you can manually create inventory records.

About this task

You can create inventory using similar steps from various pages such as Part Search, Part Details, and Inventory Search. The following steps start on the Part Details page.

Steps

1. On the **Part Details** page, click **Create Inventory**.
2. Provide the requested information. Note the following:
   - Manufactured Date: If you enter a manufactured date for an item that has a shelf life, CAMO Module automatically calculates the shelf-life expiry date.
   - Shelf-Life Expiry: Mandatory for parts with shelf-life configured.
3. Click **OK**.

Find and edit inventory

Steps

1. Select the **Inventory Search** menu item:
2. On the **Inventory Search** page, type the appropriate search criteria.
3. Click **Search**.
4. In the **Parent Assembly** or **Serial Number** column, click the link of the desired inventory from the results.
5. On the **Inventory Details** page, click **Edit Inventory**.

6. On the **Edit Inventory** page, you have the following options:
   - Click the link for the step that you want to proceed to; all change(s) are saved.
   - Click **Next** to save the change(s) and continue editing the next step.
   - Click **Apply** to save the change(s) and remain on the current page.
   - Click **Finish** to save the change(s) and finish the editing process.
   - Click **Cancel** to cancel the editing process.

Edit inventory details

Steps

1. On the **Edit Inventory** page, in the **Identification** area, provide values for the following mandatory fields. Values for the remaining fields are optional and can be provided as needed.
   - Select an OEM Part No.
   - Enter an OEM Serial No.
   - Enter a Barcode.
2. On the **Edit Inventory** page, in the **Aircraft** area, provide values for the following mandatory fields. Values for the remaining fields are optional and can be provided as needed.

   Note

   This section only appears if the inventory item edited is an aircraft.

   - **Registration Code**: The registration code is unique to every aircraft.
   - **Issue to Account**: If issue account is not specified on the work package or the task that the part request belongs to, this is the default account used. The Issue to Account is mandatory for AIRCRAFT, but not for ASSY types.
3. On the **Edit Inventory** page, in the **Purchasing/Receipt** area, provide values as needed for the optional fields.
4. On the **Edit Inventory** page, in the **Authority** area, specify an **Authority** if one is required. To search for an authority, click
5. Click **Next** to proceed to the following section.
6. On the **Edit Inventory** page, in the **Details** section, type any pertaining **Notes**.
7. Click **OK**.

Edit sub-component details

Steps

On the **Edit Inventory** page, in the **Subcomponents** area, provide the following information for each sub-component that requires modification:

> **Note**
>
> This section is available for inventory of class ACFT.

- **Check box**: Specifies if the component will be created when the changes are saved. Clear the check box to remove items.
- **Mandatory**: Indicates airworthiness requirement.
- Select the appropriate **OEM Part No**.
- Type the **Serial No/Batch No**.

> **Note**
>
> This is the serial or batch number given by the original equipment manufacturer.

- Type **OEM Lot No**.
- Type **OEM Batch No**.
- Type the **Manufactured Date**.
- Type the **Received Date**.
- Type the **ICN (Inventory Control Number)**.

Edit task lists for inventory items

Steps

1. On the **Edit Inventory** page, provide the following information:
   - To display all task definitions on subcomponents of this inventory, select the **Show Tasks on Subcomponents** check box.
   - To display all the non-recommended task definitions, select the **Show Non-Applicable** check box.
   - To display only on-condition task definitions select the **Show Only On Condition Tasks** check box.
2. To create a task from a task definition, select one task definition and click **Create Task From Definition**.
3. To create a task from a task definition and set a deadline, do the following:
   - Select one task definition, and click **Create Task From Definition and Set Deadlines**.
   - On the **Create Task** page, enter the **Effective From** date.

- Click **OK**.
- If prompted, type your password, and click **OK**.

  An active task with a deadline is created from the definition.

4. To create a historical task from a task definition, do the following
   - Select one task definition, and click **Create Historical Task From Definition and Set Deadlines**.
   - On the **Create Historical Task** page, provide the following information:
     - Enter the **Date** that this task was completed on.
     - Type the usage parameters for that task.
     - Optional. Type a Reason.
     - Optional. Type a Note.
   - Click **OK**.
   - If prompted, type your password, and click **OK**.

Manufactured date and received date

The manufactured date and received date are provided on an inventory record. These dates can be used when scheduling tasks

The manufactured date and received date of inventory are optional, except in the following instances:

- When you create or edit inventory of a part number for which your maintenance baseline includes at least one ACTV maintenance requirement scheduled from the manufactured date, the manufactured date is mandatory.
- If there is at least one ACTV maintenance requirement scheduled from the received date, the received date is mandatory.
- If there are maintenance requirements scheduled from the manufactured date, and others from the received date, both dates are mandatory.

If you are creating an inventory record for a sub-component of a configuration slot that has requirements with mandatory manufactured and/or received dates, and the sub-component does not have these dates, CAMO Module creates the sub-component, and notifies you with an alert.

When you specify the Manufactured Date or Received Date in an inventory record, you can select the *Apply this date to all sub-components* check box to have CAMO Module apply this date to all sub-components of the inventory. If the check box is not selected (default), then the manufactured or received date is applied to only sub-inventory with the system inventory class.

Note

The *Apply this date to all sub-components* check box displays only when you are creating the inventory record and specifying the manufactured and received dates. If you edit an existing inventory record, you can change the manufactured date or the received date, but you do not have the option to automatically apply the change to all sub-components.

Locking inventory

You can lock an inventory item to prevent users from editing or deleting the inventory item's records. The lock applies to all users, including those with read and write permissions for the inventory item.

Locking an inventory item locks records for that item, and for its sub-inventory and sub-assemblies. The lock affects only those records directly related to the inventory item, such as flight records for an aircraft inventory item, not those that only refer to the item, such as records for an engine that was on an aircraft but has since been removed.

You might want to lock inventory items during an investigation, for example, an aircraft safety investigation, and keep the items locked until the investigation is complete. This ensures that no changes are made to the inventory's records.

Permission to lock and unlock inventory is normally granted to only one CAMO Module user. When appropriate, that user can unlock the inventory items, allowing users with permission to again edit the inventory records.

When an inventory item is locked, a message displays on the Inventory Details page.

Note You cannot lock kit inventory. You can prevent users from removing inventory items assigned to a kit by sealing the kit. Only users who have a specific permission can remove the seal from a kit. You cannot lock inventory items included in a kit. You can remove an item from the kit and then lock the item, or seal the entire kit.

Lock and unlock inventory records

You can lock an inventory item to prevent users from editing or deleting the inventory item's records.

Steps

1. On the **Inventory Search** page, enter your search criteria and click **Search**.
2. In the **Parent Assembly** or **Serial Number** column, click the link.
3. On the **Inventory Details** page, click **Lock Inventory**.

4. On the **Lock Inventory** page, provide the following information:
   - Optional. Select the **Reason** for locking the inventory.
   - Optional. Type any additional information in the **Notes** field.
5. Click **OK**.
6. If prompted, type your password, and click **OK**.

   When an inventory item is locked, a message displays indicating the same on the Inventory Details page.
7. On the **Inventory Details** page, click **Unlock Inventory**.
8. On the **Unlock Inventory** page, provide the following information:
   - Optional. Select the **Reason** for unlocking the inventory.
   - Optional. Type any additional information in the **Notes** field.
9. Click **OK**.
10. If prompted, type your password, and click **OK**.

Archiving inventory

When an inventory item is sold or when you no longer have financial ownership of an item, you can archive its inventory record. CAMO Module automatically archives an inventory record when specific events occur. Maintenance and event history are preserved for archived inventory records.

When inventory is archived:

- Inventory reservations are canceled.
- Archived items are not included in current financial or inventory records and are not used in inventory counts or calculations.
- CAMO Module does not update or edit the inventory.
- CAMO Module cancels transfers associated with the item.
- Shipments that only contain archived inventory are canceled.
- Shipment lines that contain archived inventory are removed in shipments that also contain non-archived inventory items.
- Usage is not accrued so usage-based maintenance requirements remain static and do not approach their deadlines.
- Calendar-based maintenance requirements do approach their deadlines, but these overdue tasks are removed if the inventory record is unarchived.

CAMO Module automatically archives inventory when:

- You receive a replacement item on an exchange order for the item that was shipped out.
- You inspect repaired batch inventory that is received for a repair order line. The received batch is created in the system with a new batch number and the record for the corresponding batch inventory sent for repair is archived.

- You ship borrowed inventory back to its owner. You don't own borrowed inventory but there is a record for it in CAMO Module.
- You return received inventory to a vendor.
- You create an ad-hoc shipment and ship inventory to a vendor.

CAMO Module automatically unarchives inventory when:

- Inventory that is received directly matches the serial number and part number of an archived record.
- Inventory that is received indirectly matches the serial number and an alternate part number with the same manufacturer, and part group matches an archived record.

If you attempt to create inventory that directly matches the serial number and part number of an archived record, the record match is detected and you can decide whether to proceed and unarchive the existing record.

Unarchiving and reinducting inventory

When an inventory item is sold or when you no longer have financial ownership of it, its inventory record is archived in CAMO Module. If that same item is later received back and you attempt to create an inventory record, CAMO Module matches the inventory with its archived record, then unarchives the record and reinducts the inventory.

Parts are regularly modified as a result of airworthiness directives or service bulletins and their part numbers can be changed. If this happens outside your organization to a part with an archived record, the same physical part will have a different part number than the existing record. CAMO Module can detect an indirect match, unarchive and update the existing record with the new part number and reinduct the inventory.

Reinduction preserves cradle-to-grave record keeping and ensures that two separate records are not created for the same physical inventory item.

Records are matched when the unique identity of a received item and an existing record is the same. CAMO Module searches for direct and indirect matches:

- Direct: the serial number, manufacturer code, and part number match.
- Indirect: the serial number, manufacturer code, and an alternate part number match.

CAMO Module handles the search results in the following ways:

- If an active direct or indirect match is found, CAMO Module prevents the user from creating the inventory record.
- If an active inventory record does not exist, CAMO Module will check to see if one or more direct or indirect archived copies of the inventory record are being created. If there exist archived inventory records for the inventory item, CAMO Module will give the user the option of creating a new inventory record or unarchiving the most recently archived inventory record. In cases where you find multiple inventory records for the same inventory item, you can cross-reference duplicate inventory records.

- If no active or archived copies exist, CAMO Module will create the inventory record.

Unarchive inventory

You may need to unarchive inventory. Unarchived inventory can be reinducted into CAMO Module.

About this task

> **Note** You cannot unarchive batch inventory. To reinduct an inventory record for batch inventory, recreate the inventory with a new batch number.

Steps

1. Open the **Inventory Details** page for the archived inventory.
2. Click **Unarchive Inventory**.
3. On the **Unarchive Inventory** page, enter the required information and click **OK**.

Reuse of records for received inventory

CAMO Module does not create new records for inventory received through shipments if there is an existing archived or non-archived record for an item with the same serial number and part number or with the same serial number, part group, and manufacturer.

When CAMO Module detects a matching record, it displays warnings, options, and sometimes alerts and routes both received and existing inventory to the appropriate location for processing or verification.

Records are matched when the unique identity of a received item and an existing record is the same. CAMO Module searches for direct and indirect matches:

- Direct: the serial number, manufacturer code, and part number match.
- Indirect: the serial number, manufacturer code, and an alternate part number match.

You can disable indirect matching by setting the global MATCH_RECORDS_PG_MF_SN configuration parameter. See the *Maintenix Administration Guide*.

CAMO Module processes receipt of inventory with existing records based on the type of match and the state of the existing inventory with the same identity.

Existing records matched or detected for received inventory

Condition of existing inventory	Direct match	Indirect match
Archived	• Record unarchived. Inventory reinducted using existing record. • No warning message. No alert. History note added.	• Record unarchived. Inventory reinducted and record and updated with the part number of the received part. • No warning message. No alert. History note added.
Installed (INSRV)	• If the receiving clerk selects Maintenix Error, the record is updated with detachment of the installed item, condition is changed to INSPREQ, and location is changed to the receiving location. A new record with serial number XXX is created for the unknown installed item. Alert sent. • If the receiving clerk selects After-the-Fact Receipt, the shipment is completed and the existing inventory record is updated with a shipment-receipt history note.	• If the receiving clerk selects Maintenix Error, the received inventory is routed to quarantine for verification. The existing record is updated to detach the installed inventory and the condition is changed to QUAR. The part number is not changed. History note added. A new record with serial number XXX is created for the unknown installed item. • If the receiving clerk selects After-the-Fact Receipt, the shipment is completed and the existing inventory record is updated with a shipment-receipt history note. The part number is not updated on the shipment.

Condition of existing inventory	Direct match	Indirect match
Loose, on-hand	• If the receiving clerk selects Maintenix Error, the existing record is updated to the condition and location of the received inventory. Alert sent. • If the receiving clerk selects After-the-Fact Receipt the shipment is completed and the existing inventory record is updated with a shipment-receipt history note.	• If the receiving clerk selects Maintenix Error, the inventory condition on the existing record changes to QUAR and the inventory is routed to quarantine. The part number is not changed. History noted added. • If the receiving clerk selects After-the-Fact Receipt the shipment is completed and the existing inventory record is updated with a shipment-receipt history note.
Scrapped or condemned	If the receiving clerk selects Maintenix Error, the inventory condition of the received item changes to QUAR. Alert sent.	The inventory condition of the received item changes to QUAR and the item is routed to quarantine.

If more than one record potentially matches the serial number, part group, and manufacturer then CAMO Module does not reuse the record, but it does the following:

- Receives the shipment and creates a new inventory record.
- Adds a history note to the new record that identifies the new part number and the possible matching records.
- For archived record, sends an alert that identifies the new part number and the possible matching records. Technical records can investigate and cross-reference the appropriate records.
- For a non-archived record, changes the inventory condition of the received inventory to QUAR. The quarantine agent can investigate and cross-reference the appropriate records.

Inventory associations

It is possible for an active inventory record and an archived inventory record to refer to the same physical inventory item. CAMO Module allows you to link these duplicate inventory records to form *inventory associations*.

CAMO Module supports the scenario of duplicate inventories in two ways. First, items being unarchived, either through the inventory receipt process, or the inventory creation process. This scenario will have a more comprehensive process to identify old inventory records to unarchive.

Second, there are cases where the user finds multiple inventory records (one ACTV, the others archived) that refer to the same physical inventory item. In this scenario, the user may choose to associate the inventory records. The association among these records indicates that the records belong to a single inventory item and also make available the history of the inventory item, allowing a more accurate task compliance.

The Also Known As button is available on the Inventory Details page of inventory records, and is used to manually create an association. This button is visible for all inventory records other than records for scrapped, locked, or archived inventory items.

For a given inventory record, all the inventory records associated with it are listed under the Also Known As table on the Inventory Details page of the record. An inventory record can belong to no more than one association at a time.

Create inventory associations

You create inventory associations for inventory records that refer to the same inventory item. Associations are useful for understanding the history of an inventory item.

Prerequisite

You must first identify the inventory records that refer to the same physical inventory item. You need the barcode of these inventory records to create inventory associations.

Steps

1. Navigate to the Inventory Details page of any one of the inventory records that you want to associate with each other.
2. Click **Also Known As**.
3. On the **Also Known As** page, **Inventory Barcode** field, enter the barcode for the inventory record you want to associate with the current inventory record.
4. Click **OK**

Each inventory record displays the inventory records associated with it on the Also Known As table of the Inventory Details page.

> **Note** An inventory record can belong to no more than one association at a time. So if one of the inventory records already belongs to an association, the other inventory record will be added to the existing association.

Remove inventory records from an association

In cases where it is discovered that two associated inventory records don't actually reference the same physical inventory item, the items can be removed from the association.

Steps

1. Navigate to the Inventory Details page of any inventory record associated with the inventory record you want to remove.
2. On the **Also Known As** table, select the radio button for the required inventory record and click **Delete Inventory Association** ( ).
3. Enter a note if necessary and click **OK**.

The selected inventory record is removed from the association, which means its no longer linked to the current inventory record or any other inventory record in that association. If there are only two inventory records in the association, removing one inventory record will end the association.

Changing the part number of inventory

On the Edit Inventory page, you can change the part number assigned to an inventory item by selecting from a drop-down list of existing alternate part numbers.

When you change the part number of an inventory item, CAMO Module adjusts the quantity of inventory items for both the old part number and the new part number, updates the average unit price of the new part number—taking into account the new inventory that has that part number, and the average unit price of that inventory—and debits and credits the relevant asset accounts.

If the part numbers have part-specific scheduling rules with different task deadlines, the part-specific scheduling rule for the new part number is used.

When the part number is changed, CAMO Module verifies that the new part number is compatible with the relevant assembly's allowable configuration and, if it is not, sends you a warning or error message.

Attaching and detaching inventory

If an inventory item has been incorrectly installed on the wrong parent inventory, you can detach the inventory item, and then attach it to the correct parent inventory.

Use the Attach Inventory or Detach Inventory buttons on the Inventory Details page, Sub Inventory tab, and then provide a reason for the change and a note. The configuration change, the reason, and the note are recorded and stored in the inventory record.

The ability to attach or detach inventory is controlled by permission settings. For information on this, see the Maintenix Administration Guide.

Attach and detach components outside of tasks to correct configuration

Prerequisite

- The record of the inventory item that will be attached to the aircraft, if it already exists in CAMO Module, must indicate that the inventory item is currently uninstalled. If the item is attached to another aircraft, you must first detach it from that aircraft, and then attach it to the correct aircraft.

About this task

Use these instructions when inventory records in CAMO Module identify the incorrect component serial number as the one that is installed on an aircraft. The process to follow to correct the inventory records is to detach the inventory that records erroneously show as installed on the aircraft, and then attach the correct component, which means recording the correct serial number in CAMO Module as being installed on the aircraft. When following this process, there is no direct link in CAMO Module as to why a component was detached and another one attached. Therefore, it is advisable to type notes in CAMO Module to explain why these steps are being performed.

The steps outlined in this section are to be followed when inventory configuration is to be updated. The following assumptions have been made:

> **Note**
>
> The instructions explain how to correct the configuration of an aircraft. Updating the configuration of engines or other components that require inventory configuration follows the same process, except that you must search for the engine or component inventory.
>
> After completing the correction, additional investigation is required to determine where the item detached from the aircraft is located and its condition. The process to update this information in CAMO Module is not outlined in following instructions.

If a component is received, inspected as serviceable and then you update the inventory details to detach the sub-components that were missing when the item was received, the inventory is in REPREQ condition. If the inventory should be in RFB condition, it must be marked as inspection required and inspected.

Detach inventory items

About this task

An inventory item was incorrectly identified in CAMO Module as being installed on the aircraft, so it has to be detached from the aircraft.

Steps

1. On your to-do list, click the **Fleet List** tab.

2. In the **Aircraft** column, click the name of the aircraft.
3. On the **Inventory Details** page, click the **Sub Inventory** tab.
4. Select the radio button to the left of the inventory item.
5. Click **Detach Inventory**.
6. On the **Detach Inventory** page:
   - **Removal Location**: The value defaults to the current location of the aircraft. If the part was removed at a different location, do the following:
     - Click **Select a Removal Location**.
     - On the **Location Search** page, enter the search criteria.
     - Click **Search**.
     - Select the radio button to the left of the location where the part was removed.
     - Click **Assign Location**.
7. Click **OK**.
8. If prompted, type your password, and then click **OK**.

Attach inventory items

About this task

The inventory item that is installed on the aircraft must be attached to the aircraft in CAMO Module. The inventory item that is to be attached must already exist in CAMO Module.

Steps

1. On the **Inventory Details** page, click the **Sub Inventory** tab.
2. Locate the configuration slot in the inventory hierarchy where the inventory item will be attached.
3. Select the radio button to the left of the configuration slot.
4. Click **Attach Inventory**.
5. On the **Inventory Search** page:
   - The default search criteria include **Assembly**, **Config Slot**, **Part Group**, **Installed and Location**, based on the aircraft's current location.
   - Type additional search criteria as needed.
   - Select the **Include Issued Inventory** check box. This lists all uninstalled inventory items for the specified location.
6. Click **Search**.
7. Select the check box to the left of the inventory item to be attached.
8. Click **Assign Inventory**.
9. (Optional) On the **Attach Inventory** page, type a note as to why the item is being attached.

10. Click **OK**.
11. If prompted, type your password, and click **OK**.

Create and attach inventory

About this task

If the inventory item to be installed is not currently in CAMO Module, this procedure creates the inventory item and attaches it to the aircraft.

Steps

1. On the **Inventory Details** page, click the **Sub Inventory** tab.
2. Navigate to the configuration slot in the inventory hierarchy where the inventory item will be created and attached.
3. Select the radio button to the left of the configuration slot.
4. Click **Create & Attach Inventory**.
5. On the **Create Inventory** page, provide the following information. You might see all or some of these fields depending on your role's permissions:
   - **OEM Part No**: Select the part number to attach.
   - **Serial No**: Type the serial number of the part being attached. This value defaults to 'XXX'; modify it to reflect the actual serial number which to be created and installed.
   - **Owner**: Select the owner of the inventory item.
   - **Credit Account**: The default value can be left as is.
   - Optional. Enter a note indicating why the item is being created and attached.
6. Click **OK**.
7. If prompted, type your password and click **OK**.
8. On the **Edit Inventory** page, update the inventory details of the item created.
9. On the Inventory Details page, click OK.

Backdating sub-component installations and removals

CAMO Module does not support backdated sub-component installations and removals in all scenarios. If you create an installation record for an engine sub-component in CAMO Module prior to a recorded engine change, the usage snapshots may not be updated automatically. You would have to manually correct the usage for the sub-component on the removed engine, not on the aircraft on which the engine was previously installed. In order to mitigate this problem, record the configuration changes in order, although independent configuration changes can be recorded out of sequence.

For example, consider the following scenario:

1. Two flights records AAA and BBB are created.
2. Records of an engine removal and installation are created.
3. Two flight records CCC and DDD are created.
4. Records of removal and installation of a sub-component of the engine are created for a date between flights AAA and BBB.

   In this scenario, the sub-component was changed for the previously installed engine, not the currently installed engine. CAMO Module does not keep a track of previously installed engines for the purposes of automatically processing this type of out-of-sequence configuration changes. You must update the configuration changes usage on the engine sub-components manually.

CAMO Module supports backdating of an engine replacement before one or more flights. For example, consider the following scenario:

1. Three flight records AAA, BBB, and CCC are created.
2. Records of removal and installation of an engine are created between flights BBB and CCC.

In this scenario, the removed engine has the standard and accumulated usage parameter values removed, as it was not used for flight CCC. The installed engine has the corresponding standard and accumulated usage parameter values added, as it was used for flight CCC. The calculated usage parameters, based on normal or accumulated parameters, are automatically recalculated for the removed and installed engines.

Reliability notes

One aspect of reliability analysis is the identification and tracking of assets that exhibit recurring problems. When chronic problems are detected, the components identified are flagged and when problems are resolved, flags are removed.

Adding flags in CAMO Module doesn't affect inventory condition, but serves to notify personnel such as repair routers of the known reliability issues.

In CAMO Module, you flag problem assets by adding reliability notes to inventory records. A reliability note consists of the note type and text that you enter about the problem. The note type is used to categorize the problem. The two note types available are NOTE and ROGUE, but if your organization requires additional types, they can be configured.

- The NOTE type is for general notes about any type of reliability issue that might exist for an asset.
- The ROGUE type is for assets that have been identified as a rogue part based upon your organization’s established criteria. For example, you might add a reliability note with a type of NOTE after the first instance in which a fault cannot be observed in the shop, but if the part has three consecutive installations that last less than 1000 flying hours each, you might change the note type to ROGUE.

Note types are defined and managed directly in the database, in the REF_RELIABILITY_NOTE_TYPE table. For more information, see the Maintenix Administration Guide.

When you add a reliability note to an inventory record, the note is listed on the Inventory Details page, Open tab, Open Reliability Notes sub-tab. Depending on how the notes are configured, the Inventory Details displays red color warning text across the top of the page. The warning text and whether it is displayed are configurable:

- By default, the ROGUE type displays the warning text: 'This is a rogue part'.
- By default, the NOTE type does not display warning text.

To assist in communicating the existence of reliability notes, the following pages indicate at the top of the page that the inventory has one or more reliability notes.

- Component Work Package Details (indicator text is linked to the inventory's Open Reliability Notes sub-tab).
- Task Details (indicator text is linked to the inventory's Open Reliability Notes sub-tab).
- Raise Fault (indicator text is not linked).

Quality assurance or engineering roles can use the Reliability Note Search to monitor open and historical notes. You can narrow your search by aircraft, part number, config slot, date range note type, note status, and who created or resolved notes. You might use the search results to investigate whether multiple problem parts are from a specific aircraft tail number, if a specific maintenance event corresponds to a rise in removals, or if the problem is associated with a specific flight phase.

If the component fault is finally fixed, or for example, you determine that the fault lies not with the component itself, but with the aircraft or assembly it's installed on, you can resolve the reliability note. A record of the note is kept on the Inventory Details page, Historical tab, Reliability Notes sub-tab.

Maintenix Aviation Analytics can be used to help identify rogue or potentially unreliable inventory items that you might want to flag with reliability notes.

Add a reliability note

To indicate that there are recurring issues with a particular component, you can add a reliability note to its inventory record. You can edit the note as you find more information about the problem.

Steps

1. Go to the **Inventory Details** page, **Open** tab, **Open Reliability Notes** sub-tab.
2. Click **Add Reliability Note**.
3. Select the **Note Type** and add details about the note.
4. Click **OK**.

If you added a Rogue part type note, the Inventory Details page displays the banner statement: 'This is a rogue part'.

If you need to update the note, go to the Open Reliability Notes sub-tab, select a note from the list and click Edit Reliability Note. You can filter the page to show all notes or notes of specific types.

Resolve a reliability note

When you are satisfied that the root cause of a recurring problem with a component is identified or fixed, you can resolve the reliability note on the inventory record.

Steps

1. Go to the **Inventory Details** page, **Open** tab, **Open Reliability Notes** sub-tab.
2. Select a note from the list and click **Resolve Reliability Note**.
3. Enter information about why you are resolving the note.
4. Click **OK**.

The note is removed from the Open Reliability Notes sub-tab and a record of it is added to the Inventory Details page, Historical tab, Reliability Notes sub-tab.

View reliability notes for an inventory item

As inventory is installed and removed, used and repaired, various people such as inspectors, repair routers, reliability engineers, and others might want to view current or historical reliability notes for the item.

About this task

CAMO Module can be configured to display a warning note on the Inventory Details page for some open reliability notes, but you can view the details about the note.

Steps

1. To view open reliability notes, go to the **Inventory Details** page, **Open** tab, **Open Reliability Notes** sub-tab.
2. To view historical (resolved) reliability notes, go to the **Inventory Details** page, **Historical** tab, **Reliability Notes** sub-tab.
3. (Optional) Select the note type and date filter options and click **Filter**.

Search reliability notes by part number or config slot

When you search for reliability notes, you can narrow your search by aircraft, part number, config slot, date range note type, note status, and who created or resolved notes. After you search, you can select a note to edit or to resolve, print the list of results, or export the list of search results.

Prerequisite

Your role must be assigned the Reliability Note Search.

Steps

1. On your To Do List menu, click your role, and click **Reliability Note Search**.
2. Enter your search criteria and click **Search**.

Asset record coordination

Asset records may be recorded in multiple external systems outside of CAMO Module. The Asset Record Coordination (ARC) feature enables you to efficiently import and export an asset's technical records—including asset details, inventory information, configuration data, usage information, open and deferred faults, and historic tasks between external systems and CAMO Module. The upload request centers around a root asset (aircraft, loose assembly, or loose TRK inventory) and enables the Fleet Configuration Engineer to specify its related configuration (tracked sub-components and sub-assemblies) and associated technical records. The export request provides the current CAMO Module configuration and maintenance records for an aircraft.

The ability to upload assets can be used through the ARC Message Management UI using a structured XML format or through the programmatic ARC API (see the ARC API Guide for more information). Performing uploads in both the ARC Message Management UI and ARC API requires the same permission setup and configuration. The same business processing logic applies to both ARC upload messages. Exports are performed through the ARC Message Management UI and provide the data using the same XML format as is used in the upload request.

Upload asset records

Introducing a new asset to the fleet is a multi-step process that extends beyond simply receiving a serialized component from a vendor. Upon receipt, all relevant technical data—including part number, serial number, manufacture date, received date, installation date, and current usage—must be accurately entered into CAMO Module, based on the delivery documentation.

When an asset's configuration or maintenance history is managed in an external system, it is essential to synchronize compliance and technical records between that system and CAMO Module. This coordination ensures that maintenance planning and execution remain accurate and efficient across platforms.

ARC supports tracked and assembly components, but not serialized or batch components. In Historic Task processing, ARC does not support completed tasks, open faults, inventory details, and inventory usages elements for serialized or batch components.

Setting up ARC Message Management

The following chapter discusses setup and configuration requirements for the ARC feature.

Configuration parameters

The UTL_CONFIG_PARM table contains the parameters that configure the ARC functionality as described in the table below.

ARC configuration parameters

Parameter	Description
ARC_DEFAULT_LOCATION	Set the default location for new assets using the location code.
ARC_DEFAULT_FORECAST_MODEL	Set the default forecast model for new assets using the forecast model code.
ARC_DEFAULT_ISSUE_TO_ACCOUNT	Set the default EXPENSE account for new assets using an account code with account type = EXPENSE.
ARC_DEFAULT_CREDIT_ACCOUNT	Set the default ADJQTY account for new assets using an account code with account type = ADJQTY
ARC_DEFAULT_OWNER	Set the default owner for new assets using their code
CREATE_HISTORIC_TASK_MATCHING_INTERVAL	Set how often (in hours) to compare historic task's completion dates.
MOVE_ACFT_TO_WORK_LOCATION	If TRUE, aircraft moves to work location and prevents attaching components from other locations.

Parameter	Description
ARC_ALLOW_USAGE_UPDATE_FOR_INREP_ASSET	Allows ARC to modify inventory if there is an in-work work package and the upload request contains only inventory-usage updates.
ALLOW_AUTO_COMPLETION	Allows ARC to complete open AOG faults, overdue tasks, or open work package work items.

Permission settings

All update operations in CAMO Module performed as part of processing the ARC upload request are recorded as being performed by the logged in user, ensuring traceability. Each ARC action is logged with history notes to indicate that it was performed as part of the ARC process.

To enable ARC functionality, specific action parameters must be configured. Any user who needs access to the ARC Message Management page or ARC API upload actions must be assigned to a role with all required ARC permissions.

For details on configuring permissions, refer to the Maintenix Administration Guide.

ARC action parameters

Category	Permission
API - ARC	API_ARC
API - ASSET	API_CREATE_SERIAL_CONTROLLED_ASSET_REQUEST
SUPPLY - INVENTORY	ACTION_ALLOW_EDIT_RECEIVE_OR_MANUFACTURE_DATE_ON _INVENTORY ACTION_ALLOW_CREATE_EDIT_INV_WITH_FUTURE_MANUFACT_DATE

Category	Permission
API - ADMIN	ACTION_GETINVENTORY API_AIRCRAFT_CORRECT_USAGE_REQUEST API_AIRCRAFT_REQUEST API_ARCHIVE_TRACKED_REQUEST API_ASSET_REQUEST API_ATTACH_SER_REQUEST API_ATTACH_TRACKED_REQUEST API_CREATE_ACFT_REQUEST API_CREATE_USAGE_REQUEST API_DETACH_TRACKED_REQUEST API_TRACKED_CORRECT_USAGE_REQUEST API_UPDATE_ACFT_REQUEST API_EXTEND_DEADLINE_LOGBOOK_FAULT_REQUEST API_UPDATE_OPEN_LOGBOOK_FAULT_REQUEST API_FAULT_SEVERITY_REQUEST API_PRIORITY_REQUEST API_FAULT_SOURCE_REQUEST API_PART_DEFINITION_REQUEST API_OPERATOR_REQUEST API_ASSET_CONDITION_REQUEST API_OWNER_REQUEST API_FINANCE_ACCOUNT_REQUEST API_LOCALE_REQUEST API_MENU_REQUEST

Category	Permission
API - MAINTENANCE	API_CANCEL_LOGBOOK_FAULT_REQUEST API_CREATE_HISTORIC_ADHOC_REQUEST API_CREATE_HISTORIC_BLOCK_REQUEST API_CREATE_HISTORIC_REQ_REQUEST API_CREATE_LOGBOOK_FAULT_REQUEST API_DEFER_MEL_LOGBOOK_FAULT_REQUEST API_DEFER_MINOR_LOGBOOK_FAULT_REQUEST API_FORECAST_MODEL_REQUEST API_LOCATION_REQUEST API_LOGBOOK_FAULT_REQUEST API_MAINT_ENG_PROGRAM_REQUEST API_POSITION_REQUEST API_TASK_REQUEST API_UPDATE_MEL_LOGBOOK_FAULT_REQUEST API_UPDATE_MINOR_LOGBOOK_FAULT_REQUEST

Coordinating asset records

The procedures outlined in this section pertain to managing ARC message files manually using the ARC Message Management page. For information on how to upload asset records using the ARC API, see the ARC API Guide.

Importing asset records

The ARC Message Management page enables you to view the history and status of past uploads and submit new uploads using an XML file. The format of the XML file is specified by the `asset-record-coordination-1.5.xsd` file available with the product documentation.

Review ARC upload history

Steps

1. From the **ARC Message Management** page, click the **Message View** tab.
2. Find the asset that you want to view in the list to view the message status.

3. To view more details about the message status, click the status link.
4. In the **Process Log** dialog, view the message details and the list of errors and warnings to determine what changes are needed for certain records.
5. Optionally, you can add comments and export the list of errors and warnings to a spreadsheet.

   If you are looking for specific messages based on asset name, message status or date range, or have a list of messages that spans several pages, you can filter the list to make it more manageable.
6. From the **ARC Message Management** page, click the **Message View** tab.
7. Do one of the following:
   - Select the **Status** filter options you want to apply to the list.
   - Select the **Date Range** filter options you want to apply to the list.
   - If you want to find messages for a specific asset, type any portion of the asset name in the **Asset** field.
8. Click **Search**.

Perform an ARC upload

About this task

An ARC message XML file can be uploaded manually to CAMO Module using the ARC Message Management page.

Steps

1. From the **ARC Message Management** page, click the **Upload** tab.
2. Click **Upload File**.
3. From the file browser, navigate to the message XML file that you want to upload, select it and click **Open**.
4. A status message is displayed to let you know when the file has been uploaded.

Exporting asset records

From the ARC Message Management UI Export tab, you can generate an XML file containing the technical records of an aircraft in CAMO Module. This file follows the same XML schema as used in the import request (`asset-record-coordination-1.5.xsd`) and includes data such as the inventory id, aircraft details, current configuration, inventory details and usages, last-done tasks, and open and deferred faults for the aircraft and all its tracked sub-components (including sub-assemblies).

Export an aircraft

Steps

1. From the **ARC Message Management** page, click the **Export** tab.
2. Type the aircraft registration code in the designated field.
3. Click **Export**.
   The file download starts automatically.

Upload asset processing logic

This section describes how the various elements of the asset-record-coordination message are processed in an upload. Specific details about the schema, which apply to both import and export contexts, are defined in *Mandatory elements*.

When using the XML file upload capability, ARC supports uploading records for multiple assets within a single file. However, for optimal diagnostic clarity and performance, it is recommended to include only a single root asset within each request. The following sections are written with this best practice in mind.

When CAMO Module receives an ARC upload request, it evaluates the content to either create or update technical records for the specified assets and all associated assembly and tracked sub-components. If CAMO Module identifies a matching asset record, the system updates the existing technical records accordingly. If no matching record exists, CAMO Module creates a new asset and generates the corresponding technical records for that asset and its sub-components.

The sub-elements are processed in a defined sequence to ensure accurate creation or update of root asset and sub-component records:

1. The `<id>` element for the root asset is processed first. This step identifies whether the upload request targets an existing asset or creates a new one, which determines how subsequent records are validated and processed.
2. If present and the root asset is an aircraft, the `<aircraft-details>` element is processed to update the aircraft specific details.
3. If present, the `<current-configuration>` element is processed next. This step creates or updates sub-inventory items and attaches them to the root asset according to the configuration specified in the message.
4. If present, the `<inventory-details>` element is processed to update the inventory details of the asset and all attached sub-components, ensuring the latest information is captured.
5. If included, the `<inventory-usage>` element is processed to update the current usage for the root asset and attached sub-components.
6. If present, the `<completed-tasks>` element is processed to record historic task instances (blocks, requirements, and ad hoc tasks) against the root asset and its sub-components.

7. Finally, if included, the <open-faults> element is processed to create or update open or deferred faults for the root asset and its sub-components, based on information provided in the message. Any existing faults not referenced in the message may be canceled, ensuring that the asset's fault records accurately reflect the current state.

ARC uploads are processed on a best-effort basis: it attempts to process the entire upload request; it does not stop for minor issues, and it strives to continue processing wherever possible. If it encounters data that is ambiguous or incomplete, it may make reasonable assumptions to fill in missing data, or it may skip a specific element and move to the next.

Completed ARC uploads, whether requested manually or programmatically via the API, are listed on the ARC Message Management page with their processing status. Review the status column to quickly assess each message:

- **Validated**: Indicates that the request was submitted to the validator allowing you to review any findings by clicking the provided link. Depending on how the request was submitted (specifically, some uploads submitted via API), this status may not represent a completed upload; additional findings may still be added as the upload is processed.
- **Processed**: All data in the upload request was imported without issues; no further action is needed.
- **Processed with Warning**: The upload was processed in full, but some data required amendments or assumptions to be made. Click the status link to review detailed logs which will help you identify if any records in CAMO Module need to be updated.
- **Processed with Error**: The upload was processed in full, but one or more individual elements could not be processed. This may be caused by either conflicting data within the request itself, or between the request and CAMO Module. These failures are logged, but the rest of the request was processed successfully. Click the status link to review detailed logs which will help you identify any records in either the upload request or in Maintenix that require updates or corrections.
- **Error**: A fatal issue was found that prevented the upload from being fully processed. Processing stopped at the point of failure, and only a portion (or none) of the data was processed. Click the status link to determine whether the issue originated from the upload request, within CAMO Module, or both, and take corrective action as needed.

Asset Control: To ensure that execution information is not lost, if the root asset has a started work package—the aircraft, assembly, or TRK inventory has a condition of INREP—any ARC messages for that asset are not processed (the upload fails with a status of Error). The ARC message can be sent again when the work package is completed.

Baseline Synchronization: New aircraft, assemblies, and TRK inventory created by ARC do not have baseline synchronization enabled. To include the aircraft, assembly, or TRK inventory in baseline synchronization, you must manually set Allow Synchronization in CAMO Module.

Id sub-element and the inventory-id type

The <inventory-id> is a data type used throughout the asset-record-management message to uniquely identify inventory items, including the root asset and all installed sub-components. At the root level, it is named simply <id>, but it also appears in sub-elements using other names such as <inventory-id> or other context-specific names. Regardless of the element name, when the <inventory-id> type is used, it always follows the same structure and validation rules. It is composed of the following three mandatory sub-elements:

- <part-no-oem>
- <manufacturer-code>
- <serial-number>

Together, the <part-no-oem> and the <manufacturer-code> define the asset type – such as an aircraft or assembly. The <serial-number> then identifies a unique instance of that asset type. These three elements together form a unique identifier for an inventory item in CAMO Module.

The <id> element is a root-level element that identifies the asset to be processed and is mandatory in the upload request. If the combination of the three elements maps to an existing inventory in CAMO Module, that asset will be updated. If the <part-no-oem> and <manufacturer-code> exist but the <serial-number> does not, a new asset will be created. If any of the three sub-elements are missing, or if the <part-no-oem> and <manufacturer-code> do not map to an aircraft or assembly type, the system will treat this as a fatal error and the upload request will not be processed.

Note The element name (e.g., <id>, <inventory-id>) may vary, but if the element is defined using the <inventory-id> type, it must include all three mandatory sub-elements. Always refer to the schema definition to confirm the type associated with each element.

Current configuration element

The <current-configuration> list defines the hierarchy of sub-components installed on the root asset. Each entry in this list is a <position>, which identifies a specific location in the configuration and associates it with an inventory item. ARC supports the configuration of only tracked (ASSY and TRK) sub-components in the hierarchy.

It is not necessary to explicitly define the direct parent of each inventory item. Instead, it is sufficient to specify the position of the sub-component relative to the root asset. This simplifies the representation of complex part hierarchies.

However, when the CAMO Module solution uses assemblies (e.g. engines or APUs) to represent complex substructures, and a part is installed on a sub-assembly rather than directly on the root asset, the <position> element must include the <inventory-id> of that assembly in the <nh-

assembly> identifier. This is required even if there is only one instance of the assembly defined on the root asset (e.g. a single APU).

Each <position> element in the <current-configuration> includes the following three identifiers:

- <id> identifies the baseline position within the asset (either the root asset or a sub-assembly) where inventory is being attached (and/or detached). It contains two sub-elements:
  - The part group code specifies the configuration slot where the inventory is to be installed/removed/replaced.
  - The position name identifies the specific position within the configuration slot. If this element is not provided, CAMO Module will automatically assign a position.
- <inventoryId> identifies the inventory item occupying the specified position. If no inventory is installed at that position, this element should be left empty.
- <nh-assembly> specifies the intermediate sub-assembly (next-highest assembly) associated with the position. This element is mandatory when the position is defined on a sub-assembly rather than directly on the root asset. It must be left empty when the position is defined directly on the root asset.

Compatibility considerations

To ensure compatibility, the inventory specified in a <position> must belong to a part group that is associated with the corresponding configuration slot in CAMO Module.

If the inventory's part number is not approved for the specified part group, ARC will still proceed with the installation of the sub-component.

Installation Date support

Each position element also supports an optional <installation><date> sub-element, which allows the installation date of the sub-component to be specified. This enables backdating the installation date of the sub-component to reflect its actual in-service date. If no date is provided and ARC is performing an install, it will use the current system time. Once a sub-component has an installation date recorded in CAMO Module, ARC will not allow an earlier installation date to be added to the component's history. To ensure accurate historical records, it is recommended either to wait until the correct installation date is known before assigning the inventory to the position, or to use an earlier placeholder date (such as the asset's purchase date) during the initial upload. This approach allows for later updates to a more precise date if needed.

Configuration update logic

ARC applies the following logic when updating the configuration of the asset:

- When creating a new root asset, all mandatory TRK positions will be automatically populated with inventory with serial number XXX. Configuration updates to the <current-configuration> list are then applied on top of this initial structure. In contrast, mandatory

ASSY positions are automatically populated only if the sub-assembly inventory is specified in the configuration list.

- For each sub-component in the list:
  - If the specified inventory does not exist in CAMO Module:
    - If the root asset is being inducted (first upload) and the position is mandatory (thus generated a 'XXX' inventory), the sub-component is directly attached without generating an installation record.
    - If the root asset is being inducted and the position is not mandatory (no 'XXX' inventory was generated), the sub-component is created and installed.
    - If the root asset already exists, the sub-component is created and installed.
  - If the sub-component is archived in CAMO Module, it is unarchived and installed.
  - If the sub-component is marked as scrapped in CAMO Module, it is not installed.
  - If the sub-component is locked in CAMO Module, it is not installed.
  - If the sub-component is considered unserviceable in CAMO Module, it is made serviceable and installed.
  - If the sub-component is installed on another asset in CAMO Module, it is detached and installed on the specified asset. A default sub-component is installed in its place on the original asset.
  - If the `<inventory-id>` is not specified in the `<position>`, no inventory will be installed there. If inventory is present, it will be detached.

Completed tasks element

Within the `<completed-tasks>` element, the `<inventory-id>` element references either:

- The identifier provided for the root asset `<id>` element.
- The `inventory-id` element for a sub-component installed on the root element.

For tasks against system, set the `<inventory-id>` element to the next higher physical inventory item.

The `<code>` element is used to search for block and requirement task definitions associated with the specified `<inventory-id>`'s configuration slot.

- If a matching task definition is found, it will be used to create a historic task or to match and update an existing historic task.
- If no matching task definition exists, a new historic ad hoc task will be created using the code as the task name, or the code will be used to match and update an existing historic ad hoc task with the same name.

Tasks are considered matching when all of the following conditions are met:

- They are associated with the same inventory item.

- For tasks based on task definitions, both tasks reference the same task definition.
- For ad hoc tasks, the <code> element matches the name of an existing ad hoc task on the same inventory.
- The task completion date falls within the interval specified by the CREATE_HISTORIC_TASK_MATCHING_INTERVAL configuration parameter.

Rules for matching, updating, and creating tasks based on task definition:

- Create a historic Last Done task (recurring): If no matching historic task is found and the provided completion date indicates this is the most recent occurrence (Last Done task in the chain), a historic task is created and task linking is updated.
- Create a historic task (all other cases): If no matching historic task exists and the task is not the most recent (Last Done), a historic task is created.
- No changes: If a matching historic task exists, no changes are made.

Rules for matching, updating, and creating ad hoc tasks:

- Create a new historic ad hoc task: If no matching historic ad hoc task exists, a new one is created.
- No changes: If a matching historic ad hoc task exists, no changes are made.

When providing usages, both the <parameter> and <tsn> values must be provided for each usage being captured. The specified parameter must already exist for the referenced inventory.

Values for the tso and tsi sub-elements are optional. The following rules apply to the usage values:

- TSI and TSN Values: If <tsi> is greater than <tsn>, TSI is set to TSN.
- TSO and TSN Values: If <tso> is greater than <tsn>, TSO is set to TSN.
- Recurring Task Definition: If a usage parameter is defined in a recurring task definition, and a scheduling rule exists but is not provided, the usage value is set to 0 to reschedule the tasks without giving an error message.

Limitations

ARC has the following limitations related to Historic Task processing:

- Part transformation (i.e. MOD tasks) is not supported.
- Only requirements and blocks are processed. Job cards for requirements are not created or completed.
- Completed requirements and blocks are created independently, and are not linked together.
- Block chains are not supported.

Open faults element

The values provided for the mandatory sub-elements of the <open-faults> element are compared against the data in CAMO Module. The following rules apply when open or deferred faults are processed:

- Matching faults: Faults are matching when inventory + system (where applicable) and logbook reference match.
- Updating existing faults: If an open or deferred fault already exists, it gets updated with the new values provided.
- Creating new faults: If no matching open or deferred fault is found, a new one is created with the provided values.
- Canceling unreferenced faults: Any open or deferred faults in CAMO Module against the asset that do not have a corresponding entry in the upload request are marked as No Fault Found (NFF), except for those related to detached components, which remain open. This means that faults on sub-components that are replaced (i.e. detached and replaced) as part of the current configuration updates will not be updated.
- No comparison without <open-faults>: If the <open-faults> element is missing, or contains a 0-length list, fault processing is bypassed and any existing faults remain unchanged.
- Default Values: If the <source> or <severity> sub-elements are missing, default values of "MESSAGE" and "UNKNOWN" are used, respectively.

A fault is given a status of deferred if the <severity> sub-element value has a type of "MINOR" or "MEL." Deferred faults conform to the following rules:

- Deferred MINOR faults: No extra values are needed for <due-date>, <deferral-class>, or <deferral-reference>. If provided, they are ignored.
- Deferred MEL faults: Must include values for <due-date>, <deferral-class>, and <deferral-reference>. Missing any of these will result in an error. The due-values sub-element can be included but it's not required.
- Severity changes:
  - Changing from MEL to MINOR: Existing values for <due-date>, <deferral-class>, <deferra-reference>, and <due-values> are set to null.
  - Changing from MINOR to MEL: Must include values for <due-date>, <deferral-class>, and <deferral-reference>.
- Status changes: Deferred faults cannot be changed to open faults. A fault is considered open if its severity is AOG or UNKNOWN.

<extension> values are only applied to a deferred fault with a severity value of type MEL. If <due-values> are provided for the extension sub-element in the message, the <parameter-code> sub-element must match a corresponding parameter value in the referenced deferred MEL fault.

All usages provided must include a valid parameter and TSN value. If the provided usage parameter does not exist in CAMO Module, or is not tracked by the inventory or configuration slot on which the fault is raised, it is ignored. This applies to <usages-when-found>, <due-values>, and <extension>.

Inventory usages element

The inventory usages element is used to set the current usages on the root asset and its sub-components. The values provided in the upload request are applied to each inventory item as if editing the current usage of the component. It does not add a usage record.

The <parameter> referenced in the <usage> section of the message must already exist for the referenced inventory in CAMO Module and must be accompanied by a <tsn> value. Values for the <tsi> and <tso> sub-elements are optional. The following rules apply to the usage parameters and values:

- Invalid usages: Invalid or non-existent usages in the message are skipped, but valid ones are processed.
- Usage correction: Usage corrections are applied to the specified asset (aircraft, assembly, or tracked sub-component).
- Cascading values: When a usage correction is applied to an aircraft or assembly, the same values are applied to all its systems.
- TSI and TSN values: If <tsi> is greater than <tsn>, TSI is set to TSN.
- TSO and TSN values: If <tso> is greater than <tsn>, TSO is set to TSN.

Inventory details element

The following rules apply to the <inventory-details> element:

- Operator check: The <operator> must already exist in CAMO Module, if included.
- Aircraft and assembly assets only: The <operator> and <applicability-code> are only for aircraft and ASSY-class assets. If used for sub-components, a warning is given, and the values are ignored.
- Date requirements: If the root asset or sub-component task has a scheduling rule based on manufacture or received dates, you must provide <manufactured-date> and/or <received-date>. Otherwise, an error is reported.
- Original equipment: It must correspond to an existing inventory in Maintenix or one specified in the ARC upload message

Mandatory elements

The following table displays the mandatory top-level elements for the asset_record_coordination message in each supported scenario.

The following keys are used:

- **M** indicates that the element is mandatory.
- **D** indicates that the element, if provided, depends on the existence of corresponding data or reference terms in CAMO Module.
- **U** indicates that the element, if provided, must be unique within CAMO Module.

Element	Scenario	
	Updating an existing asset	Creating a new asset
<id>	M, D, U	M, D, U
<aircraft-details>	M	M
<current-configuration>	M	M
<inventory-details>	M	M
<inventory-usage>	M	M
<completed-tasks>	M	M
<open-faults>	M	M

For specific details on the mandatory sub-elements contained within each element, refer to the specific sub-element section.

ID mandatory sub-elements

All of the sub-elements in the <id> element are mandatory.

<id> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<id> <inventory-id> <part-no-oem>	M, D	M, D
<id> <inventory-id> <manufacturer-code>	M, D	M, D
<id> <inventory-id> <serial-number>	M, D	M, U

Aircraft details mandatory sub-elements

The <aircraft-details> element contains the following mandatory sub-elements.

<aircraft-details> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<aircraft-details> <registration-code>	M	M, U

Current configuration mandatory elements

The <current-configuration> element contains the following mandatory sub-elements.

<current-configuration> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<current-configuration> <position> <id>	M, D	M, D
<current-configuration> <position> <id> <part-group-code>	M, D	M, D

Completed tasks mandatory sub-elements

Although the <completed-tasks> element is optional, if it is included in the ARC message, the following sub-elements are mandatory.

	Scenario	
<completed-tasks> sub-element	Updating an existing asset	Creating a new asset
<completed-tasks> <completed-task> <inventory-id> <part-no-oem>	M, D	M, D
<completed-tasks> <completed-task> <inventory-id> <manufacturer-code>	M, D	M, D
<completed-tasks> <completed-task> <inventory-id> <serial-number>	M, D	M

<completed-tasks> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<completed-tasks> <completed-task> <code>	M	M
<completed-tasks> <completed-task> <completion-date>	M	M
<completed-tasks> <completed-task> <usages-at-completion> <usage><parameter>	M	M
<completed-tasks> <completed-task> <usages-at-completion> <usage> <tsn>	M	M

Open faults mandatory sub-elements

Although the <open-faults> element is optional, if it is included in the ARC message, the following sub-elements are mandatory.

<open-faults> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<open-faults> <fault> <inventory-id> <part-no-oem>	M, D	M, D
<open-faults> <fault> <inventory-id> <manufacturer-code>	M, D	M, D
<open-faults> <fault> <inventory-id> <serial-number>	M, D	M
<open-faults> <fault> <failed-system>	M, D (See Note 1)	M, D (See Note 1)
<open-faults> <fault> <name>	M	M
<open-faults> <fault> <found-on-date>	M	M

<open-faults> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<open-faults> <fault> <deferral-class>	M (See Note 3)	M (See Note 3)
<open-faults> <fault> <severity>	M (See Note 2)	M (See Note 2)
<open-faults> <fault> <due-date>	M (See Note 3)	M (See Note 3)
<open-faults> <fault> <due-values> <due> <parameter-code>	M	M
<open-faults> <fault> <due-values> <due> <value>	M	M
<open-faults> <fault> <deferral-reference>	M (See Note 3)	M (See Note 3)
<open-faults> <fault> <extension> <due-date>	M (See Note 3)	M (See Note 3)
<open-faults> <fault> <extension> <due-values> <due> <parameter-code>	M, D (See Note 3)	M, D (See Note 3)
<open-faults> <fault> <extension> <due-values> <due> <value>	M, D (See Note 3)	M, D (See Note 3)

Inventory usage mandatory sub-elements

The <inventory-usage> element contains the following mandatory sub-elements.

<inventory-usage> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<inventory-usages> <inventory-usage> <inventory-id> <part-no-oem>	M, D	M, D

<inventory-usage> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<inventory-usages> <inventory-usage> <inventory-id> <manufacturer-code>	M, D	M, D
<inventory-usages> <inventory-usage> <inventory-id> <serial-number>	M, D	M
<inventory-usages> <inventory-usage> <usages> <usage> <parameter>	M	M
<inventory-usages> <inventory-usage> <usages> <usage> <tsn>	M	M

Inventory details mandatory sub-elements

The <inventory-details> element contains the following mandatory sub-elements.

<inventory-details> sub-element	Scenario	
	Updating an existing asset	Creating a new asset
<inventory-details> <details> <inventory-id> <part-no-oem>	M, D	M, D
<inventory-details> <details> <inventory-id> <manufacturer-code>	M, D	M, D
<inventory-details> <details> <inventory-id> <serial-number>	M, D	M

Mapping elements to CAMO Module

The following table displays the corresponding field in the CAMO Module user interface for each of the `inventory-issued-to` message elements.

Element	Corresponding entry in CAMO Module GUI
<id> <inventory-id> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<id> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<id> <inventory-id> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<aircraft-details> <registration-code>	Inventory Details page. Details tab, Aircraft Information section, Registration Code field
<aircraft-details> <capability>	Inventory Details page. Details tab, Aircraft Information section, Capability field
<aircraft-details> <country>	Inventory Details page. Details tab, Aircraft Information section, Country field
<aircraft-details> <regulatory-body>	Inventory Details page. Details tab, Aircraft Information section, Regulatory Body field
<aircraft-details> <variable-number>	Inventory Details page. Details tab, Aircraft Information section, OEM Variable No field
<aircraft-details> <line-number>	Inventory Details page. Details tab, Aircraft Information section, OEM Line No field
<current-configuration> <position> <id> <part-group>	Inventory Details page. Details tab, Inventory Information section, Part Group field
<current-configuration> <position> <id> <position-name>	Inventory Details page. Sub Inventory tab, Position column
<current-configuration> <position> <inventory-id> <part-no-oem>	Inventory Details page. Sub Inventory tab, Part No column
<current-configuration> <position> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<current-configuration> <position> <inventory-id> <serial-number>	Inventory Details page. Sub Inventory tab, Serial No column
<current-configuration> <position> <nh-assembly><manufacturer>	Inventory Details page. Inventory group box, Manufacturer field

Element	Corresponding entry in CAMO Module GUI
<current-configuration> <position> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<current-configuration> <position> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<current-configuration> <position> <installation> <date>	Inventory Details page. Historical tab, Installation tab, Event Date column
<completed-tasks> <completed-task> <inventory-id> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<completed-tasks> <completed-task> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<completed-tasks> <completed-task> <inventory-id> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<completed-tasks> <completed-task> <code>	Task Details page. Task title
<completed-tasks> <completed-task> <action>	Task Details page. Task Execution tab, Action section
<completed-tasks> <completed-task> <completion-date>	Task Details page. Task Information tab, Task Information section, Actual End Date field
<completed-tasks> <completed-task> <usages-at-completion>	Task Details page. History tab, Usage At Completion section
<completed-tasks> <completed-task> <document-reference>	Task Details page. Task Information tab, Technical References section
<open-faults> <fault> <inventory-id> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<open-faults> <fault> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<open-faults> <fault><inventory-id> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<open-faults> <fault> <failed-system>	Task Details page. Fault Information tab, Fault Details section, Config Slot field
<open-faults> <fault> <name>	Task Details page. Task title

Element	Corresponding entry in CAMO Module GUI
<open-faults> <fault> <description>	Edit Fault page. Fault Registration section, Fault Description field
<open-faults> <fault> <logbook-reference>	Task Details page. Details group box, Logbook Reference field
<open-faults> <fault> <source>	Task Details page. Fault Information tab, Fault Details section, Fault Source field
<open-faults> <fault> <found-on-date>	Task Details page. Fault Information tab, Fault Details section, Found On Date field
<open-faults> <fault> <usages-when-found>	Task Details page. History tab, Usages When Found section
<open-faults> <fault> <deferral-class>	Task Details page. Fault Information tab, Fault Details section, Deferral Class field
<open-faults> <fault> <severity>	Task Details page. Fault Information tab, Fault Details section, Fault Severity field
<open-faults> <fault> <due-date>	Task Details page. Task Information tab, Task Information section, Scheduled End Date field
<open-faults> <fault> <due-values> <due> <parameter-code>	Task Details page. Scheduling tab, Due section, Parameter column
<open-faults> <fault> <due-values> <due> <value>	Task Details page. Scheduling tab, Due section, Interval column
<open-faults> <fault> <deferral-reference>	Task Details page. Fault Information tab, Fault Details section, Deferral Reference field
<open-faults> <fault> <priority>	Task Details page. Task Information tab, Task Information section, Priority field
<open-faults> <fault> <extension> <due-date>	Task Details page. Scheduling tab, Due section, Est. Date column
<open-faults> <fault> <extension> <due-values> <due> <parameter-code>	Task Details page. Scheduling tab, Due section, Parameter column
<open-faults> <fault> <extension> <due-values> <due> <value>	Task Details page. Scheduling tab, Due section, Interval column

Element	Corresponding entry in CAMO Module GUI
<open-faults> <fault> <extension> <reference-number>	Task Details page. History tab, History section, Note column
<open-faults> <fault> <extension> <note>	Task Details page. History tab, History section, Note column
<open-faults> <fault> <document-reference>	Task Details page. Task Information tab, Technical References section, Document Reference field
<inventory-usages> <inventory-usage> <inventory-id> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<inventory-usages> <inventory-usage> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<inventory-usages> <inventory-usage> <inventory-id> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<inventory-usages> <inventory-usage> <usages> <usage> <parameter>	Inventory Details page. Details tab, Current Usage section, Usage Parm column
<inventory-usages> <inventory-usage> <usages> <usage> <tsn>	Inventory Details page. Details tab, Current Usage section, TSN column
<inventory-usages> <inventory-usage> <usages> <usage> <tso>	Inventory Details page. Details tab, Current Usage section, TSO column
<inventory-usages> <inventory-usage> <usages> <usage> <tsi>	Inventory Details page. Details tab, Current Usage section, TSI column
<inventory-details> <inventory-id> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<inventory-details> <inventory-id> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<inventory-details> <inventory-id> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field
<inventory-details> <manufactured-date>	Inventory Details page. Details tab, Inventory Information section, Manufactured Date field
<inventory-details> <received-date>	Inventory Details page. Details tab, Inventory Information section, Received Date field

Element	Corresponding entry in CAMO Module GUI
<inventory-details> <applicability-code>	Inventory Details page. Details tab, Inventory Information section, Applicability Code field
<inventory-details> <release-number>	Inventory Details page. Details tab, Inventory Information section, Release Number field
<inventory-details> <operator>	Inventory Details page. Details tab, Inventory Information section, Operator field
<inventory-details> <original-equipment> <manufacturer-code>	Inventory Details page. Inventory group box, Manufacturer field
<inventory-details> <original-equipment> <part-no-oem>	Inventory Details page. Inventory group box, OEM Part Number field
<inventory-details> <original-equipment> <serial-number>	Inventory Details page. Inventory group box, OEM Serial No field

Upload errors

On receipt of the request, ARC will verify whether it is structurally correct. If it contains structural issues—such as invalid XML formatting or missing mandatory elements—it will be rejected without further validation or processing. These errors must be corrected before the upload request can proceed.

Asset record coordination upload results

As the ARC feature validates and processes sub-components, it generates a validation log. Each entry in the log provides the severity, a descriptive message, and a reference to the type of request element associated with the issue. This reference helps users locate the specific part of the request that triggered the finding. The tables below identify the findings that ARC may report while handling an upload. Because ARC handles upload requests in two distinct phases – validation and processing - the tables also indicate the associated phase for each finding.

Severity:

- SUCCESS
- INFO
- WARNING
- ERROR

Note Findings with a severity of INFO are not displayed on the ARC Process Log screen so that users can focus on warnings and errors that require attention, but such findings are returned by the ARC API.

Validation log

Phase	Severity	Description
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid asset condition code and resend the message.
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid asset condition code and resend the message.
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid account code and resend the message.
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid account code and resend the message.
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid forecast model name and resend the message.
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid forecast model name and resend the message.
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid account code and resend the message.
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid account code and resend the message.
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid location code and resend the message.

Phase	Severity	Description
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid location code and resend the message.
Processing	ERROR	The value for the configuration parameter {0} is missing in Maintenix. Ensure the parameter is set to a valid owner code and resend the message.
Processing	ERROR	The value {0} for the configuration parameter {1} is invalid in Maintenix. Ensure the parameter is set to a valid owner code and resend the message.

Phase	Severity	Description
Validation	ERROR	A registration code was not provided for aircraft {0}/{1}:{2}. As a result, the aircraft was not created in Maintenix. Correct the message to include the registration code and resend it.
Validation	ERROR	A work package exists on aircraft {0}/{1}:{2} that has a status of In Work. While a work package is in progress, updates to the aircraft cannot be made. As a result, the message was not processed.
Validation	ERROR	The same inventory {0}/{1}:{2} is included in multiple elements for multiple assets. As a result, the inventory was not processed for any asset. Ensure that the inventory is associated with only one asset in the message and resend it.
Validation	ERROR	The part number {0} and manufacturer {1} combination does not match a valid part number in Maintenix. As a result, the assets for the part number were not updated. Correct the part number and manufacturer, and resend the message. If necessary, create the records in Maintenix.
Validation	ERROR	The part number {0}/{1} has an unsupported inventory class {2}. As a result, the assets for this part number were not processed. Supported inventory classes include ACFT, ASSY, and TRK. Remove the assets from the message, or update the inventory class in Maintenix.

Phase	Severity	Description
Validation	ERROR	Inventory {0}/{1}:{2} is specified multiple times in the message. As a result, the configuration was not updated in Maintenix. Correct the message to reference the inventory only once and resend the message.
Validation	ERROR	Inventory {0}/{1}:{2} is marked as scrapped in Maintenix. As a result, the configuration was not updated with this inventory. Correct the message to remove all references to scrapped inventory and resend it.
Validation	ERROR	Inventory {0}/{1}:{2} is locked in Maintenix. As a result, the configuration was not updated in Maintenix.
Validation	ERROR	Inventory {0}/{1}:{2} specified for the NH assembly does not have an inventory class of assembly. The NH assembly is only required when sub-inventory is installed on a sub-assembly. As a result, the configuration was not updated for the specified position. Update the message to either remove the NH assembly or to reference an inventory with the assembly inventory class.
Validation	ERROR	The position {0} does not exist for {1} assembly. As a result, the configuration updates cannot be processed for this position. Add the position to the assembly in Maintenix and resend the message.
Validation	ERROR	The position {0} is specified multiple times in the message. As a result, the configuration was not updated in Maintenix. Correct the message to reference the position only once and resend the message.
Validation	ERROR	Part number {0}/{1} does not belong to part group {2}/{3}. As a result, the configuration was not updated. Add the part number to the part group in Maintenix and resend the message.
Validation	ERROR	An installation date of inventory {0}/{1}:{2} is later than the installation date {3} that was provided in the message. Therefore, the configuration was not updated in Maintenix. Correct the message to use the last installation date of the inventory and resend the message.

Phase	Severity	Description
Validation	ERROR	Inventory {0}/{1}:{2} is not installed on the asset identified in the message. As a result, it was not updated. Update the message to correct the asset and resend it.
Validation	ERROR	The task code {0} on inventory {1}/{2}:{3} has multiple entries specified within the top level asset. As a result, a completed task was not created. Correct the task code and resend the message.
Validation	ERROR	The usage parameter code {0} specified for task {1} on inventory {2}/{3}:{4} has a negative usage value. As a result, the task was not processed. Correct the usage for the task in the message and resend it, or correct the task in Maintenix.
Validation	ERROR	Asset {0}/{1}:{2} has multiple matching entries for inventory {3}/{4}:{5}. As a result, the asset was not processed. Remove all duplicate inventory details, and resend the message.
Validation	ERROR	Fault {0} for {1}/{2}:{3} requires that you specify the failed system, but it was not included in message. As a result, the fault was not processed. Update the message to include the failed system code and resend it.
Validation	ERROR	The due parameter code {0} specified on Fault {1} for {2}/{3}:{4} was provided multiple times in the message. As a result, the fault was not processed. Correct the parameter in the message and resend it.
Validation	ERROR	Fault {0} for {1}/{2}:{3} requires a deferral class, but it was not included in the message. As a result, the fault was not processed. Update the message to include the deferral class and resend it.
Validation	ERROR	Fault {0} for {1}/{2}:{3} requires a deferral reference, but it was not included in the message. As a result, the fault was not processed. Update the message to include the deferral reference and resend it.
Validation	ERROR	Fault {0} for {1}/{2}:{3} requires a deferral due date, but it was not included in the message. As a result, the fault was not processed. Update the message to include the due date and resend it.

Phase	Severity	Description
Validation	ERROR	The open fault {0} for {1}/{2}:{3} has an invalid parameter {4} on the deadline extension. As a result, the fault was not processed. The message must be corrected and resend the message.
Validation	ERROR	Fault {0} for {1}/{2}:{3} is specified multiple times in the message. As a result, the configuration was not updated in Maintenix. Correct the message to reference the fault only once and resend the message.
Validation	ERROR	The usage parameter code {0} specified on inventory {1}/{2}:{3} was provided multiple times in the message. As a result, usage values were not applied to the inventory. You can only specify a usage parameter once per inventory. Correct the usage in the message and resend it, or correct the usage in Maintenix.
Validation	ERROR	The usage parameter code {0} specified on inventory {1}/{2}:{3} has a negative usage value. As a result, the usage was not applied to the inventory. Correct the usage in the message and resend it, or correct the usage in Maintenix.
Validation	WARNING	The capability specified for aircraft {0}/{1}:{2} does not exist in Maintenix. As a result, a capability was not added. A valid capability must be provided in the message. If this is a new capability, add it to the standard reference terms for Maintenix. Make the appropriate corrections and resend the message.
Validation	WARNING	The part number {0} and manufacturer {1} combination is not approved in Maintenix; however, the assets for the part number were updated. Approve the part number in Maintenix, or correct the configuration.
Validation	WARNING	Inventory {0}/{1}:{2} is unserviceable with a condition of {3}. The inventory was made serviceable in Maintenix and attached as specified in the message. Review the inventory record in Maintenix to ensure that it is correct.
Validation	WARNING	Part number {0}/{1} is not approved for part group {2}/{3}. The configuration was updated in Maintenix. Review the part group approval in Maintenix and make corrections as needed.

Phase	Severity	Description
Validation	WARNING	The TSO value specified is greater than the TSN value for usage parameter {0} on inventory {1}/{2}:{3} and task code {4}. As a result, the TSO was set as equal to the TSN for this usage parameter. Verify the task usage in Maintenix and make corrections if necessary.
Validation	WARNING	The TSI value specified is greater than the TSN value for usage parameter {0} on inventory {1}/{2}:{3} and task code {4}. As a result, the TSI was set as equal to the TSN for this usage parameter. Verify the task usage in Maintenix and make corrections if necessary.
Validation	WARNING	The manufacture date {3} for inventory {0}/{1}:{2} was set in the future. As a result, the default date was set in Maintenix. Ensure that the manufacture date on the inventory is set correctly in Maintenix.
Validation	WARNING	The received date {3} for inventory {0}/{1}:{2} was set in the future. As a result, the received date was modified to occur immediately after the manufactured date in Maintenix. Ensure that the received date on the inventory is set correctly in Maintenix.
Validation	WARNING	The received date {4} was set earlier than the manufactured date {3} for inventory {0}/{1}:{2}. As a result, the received date was modified to occur after the manufacture date in Maintenix. Ensure that the received date on the inventory is set correctly in Maintenix.
Validation	WARNING	Applicability codes are not valid for tracked or serialized inventory. As a result, applicability code {0} was ignored on inventory {1}/{2}:{3}.
Validation	WARNING	Operator codes are not valid for tracked or serialized inventory. As a result, operator code {0} was ignored on inventory {1}/{2}:{3}
Validation	WARNING	The original equipment of aircraft inventory {0}/{1}:{2} cannot be updated by ARC since ARC does not support updating an aircraft's original equipment.

Phase	Severity	Description
Validation	WARNING	The original equipment of the inventory {0}/{1}:{2} cannot be updated to reference {3}/{4}:{5} because that inventory does not exist in Maintenix or in the message.
Validation	WARNING	Fault {0} for {1}/{2}:{3} includes the failed system in the message, but it is not required. As a result, the failed system is ignored and the fault is processed.
Validation	WARNING	Fault {0} for {1}/{2}:{3} does not require the deferral class. As a result, the fault was processed and the deferral class was ignored.
Validation	WARNING	Fault {0} for {1}/{2}:{3} does not require the deferral reference. As a result, the fault was processed and the deferral reference was ignored.
Validation	WARNING	Fault {0} for {1}/{2}:{3} does not require the deferral due date. As a result, the fault was processed and the deferral due date was ignored.
Validation	WARNING	Fault {0} for {1}/{2}:{3} does not require the deferral due values. As a result, the fault was processed and the deferral due values were ignored.
Validation	WARNING	Fault {0} for {1}/{2}:{3} does not require the deferral extension due values. As a result, the fault was processed and the deferral extension due values were ignored.
Validation	WARNING	The specified fault source code {0} for the fault {1} does not exist in Maintenix. As a result, a default value {2} is used.
Validation	WARNING	The specified fault severity code {0} for the fault {1} does not exist in Maintenix. As a result, a default value {2} is used.
Validation	WARNING	The specified task priority code {0} for fault {1} does not exist in Maintenix. As a result, the priority code is ignored.
Validation	WARNING	The usage parameter code {0} specified for fault {1} on inventory {2}/{3}:{4} has a negative usage value. As a result, the usage parameter was not applied to the fault. Correct the usage and resend the message.

Phase	Severity	Description
Validation	WARNING	The TSO value specified is greater than the TSN value for usage parameter {0} on inventory {1}/{2}:{3}. As a result, the TSO was set as equal to the TSN for this usage parameter. Verify the inventory usage in Maintenix and make corrections as necessary.
Validation	WARNING	The TSI value specified is greater than TSN value for usage parameter {0} on inventory {1}/{2}:{3}. As a result, the TSI was set as equal to TSN for this usage parameter. Verify the inventory usage in Maintenix and make corrections as necessary.

Phase	Severity	Description
Processing	SUCCESS	Asset {0}/{1}:{2} was created.
Processing	SUCCESS	The asset was processed successfully.
Processing	INFO	Aircraft Asset for {0}/{1}:{2} was updated successfully.
Processing	WARNING	Operator {3} does not exist in Maintenix. As a result, the operator was not set on {0}/{1}:{2}. A valid operator must be provided in the message. If this is a new operator, add it to Maintenix. Make the appropriate corrections and resend the message.
Processing	ERROR	Could not create the asset {0}/{1}:{2}: {3}
Processing	ERROR	Could not update aircraft asset for {0}/{1}:{2}. Reason: {3}
Processing	ERROR	Inventory {0}/{1}:{2} is not installed on the asset identified in the message. As a result, it was not updated. Update the message to correct the asset and resend it.
Processing	INFO	Inventory Details for {0}/{1}:{2} was updated successfully.
Processing	ERROR	Inventory Details for {0}/{1}:{2} could not be updated: The asset was not found.
Processing	ERROR	Could not update inventory for {0}/{1}:{2}. Reason: {3}
Processing	WARNING	The original equipment of inventory {0}/{1}:{2} cannot be updated to reference {3}/{4}:{5} because that inventory does not exist in Maintenix.

Phase	Severity	Description
Processing	INFO	Aircraft Usage for {0}/{1}:{2} was corrected successfully.
Processing	INFO	Inventory Usage for {0}/{1}:{2} was corrected successfully.
Processing	WARNING	The usage parameter code {0} is not applicable on inventory {1}/{2}:{3}. As a result, this usage parameter was ignored for the inventory. Verify the inventory usage in Maintenix, and correct if necessary.
Processing	ERROR	Inventory {0}/{1}:{2} cannot be found in Maintenix.
Processing	ERROR	Aircraft Usage for {0}/{1}:{2} could not be corrected: {3}.
Processing	ERROR	Inventory Usage for {0}/{1}:{2} could not be corrected: {3}.
Processing	INFO	A completed ad hoc task {0} for inventory {1}/{2}:{3} already exists. As a result, an additional completed task was not created.
Processing	INFO	A completed block {3} for inventory {0}/{1}:{2} already exists. As a result, an additional completed block was not created.
Processing	INFO	A completed block {3} for inventory {0}/{1}:{2} was created successfully.
Processing	INFO	A completed requirement task {3} for inventory {0}/{1}:{2} already exists in Maintenix.
Processing	INFO	The completed requirement task {3} for inventory {0}/{1}:{2} was created successfully.
Processing	WARNING	A task definition with code {0} cannot be found. A completed ad hoc task {0} for inventory {1}/{2}:{3} was created successfully.
Processing	WARNING	{4} The completed task for inventory {0}/{1}:{2} and code {3} was created, but the usage parameter was ignored. Verify the usage in Maintenix, and make corrections as necessary.
Processing	ERROR	A completed task for inventory {0}/{1}:{2} with code {3} could not be created. Reason: {4}.
Processing	ERROR	Task definition {3} has an invalid revision. As a result, a completed task for inventory {0}/{1}:{2} was not created.
Processing	ERROR	Task definition {3} has an invalid status {4}. As a result, a completed task for inventory {0}/{1}:{2} was not created.

Phase	Severity	Description
Processing	ERROR	A completed block {3} for inventory {0}/{1}:{2} could not be created. Reason: {4}.
Processing	ERROR	Usages at Completion is missing usage parameters for recurring task. Completed Task for inventory {0}/{1}:{2} and code {3} could not be created. Reason: {4}
Processing	ERROR	The completed requirement task {3} for inventory {0}/{1}:{2} could not be created. Reason: {4}
Processing	ERROR	Inventory {0}/{1}:{2} is not included in the message and does not already exist in Maintenix. As a result, the task with code {3} could not be created.
Processing	INFO	Open fault {0} for inventory {1}/{2}:{3} was created successfully.
Processing	INFO	Open fault {0} for inventory {1}/{2}:{3} was updated successfully.
Processing	INFO	Open fault {0} was canceled successfully.
Processing	ERROR	Fault {0} on inventory {1}/{2}:{3} could not be created. Reason: {4}
Processing	ERROR	Fault {0} on inventory {1}/{2}:{3} could not be updated. Reason: {4}
Processing	ERROR	Open fault {0} was not included in the message. The attempt to cancel the fault was unsuccessful. Reason: {1}

Asset record coordination message alerts

The following alerts are ARC specific and are sent to users who have the role specified for the alert. For information on configuring these alerts for specific user roles, refer to the *Maintenix Administration Guide*.

ARC message alerts

Alert Name	Category	Description
ARC Message Processed Successfully	ARC	The ARC message was processed successfully.

Alert Name	Category	Description
ARC Message Processed with Warnings/Errors	ARC	The ARC message was processed successfully, however, some errors or warnings were encountered during processing.
ARC Message Failed	ARC	The ARC message encountered an error during processing.
ARC Message Schema Validation Error	ARC	A schema validation error was encountered during ARC message processing.

Purging ARC upload messages

To avoid large numbers of unnecessary ARC messages from accruing in the system, CAMO Module has a record purging feature that consists of a background job, and a set of purging policies. The purging job, MX_COMMON_PURGE_RECORDS, is active by default. It is scheduled to run every midnight, to delete and archive data from CAMO Module. The ARC messages are purged according to the purging policies that are defined in the UTL_PURGE_POLICY table.

Prior to deleting an ARC message, the purging job can archive it to an archive table, if one is defined. Although the purge engine can support archiving of data before purging, by default it is not configured.

Note It is important that the structure of your archive table matches that of the original table, because the archive table is a column-for-column copy of the records.

Configuring the ARC message purging policy

By default, the ARC_RECORDS purging policy is enabled. This policy purges all ARC messages after the default retention period of 90 days.

CAMO Module has one purging policy for purging ARC messages, defined by the record with PURGE_POLICY_CD= ARC_RECORDS in table UTL_PURGE_POLICY in the CAMO Module database.

- To enable or disable the purging of ARC messages, update the ACTIVE_BOOL column. Default= TRUE (Enabled).
- To change the purging period, update the RETENTION_PERIOD column. Default= 90 (Days).

Note To add new purging policies or make policy modifications to columns other than the Active Bool and the Retention Period, contact your CAMO Module Account Representative.

7

Resources and References

This page serves as a centralized location for quick access to technical documents, process models, and other key resources relevant to the solution.

To access documentation on Engineering, Planning and Technical Records go to https://docs.ifs.com, and navigate to **IFS Cloud Documentation >IFS Business Models > 5. Part and Equipment Management**

Configuration management process models

Assemblies

- Create a new aircraft or configuration assembly
- Create a sub-assembly configuration slot on the assembly
- Create a system config slot on the assembly
- View a tracked configuration slot
- Create a tracked configuration slot on an assembly
- View the sensitivities associated with a config slot
- Edit sensitivities on a config slot
- Delete a config slot
- Assign sensitivities to an assembly

Part numbers and part groups

- Create part numbers
- Create part groups
- Create alternate parts
- Assign parts to part groups
- Create aircraft part numbers
- Reject part numbers and part obsolescence
- Delete part numbers

- Add conditional part applicability details
- Edit part applicability and interchangeability
- Add incompatible part restrictions
- Add incompatible task rules
- Promote batch-controlled parts to serial-controlled
- Promote serial-controlled parts to tracked
- Demote tracked parts to serial-controlled
- Demote serial-controlled parts to batch-controlled
- Edit part group details
- Set up alternate purchasing units of measure on a part number

Aircraft capabilities

- Assign or remove capabilities in aircraft assemblies
- Set up capability levels of aircraft
- Free text assembly capabilities

Usage management process models

- Create usage definitions and parameters
- Specify order of usage parameters displayed
- Configure format for entering and displaying usage hours (2c8, ! section)
- Define calculated usage parameters
- Create assembly measurements
- Assign and unassign measurements

Deferral references process models

- Search for a deferral reference
- Create a deferral reference
- Edit a deferral reference
- Mark a deferral reference as inactive

Maintenance Program Management

Task definition lifecycle

- View differences between two versions of a task definition

Task definition revisions

- Revise and activate task definitions
- Compare two revisions of a task definition

Tags

- Create a new tag
- Tag a task definition
- Tag a block definition
- Tag a requirement definition
- Generate a tagged task definition report

Linked tasks

- Linked task definitions

Determining the Scheduling Start Value

- Add missing manufactured date or received date
- Add missing effective date or initial usage value

Maintenance programs for aircraft and assemblies

- Create a maintenance program
- Assign requirements to a maintenance program
- View a maintenance program
- Change group code on a REQ or REF Lock a maintenance program
- Activate a maintenance program
- Revise a maintenance program
- Assign another operator to a maintenance program
- Unassign requirements from maintenance programs
- Unassign requirements from maintenance programs with multiple operators
- Issue temporary revisions of requirements
- Print maintenance program reports

Prorated life limits

- Create accumulated usage parameters
- Setup prorated life limits
- Create discard requirements for prorated LLPs
- Add scheduling rules to discard requirements

ABOUT IFS

IFS develops and delivers enterprise software for customers around the world who manufacture and distribute goods, maintain assets, and manage service-focused operations. The industry expertise of our people and solutions, together with commitment to our customers, has made us a recognized leader and the most recommended supplier in our sector. Our team of 3,500 employees supports more than 10,000 customers world-wide from a network of local offices and through our growing ecosystem of partners.

#forthechallengers

ifs.com

WHERE WE ARE

AMERICAS

+1 888 437 4968

ASIA PACIFIC

+65 63 33 33 00

EUROPE EAST

+48 22 577 45 00

EUROPE CENTRAL

+49 9131 77 340

UK & IRELAND

+44 1494 428 900

FRANCE, BENELUX AND IBERICA

+33 3 89 50 72 72

MIDDLE EAST AND AFRICA

+971 4390 0888

NORDICS

+46 13 460 4000

COPYRIGHT © 2026 INDUSTRIAL AND FINANCIAL SYSTEMS, IFS AB. IFS AND ALL IFS PRODUCTS AND SERVICES NAMES ARE TRADEMARKS OF IFS. ALL RIGHTS RESERVED. THIS DOCUMENT MAY CONTAIN STATEMENTS OF POSSIBLE FUTURE FUNCTIONALITY FOR IFS'S PRODUCTS AND TECHNOLOGY. SUCH STATEMENTS ARE FOR INFORMATION PURPOSES ONLY AND SHOULD NOT BE INTERPRETED AS ANY COMMITMENT OR REPRESENTATION. THE NAMES OF ACTUAL COMPANIES AND PRODUCTS MENTIONED HEREIN MAY BE THE TRADEMARKS OF THEIR RESPECTIVE OWNERS.