

**Tech Asset Store User Guide**

SUBJECT OR TITLE

**DESIGNATION CRITERIA**

- Sensitive non-public information that if lost or made public could be expected to have a significant adverse effect on the company or its operations.
- See [CTM No. J100](#), Company Security Manual.

**DESIGNATION AUTHORITY**

- Originator.
- See [CO No. J300](#), Protection of Information.

**DISCLOSURE RESTRICTIONS****INTERNAL**

- Share only on a need to know basis.

**EXTERNAL**

- Share only with approval of the originator or the person responsible for the effort under a confidentiality obligation.

**TRANSMISSION / DISSEMINATION****INTERNAL**

- Determine Need to Know

**Print Media**

- Use proprietary envelope for company mail or if envelope not available, mark outside of sealed envelope with "Proprietary Level I."

**Electronic Media**

- Permissible with no encryption if internal recipients are on same company network or if secure transmission has been established from the sending to the receiving networks. Otherwise, encrypt email using Information Security approved tools email.

**EXTERNAL** (See [CO No. J300](#) for more details.)

- Obtain required approvals, confirm confidentiality agreement is in place and information is marked.

**Print Media**

- Postal Services and Express Carriers.
- Hand carried by an employee. Transported in an envelope addressed to a specific person and remain in immediate possession of authorized company employee.

**Electronic Media**

- Encrypted marked email using Information Security approved tools.

**DISPOSITION****RETENTION (Print and Electronic Media)**

- Retain in accordance with [CO No. A302](#), Records Management.

**DESTRUCTION****Print Media**

- Place in an approved disposal container or shred using a crosscut shredder\*.

**Electronic Media****-Removable**

- Electronically delete data and reuse the media.

**-Fixed**

- See [CO No. J300](#).

**PROCESS / MARKING / IDENTIFICATION****PRINT MEDIA**

- Mark the title/cover page and all pages containing Proprietary Level I information.
- Attach appropriate coversheet.

**ELECTRONIC MEDIA**

- Mark/label removable storage media "NG PLI" (tapes, diskettes, CD's, memory sticks, etc.).
- Insert appropriate coversheet.

**STORAGE (Print and Electronic Media)**

- Keep in locked container, office, or approved open area to which access is controlled during working hours and secured at other times.
- Business units may designate open storage limitations.
- Removable storage media must be encrypted using Information Security approved tools and using only properly marked company approved devices.

\*NOTE: A business-type cross-cut shredder is sufficient as a minimum shredding process for Level I waste paper. Shredder remains may be collected and disposed of with regular waste paper. Level I sensitive scrap may be released to a contracted destruction supplier provided the service contract includes an appropriate nondisclosure agreement. The cognizant company element Law Department should be contacted for any additional requirements.



# User Guide

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**NORTHROP  
GRUMMAN**

# Table of Contents

1.1 Overview	5
1.2 Benefits – Why use the store?	5
1.3 Community - Who uses the store?	6
<b>2.0 Access Control</b>	<b>7</b>
2.1 General – No login	7
2.2 Consumer Access – NGUSN Login	8
2.3 Reviewer – Internal Governance and CONOPS	8
2.4 Editor – Internal Asset Management	8
<b>3.0 Search Capability</b>	<b>9</b>
3.1 Using Filters	9
Filter Categories Select one or more filter categories of interest to narrow search results.	9
3.2 Text search	9
3.3 Filter Viewing Options	10
<b>4.0 Process Flows – Submit Asset</b>	<b>11</b>
4.1 Submit asset process flow	11
<b>5.0 MAAC – Minimum Asset Acceptance Criteria</b>	<b>11</b>
5.1 MAAC - Minimum Asset Acceptance Criteria requirements	11
<b>6.0 Asset Management</b>	<b>13</b>
6.1 Submit New Asset - General steps for adding an asset	13
Submit Asset workflow	15
Step 1 – Key Asset Details	15
Step 2 – Asset Type Attributes	16
Step 3 – Inputs/Outputs (I/O) – Interfaces	24
Step 4 – Business Organization	25
Step 5 – Pedigree	25
Step 6 – Locations, References and Links	26
Step 7 – Points of Contact (POC)	27
Step 8 – Legal and Contract	28
Step 9 – Submit to Store	29

6.2 Resume from Partial Save	30
My Assets	30
6.3 Change (update) Asset	30
6.4 Delete Asset	31
<b>7.0 External Connection</b>	<b>31</b>
7.1 Import Assets	31
7.2 Export Assets	31
7.3 REST API	31
<b>8.0 Help, FAQ and Contact Info page</b>	<b>32</b>
8.1 Help	32
8.2 FAQs	32
8.3 Site Contact Info form	32
<b>9.0 Glossary of Terms</b>	<b>33</b>
9.1 Acronyms used in this document.	33
9.2 Definitions	34

## 1.1 Overview

The Tech Asset Store (TAS) is a collaborative hub for accessing and sharing knowledge about reusable Northrop Grumman-built engineering artifacts referred to as 'assets'. The 'Store' increases visibility and awareness of capabilities developed across the enterprise to reduce engineering 'silos', increase knowledge transfer, and promote the reduction of engineering costs via reuse and standardization.

The Store enables efficient retrieval and use of software, hardware, models, and other asset types. Over the coming year, we will [announce](#) rollouts of additional capabilities and asset types that will promote the use of core building blocks and leverage the power of reference architectures to readily incorporate these reusable assets into new solutions; empowering programs to focus on higher-value engineering efforts.

[Watch our video](#) for more information about our mission and join our asset owner community by submitting your reusable assets to the Store.

## 1.2 Benefits – Why use the store?

The Northrop Grumman Mission Systems (NGMS) sector is transforming our approach to engineering and innovation through sharing and reuse of asset(s) across the organization. Employees can search a centralized collection of software, hardware, models, and sub-systems assets for information that enables them to quickly understand and access existing capabilities. This unique Northrop Grumman-owned technology not only provides information about assets designed to be reused, product lines, and reference architectures, but also returns time back to the engineering community to focus their talents and energies on solving today's hard problems. Rather than starting from scratch, engineers can leverage the Store to find and conceptualize exportable solutions from existing assets (future).

This collaborative approach reduces the costs of systems engineering through the application of common practices and reuse of engineering artifacts to thereby, increasing our competitive stance in the marketplace and driving greater return on investments (ROI) for the assets we engineer.

- **Vetted Assets** – The Store requires a minimum set of metadata to adequately characterize an asset, otherwise, the asset is not allowed to be published to the Store's portal. Following the submission of an asset, an internal quality review of the data entered is conducted as a final step in the review process. This ensures that assets are properly categorized and maturity levels are applied. Vetted assets will be available for reuse and will have relevant information pertaining: detailed description and usage, download links, point of contacts, legal usage rights, classifications and business organization. Please refer to the Store's Governance and CONOPS for additional

information on this topic.

- **Visibility and Awareness** – By having a common point of access approach, users now have a single portal to explore and learn about existing assets. Engineers to Business Managers now can search for existing capabilities by technology type and include that capability in their business model.
- **Reduce Costs** – In an effort to help reduce program costs and make NG more efficient, the Tech Asset Store will provide the ability to reuse existing technologies and tools, showcase new assets, re-home orphaned assets, and provide an (future) ability to architect candidate solutions from compatible assets suggested by the Store.

### **1.3 Community - Who uses the store?**

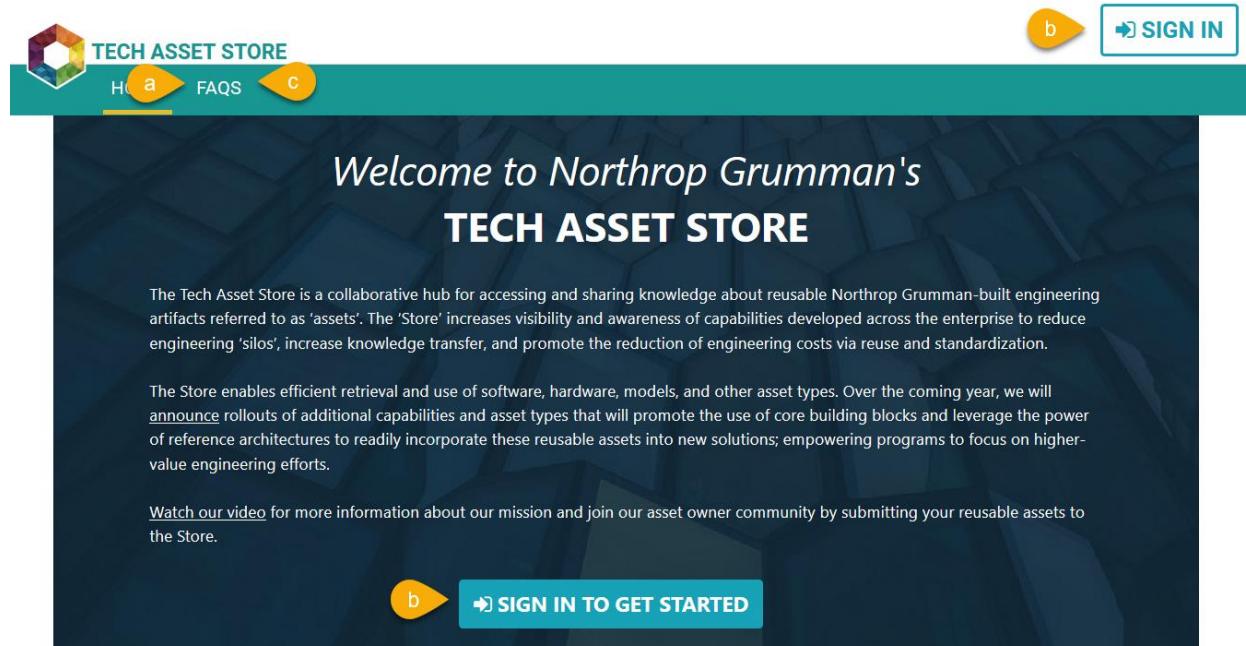
- Any U.S. Northrop Grumman Employee that wants to search on reusable asset(s) to develop and integrate into their own project.
- Any U.S. employee in Northrop Grumman that would like to share their asset(s).
- Needs and use restrictions depend on project, intellectual property, and team, please consult other FAQ items, customer(s), or contact us for any questions.

# 2.0 Access Control

1. **General - No Login** – This level of access is for users that do not have access or have not logged into the site (no privilege). At this level, users can view the capabilities of the site (not the actual assets), perform a login (using US NG credentials), read FAQs and/or contact TAS support.
2. **Consumer - Login** - This level of access will allow users to **view** and **add** assets. This level requires the user to login with valid Northrop Grumman credentials.  
**Note: On main Tech Asset Store this is accomplished via Single Sign On.**  
All Northrop Grumman US employee should already have this level of access. Please remember that assets considered 'Company Proprietary' must be handled as such. Please review the corporate policy on 'Company Proprietary' data [here](#).
3. **Reviewer** – This level of access is reserved for asset managers. A Reviewer has the ability to accept or reject assets submitted by Consumers.
4. **Editor** – This level of access is for asset management. An asset Editor has the ability to edit any asset, modify Tier levels, and can remove assets from the system.

## 2.1 General – No login

- Home page – Overview of site functionality.
  - a. FAQS page – Frequently asked questions about the site operations.
  - b. Sign In – Provides the ability to login using your Northrop Grumman credentials
  - c. 'Contact Us' form – A form on the FAQ page to request support and submit feedback.



## 2.2 Consumer Access – NGUSN Login

Sign in with your Northrop Grumman US intranet (NGUSN) credentials to access the browse, search and submit capabilities of the site.

- a. Select the **Browse** button to browse and search for assets
- b. Select the **Submit Asset** button to start your asset submission process.
- c. Use the text **Search box** to discover assets.



## 2.3 Reviewer – Internal Governance and CONOPS

A TAS Reviewer has the ability to accept or reject assets submitted by Consumers. In addition, a Reviewer can request to the asset owner that updates or additional information is needed before that asset can be accepted into the store.

## 2.4 Editor – Internal Asset Management

TAS Editors have the ability to update any asset or send emails to asset owners requesting that the asset needs updated information. Editors can also remove assets from the store when appropriate.

# 3.0 Search Capability

## 3.1 Using Filters

### Filter Categories

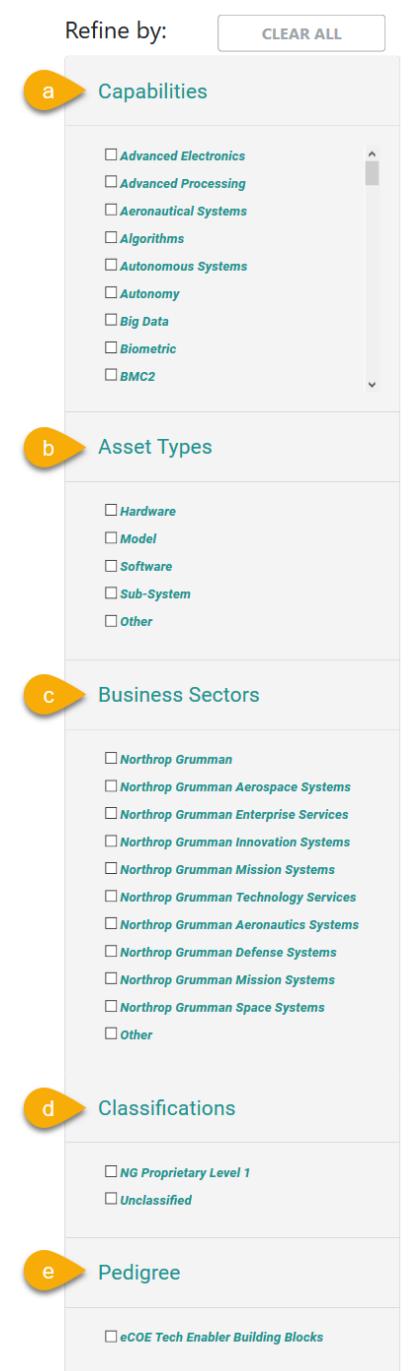
Select one or more filter categories of interest to narrow search results.

- **Capabilities** – The Technology Domain(s) that the asset belongs to.
- **Asset Types** – The different types of assets available in the store. An asset is traditionally only listed as one type.
- **Business Sectors** – Which NG business sector the asset was created under.
- **Classifications** – Either Proprietary Level I or Unclassified. No Classified or Proprietary Level II are allowed in the store.
- **Pedigree** – Special tags enabled for assets that meet a certain set of criteria.

## 3.2 Text search

The text search is available on the upper-right corner of every page on the store.

- Using the text search capability will return assets with matching text in the Title, Description, Comments and Asset Sub-type fields.
- Please note that selecting the text search icon will clear any previously selected filters in the sidebar filter screen. Enter your text query first, then use the sidebar filters as necessary.
- Text searches are not case sensitive.
- There are no 'wild card' characters needed.
  - i.e.: A search for "Bio" will return all assets with the word "Bio" or "Biometrics".
- Multi word behavior is supported
  - i.e.: "Bio Metrics" will return assets with "Bio Metrics" and/or "Bio" + other text + "Metrics".
- Please use alpha-numeric (a-Z, 0-9) characters only. Special characters will be replaced by spaces.



### 3.3 Filter Viewing Options

In addition to the filter categories, there are a number of viewing options on the Browse page to help display results in an optimal way.

The screenshot shows the search results for 'Beam Steering'. At the top, it says '215 Result(s)' and 'View: List'. Below that is a 'Refine by:' section with 'Governance' and 'Capabilities' tabs, and a 'Filters' section with a dropdown set to '25'. The main area shows 'Showing 1 - 25 of 215 Assets' with a navigation bar from 1 to 9. The first result is 'Beam Steering' by Northrop Grumman Mission Systems, with a green icon, a brief description, and a 'Favorite' button. The second result is 'ATDS' by Northrop Grumman Innovation Systems, with a purple icon, a brief description, and a 'Favorite' button. The interface has decorative chevron arrows at the bottom.

- a. View Toggle** – Users can switch between two views on search results. Clicking the view icon will change the current display to the selected view.

*Example of List View*

	Beam Steering Software : Algorithms Northrop Grumman Mission Systems ***** ( Ratings)
	ATDS Model : Ground Systems Northrop Grumman Innovation Systems ***** ( Ratings)
	Flight Planning Tool Model : Military Aviation Northrop Grumman Enterprise Services ***** ( Ratings)

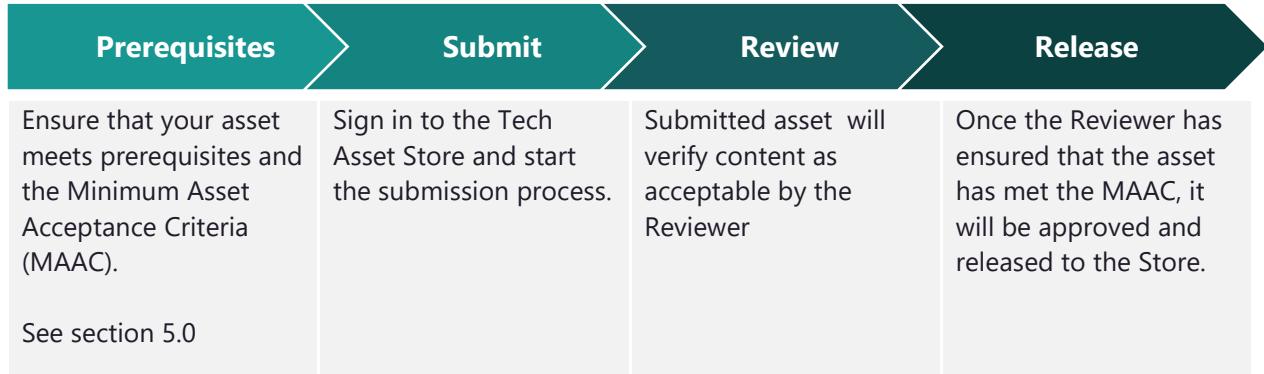
*Example of Grid View*

Beam Steering Software:Algorithms Northrop Grumman Mission Systems ***** ( Ratings)	ATDS Model:Ground Systems Northrop Grumman Innovation Systems ***** ( Ratings)	Flight Planning Tool Model:Military Aviation Northrop Grumman Enterprise Services ***** ( Ratings)
Provides a azimuth angle from a platform antenna to a target location. With the modern AESA (Active Electronically Scanned Array) antennas, for the purpose of Electronic Attack (EA), it i...	ATDS models space to ground latency of weather satellite products, but focuses on the ground processing. It models the algorithm "chains" of each sensor and the dependencies bet...	The Flight Planning Tool (FPT) is a Matlab based environment u...
GeoTool Model:SIGHT Northrop Grumman Innovation Systems ***** ( Ratings)	Advanced RF Simulation (ARSL) Model:Modeling and Simulation Northrop Grumman Mission Systems ***** ( Ratings)	ePOWER Software:Open Arch Northrop Grumman Technology Services ***** ( Ratings)
GeoTool is the premier tool for investigating SIGHT geolocati...	The Northrop Grumman Advanced RF Simulation (ARSL) ...	ePOWER is Northrop Grumman's platform for mode...

- b. Pagination** – Search results are broken out across pages for faster loading. Navigation is available to go page-by-page, or jumping to the last page of results by clicking the » button.
- c. Assets per Page** – Users can choose how many search results appear on each page using this dropdown. The default number is 25 assets per page.
- d. Download** – Clicking this button will create a .csv file of the search results so that they can be viewed offline.

# 4.0 Process Flows – Submit Asset

## 4.1 Submit asset process flow



# 5.0 MAAC – Minimum Asset Acceptance Criteria

## 5.1 MAAC - Minimum Asset Acceptance Criteria requirements

Assets come in 3 classes:

- Single Component – Document, Software, Hardware or Models.
- Sub Systems – A combination of a Software, Hardware and/or Model components.
- Other – Assets that do not contain Software, Hardware or Model attributes.

All assets must contain the following:

- **Key asset detail requirements**
  - Name
  - Technology Domain
  - Asset type (Software, Hardware, Models, Sub-Systems or Other)
  - Classification (Unclassified, Proprietary Level 1)
  - Description
  - Comments/Applicability

- **Asset type** (Document, Software, Hardware, Models, Systems/Sub-Systems, or Other)  
Assets of the following type have supplementary information needed to support searching and discovery functions.
  - **Document requirements**
    - Document Type
  - **Software requirements**
    - Software Type
    - Platform
    - Version
    - Programming Languages
  - **Hardware requirements**
    - Hardware Sub-Type
    - Platform (Air, Land, Sea, Sub-sea, Space, Other)
    - Part/Model Number
    - Size, Weight, and Power
    - Multiple RF Inputs (for certain Hardware sub-types only)
  - **Model requirements**
    - Model Type (Analytical or Descriptive)
    - Latest Version
    - Languages or Taxonomy
  - **System/Sub-System requirements**
    - Currently, none
  - **Other** – Assets that don't contain any Software, Hardware, Systems or Model properties.
- **Business organizations requirements**
  - At least one business organization required with following
    - Business Sector
    - Business Division
- **Pedigree requirements**
  - Asset Readiness Tier (3 or 4)
- **Location, References and Links requirements**
  - At least one URL or file location required
- **Point Of Contact requirements**
  - At least one POC required, max of 12
  - POC type (I&T, Program, Primary, Secondary, Technical, or VV&A)
- **Legal and Contracts requirements**
  - Usage Rights
  - Export Restrictions

# 6.0 Asset Management

## 6.1 Submit New Asset - General steps for adding an asset

All submitted assets must comply with the content restrictions:

- **No Classified information** – The store is to be used for un-classified information only.
  - NO CLASSIFIED MATERIAL. Do not submit or input any information that is classified in nature such as but not limited to SECRET, TOP SECRET, and CONFIDENTIAL.
  - NO PROPRIETARY LEVEL 2. Do not submit Proprietary Level 2 information in nature such as Personal information, Financial information, Government or Customer information, etc.
- **No Foreign assets** – Only provide US owned assets.
  - NOT RELEASABLE TO FOREIGN NATIONALS (NOFORN) Do not submit or input any information that may not be released in any form to foreign governments, foreign nationals, foreign organizations, or non-US citizens without permission of the originator of the information
- **DFARS Compliancy** – All assets must be in accordance with all DFARS controls.  
DFARS COMPLIANCE Ensure DFARS compliance as defined by contract, customer, and US Government before submitting or specifying information. The US Government's right to use the data shall be governed by the pertinent provisions of the contract. The US Government has been granted license rights, in accordance with the DFARS 252.227-7013 & 252.227-7014, which permits the US Government to reproduce and distribute the data, and the right to modify data and prepare derivative works.

MUST COMPLY WITH CRITERIA BELOW :



**No Classified nor No Proprietary Level 2**

Nothing submitted to the store can contain classified nor Proprietary Level 2 information .

[Hover to learn more.](#)



**No Foreign**

All submissions must also be appropriate to release to foreign entities.

[Hover to learn more.](#)

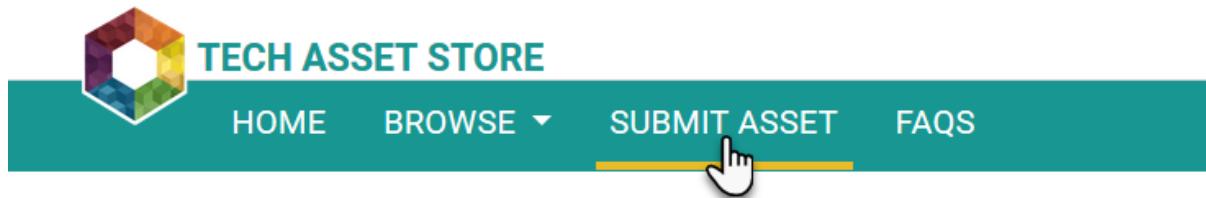


**DFARS Compliance**

All store submissions must be DFARS compliant.

[Hover to learn more.](#)

To start the add process, select the **SUBMIT ASSET** option in the top navigation bar.



You can familiarize yourself with the add process by reviewing the "What You'll Need" section at the top of the Submit Asset page. Each asset must meet the MAAC (see section [5.0 MMAC](#) above) requirements. You do not need to provide all the information at one time. You can enter partial information and save your progress by selecting the "SAVE" button at the bottom of each screen. Users can then return at a later time to finish any missing MAAC requirements.

**WHAT YOU'LL NEED**

- Name, Type, and Brief Description of the Asset
- At least 1 Point of Contact
- At least 1 URL, but preferably more
- Established Configuration/Version Control

**WHAT YOU'LL BE ABLE TO DO**

- Monitor Asset Metrics
- View Similar Recommendations
- Get Recognition on our Landing Page

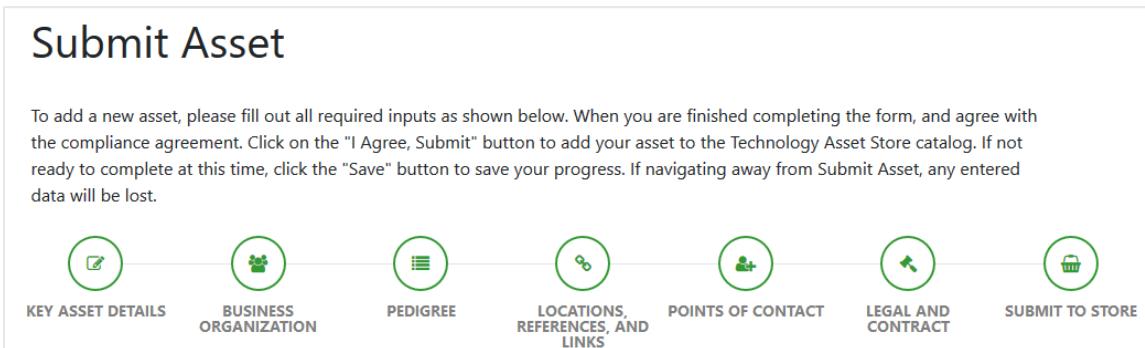
Start the process by clicking the "START NEW ASSET" button located at the bottom of the page.

**START NEW ASSET ➤**

## Submit Asset workflow

The image below shows the workflow for submitting an asset. Users are guided through each step of the workflow by clicking 'Next' at the bottom of each page. Users can 'Save' their work at any point in the workflow and return later to complete the process. Users can also click on the icons to go directly to that step in the workflow.

**Note:** Depending on what asset type is initially selecting, these steps may vary.



### Step 1 – Key Asset Details

The screenshot shows the 'KEY ASSET DETAILS' step of the form. The form includes fields for Asset Name, Technology Domain, Asset Type, Asset Emblem (Optional), Description, and Comments, Applicability, and Keywords. A red box indicates required fields. Callouts labeled a through i point to various elements: a points to the Asset Name field; b points to the Technology Domain dropdown; c points to the Asset Type dropdown; d points to the Classification dropdown; e points to the Asset Emblem file input; f points to the Description text area; g points to the Comments text area; h points to the Save button; and i points to the Next button.

- a. **Asset Name** - The common name of the asset.
- b. **Technology Domain** - Which Capabilities/Technology domains the asset falls under.
- c. **Asset Type** - Which type of asset is being submitted (Document, Hardware, Model, Software, Sub-System, or Other).
- d. **Classification** - Classification information for the asset. Refer to [CO J300](#) for details.
- e. **Asset Emblem** - If your asset has an emblem/logo, it can be uploaded as a png or jpeg.
- f. **Description** - Description of the asset's general capabilities.
- g. **Comments/Applicability** - For specific information that can help describe the asset, such as protocols, interfaces, use cases, and acronyms.
- h. **Save Button**
- i. **Next Button**

## Step 2 – Asset Type Attributes

### Hardware

HARDWARE ATTRIBUTES

INDICATES REQUIRED FIELDS.

a Sub-Type [?]  
Sub-Type

b Platforms [?]  
Select Platforms

c Architecture [?]  
Enter Architecture here...  
0 /200

d Hardware Certifications [?]  
Enter Hardware Certifications here...  
0 /200

e Hardware Standards Applied [?]  
Hardware Standards Applied  
0 /200

f Product Lifecycle Management (PLM) System [?]  
Product Lifecycle Management (PLM) System  
0 /200

g Part or Model Number:  
Part or Model Number  
0 /200

h Cooling [?]  
Cooling System  
0 /200

i Size, Weight, and Power:  
A description of the asset's size, weight and power characteristics.  
0 /400

j Form, Fit, and Function:  
A description of the form, fit and function of this asset.  
0 /400

k PREVIOUS

l SAVE

m NEXT

- a. **Sub-Type** – What specific type of hardware the asset is.
- b. **Platforms** – Which platform(s) the hardware is for (Air, Land, Sea, Space, etc.)
- c. **Architecture** – Provide the system architecture being used.
- d. **Hardware Certifications** – Any certifications that have been accredited.
- e. **Hardware Standards Applied** – For any industry standards that are used.
- f. **Product Lifecycle Management (PLM) System** – To denote which PLM system manages the asset.
- g. **Part or Model Number** – The unique part/model number for the asset.
- h. **Cooling** – To denote the cooling system(s) used on the asset.
- i. **Size, Weight, and Power** – A description of the asset's size, weight and power characteristics.
- j. **Form, Fit, and Function**
- k. **Previous Button**
- l. **Save Button**
- m. **Next Button**

## Software

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SOFTWARE ATTRIBUTES INDICATES REQUIRED FIELDS.

a. Software Type [?] b. Architecture [?] c. Has Integration Tests:  NO  d. Has Unit Tests:  NO

e. Platform [?] f. Latest Version: g. Latest Build Date:

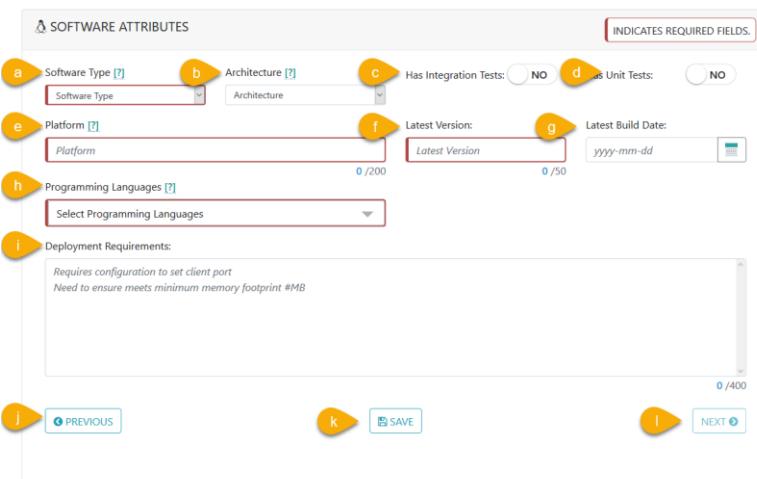
Platform 0 /200 Latest Version 0 /50 yyyy-mm-dd

h. Programming Languages [?] i. Deployment Requirements:

Select Programming Languages 0 /400

Deployment Requirements:  
Requires configuration to set client port  
Need to ensure meets minimum memory footprint #MB

j. PREVIOUS k. SAVE l. NEXT



- a. **Sub-Type** – What specific type of software the asset is.
- b. **Architecture** – Provide the system architecture being used.
- c. **Has Integration Tests**
- d. **Has Unit Tests**
- e. **Platform** – What platform is required for this software (Windows, Linus, iOS, Android, etc.)
- f. **Latest Version**
- g. **Latest Build Date**
- h. **Programming Languages** – Which programming languages were used to create the software.
- i. **Deployment requirements** – A description of the asset's size, weight and power characteristics.
- j. **Previous Button**
- k. **Save Button**
- l. **Next Button**

## Document

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DOCUMENT ATTRIBUTES INDICATES REQUIRED FIELDS.

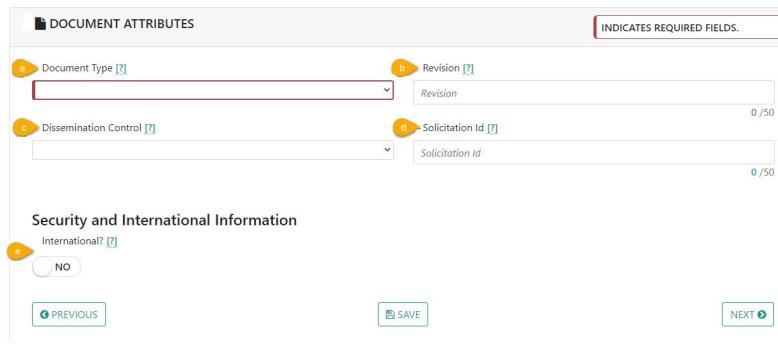
a. Document Type [?] b. Revision [?] c. Dissemination Control [?] d. Solicitation Id [?]

Document Type 0 /50 Revision 0 /50 Dissemination Control 0 /50 Solicitation Id 0 /50

Security and International Information

International?  YES  NO

PREVIOUS SAVE NEXT



- a. **DocumentType** – What specific type of document the asset is.
- b. **Revision** – Revision value for document
- c. **Dissemination Control** – Markings for dissemination control
- d. **Solicitation Id** – Government Solicitation Id
- e. **International** – Toggle that enables/disables additional fields for international

## Model (Descriptive)

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The screenshot shows a form titled "MODEL ATTRIBUTES". At the top right is a red box labeled "INDICATES REQUIRED FIELDS.". The form contains three input fields: "Model Type" (dropdown), "Latest Version" (text input), and "Programming Language/Taxonomy" (text input). Below the inputs are three buttons: "PREVIOUS", "SAVE", and "NEXT".

- a. **Model Type** – What specific type of model it is (analytical or descriptive)
- b. **Last Version** – If the asset is under version control, provide the version being submitted.
- c. **Programming Language/Taxonomy** – For analytics models, provide programming language or application. For descriptive models, provide a short taxonomy description.
- d. **Previous Button**
- e. **Save Button**
- f. **Next Button**

## Model (Analytical)

---

The screenshot shows a form titled "MODEL ATTRIBUTES" with an additional section below the first one. It includes fields for "Runtime Engine" (text input), "Platform" (text input), and "Deployment Requirements" (text area). Navigation buttons "PREVIOUS", "SAVE", and "NEXT" are at the bottom.

- a. **Model Type** – What specific type of model it is (analytical or descriptive)
- b. **Last Version** – If the asset is under version control, provide the version being submitted.
- c. **Programming Language/Taxonomy** – For analytics models, provide programming language or application. For descriptive models, provide a short taxonomy description.
- d. **Runtime Engine** – Provide software application required for operation (COTS, executable or other).
- e. **Platform** – Provide where the software will be deployed (Windows, Linux, etc.)
- f. **Deployment Requirements** – Provide a description of the requirements of the last verified configuration (installation and execution instructions).
- g. **Previous Button**
- h. **Save Button**
- i. **Next Button**

## Sub-System

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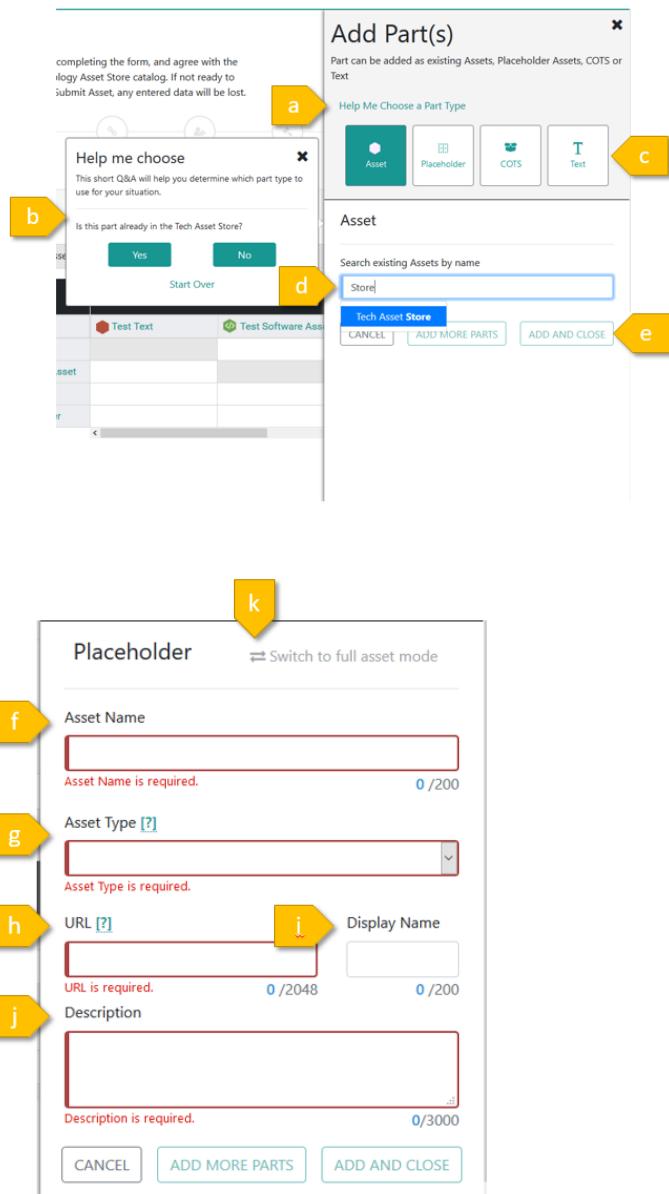


- a. **Parts Legend** – Provides icon definitions used in the parts step.
- b. **Parts Tree Context Menu** – Add parts to top level, edit an editable part or remove a removable part in the tree.
- c. **Parts Tree Control Menu** – Expand all nodes, collapse all nodes or remove all nodes (with confirmation) in the tree.
- d. **Parts Tree** – A tree structure listing all of the parts added to this Sub-System. Click a part to select it.
- e. **Unreleased Warning** – Appears when a Placeholder is upgraded to an asset, but is not yet released to the store.
- f. **Part Context Menu Button** – Brings up the context menu for the part. Also accessible by right clicking the part in the tree.
- g. **Part Quantity Selector** – Allows for selecting a quantity of parts to allocate to the subsystem.
- h. **Subsystem Connection Matrix** – Displays parts and the connections between them.
- i. **Empty Connection Cell** – There is no connection between the intersecting parts. Click to add a new connection. See Part Connection section below.
- j. **Incompatible Connection Cell** – You cannot create a connection between the intersecting parts.
- k. **Connected Connection Cell** – There is a connection between the intersecting parts. Click to remove an existing connection or add another.
- l. **Previous Button**
- m. **Save Button** – Note that the subsystem will save automatically during certain actions.
- n. **Next Button**

- o. Subsystem Asset Context**  
**Menu** – View Connections in matrix.
- p. Selected Part** – A selected part will have a colored background and active parts tree context menu.
- q. Asset Context Menu** – Edit an asset if it is in progress, or view an asset if it is released to the store, or remove the part from the subsystem.
- r. Non-Asset Context Menu** – Edit the part, edit interfaces, or remove part from the subsystem.

## ADD PART SIDEBAR

This menu is available when clicking 'Add part(s)' or 'Edit Part' in the part tree menu or context menu of a part on the Parts step of a Sub-system asset.



- a. **Part Type Help Button – Shows or hides the Q&A on the left of the sidebar.**
- b. **Help me choose Q&A – Provides a quick Q&A to help provide the best part type for each situation. Press Start Over to restart the Q&A. Press the X in the top right to close the Q&A.**
- c. **Part Type Selection – Select from a list of part types available to add to the subsystem. Each type will require different details.**
- d. **Asset Selection – Search for assets available in the store. Click the desired item in the dropdown to add it as a part. You must click Add More Parts or Add and Close afterwards.**
- e. **Add parts menu items – Click cancel to cancel adding the current part and close the sidebar. Add more parts will add your part to the subsystem and keep the sidebar open. Add and close will add your part to the subsystem and close the sidebar**
- f. **Placeholder Name - .Provide a name for the placeholder asset.**
- g. **Placeholder Type – Provide an asset type for the placeholder asset.**
- h. **Placeholder URL – Provide a URL to an informative source for the placeholder.**
- i. **Placeholder URL Display Name – Provide an optional display name for the provided URL.**
- j. **Placeholder Description – Provide a useful description for the placeholder.**
- k. **Upgrade Placeholder – This button will allow you to convert your placeholder asset to a full asset. The provided fields will be carried over to a**

## COTS (Commercial Off-the-shelf)

I COTS Name  
COTS Name is required. 0/200

m Internal URL [?] n Display Name  
One of internal or external URL is required. 0/2048 0/200

o External URL [?] p Display Name  
One of internal or external URL is required. 0/2048 0/200

q Description  
Description is required. 0/1000

CANCEL ADD MORE PARTS ADD AND CLOSE

Text

r Name  
Name is required. 0/200

s Comment  
0/600

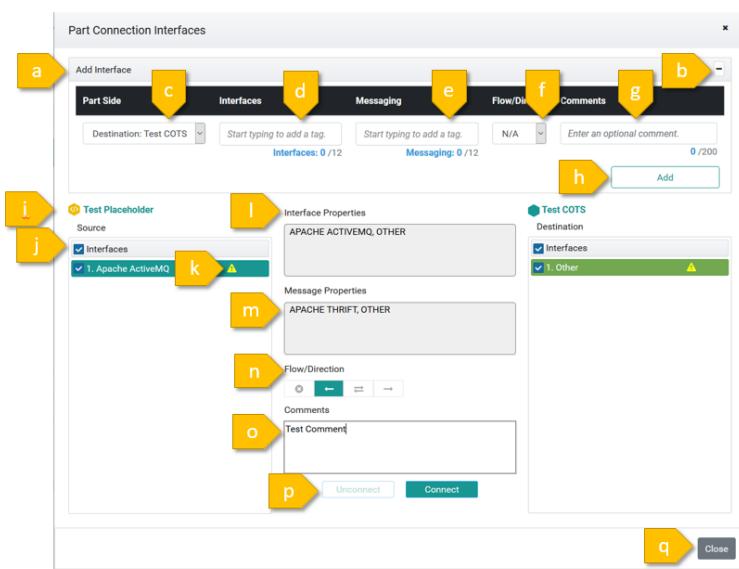
CANCEL ADD MORE PARTS ADD AND CLOSE

**new full asset. The asset will still need to be filled in and submitted to go through normal asset governance.**

- i. COTS Name – Provide the name of the COTS product being used.**
- m. COTS Internal URL – Provide this if you have a link with internal information about the COTS product.**
- n. COTS Internal URL Display Name – Provide an optional display name for the internal URL.**
- o. COTS External URL – Provide this if you have a link with external information about the COTS product. Internal and External URL can be filled in, but at least one must be provided.**
- p. COTS External URL Display Name - Provide an optional display name for the external URL.**
- q. COTS Description – Provide a description of the COTS product.**
- r. Text Name – Provide a descriptive name for the text part.**
- s. Text Comment – Provide a comment with as much information about the part as possible.**

## PART CONNECTION MODAL

This menu is available when selecting a cell in the part connection matrix on the Parts step of a Sub-system asset.



- a. **Add Interface Sub-Section –** Add interfaces to the source or destination part.
- b. **Hide Add Interface Sub-Section –** Hides this section.
- c. **Part Selection –** Select which part to add an interface.
- d. **Interfaces –** Capture key properties on port, layer, and connectors for I/O.
- e. **Messaging –** Capture key properties on format and communication details of I/O.
- f. **Flow/Direction –** I/O path such as In, Out, Both, or N/A
- g. **Comments –** Supporting information such as required ICD to reference for Messaging
- h. **Add Interface –** Add an interface with the provided details to the selected part side.
- i. **Part Name –** Name of the part for either side of the connection.
- j. **Interface Selection Checkbox –** Select which interfaces are part of the connection. Click on the top checkbox to toggle selecting/deselecting all interfaces. Click on checkbox next to interface or anywhere on the line to select individual interfaces.
- k. **Interface Incompatibility Warning –** Warning that selected interfaces are incompatible in some way. These interfaces can still be connected.
- l. **Interface Properties –** A combined list of the interface properties from both parts at a glance.
- m. **Message Properties –** A combined list of the message properties from both parts at a glance.

- n. **Flow/Direction** – A visual showing which way the connection between the selected interfaces flow.
- o. **Comment Field** – An optional comment field for the connection.
- p. **Connection Buttons** – Unconnect will remove the connection from the selected interfaces. Connect will create a new connection from the selected interfaces.
- q. **Close Button** – Close the connection modal.

## Step 3 – Inputs/Outputs (I/O) – Interfaces

Available for Hardware, Software, and System/Sub-System assets.

The screenshot shows a table titled 'INPUTS / OUTPUTS (I/O)' with a header 'INDICATES REQUIRED FIELDS.' The table has columns: Interfaces, Messaging, Flow/Direction, Comments, and Actions. The 'Interfaces' column contains a text input field with placeholder 'Start typing to add a tag.' and a note 'Interfaces is required. Interfaces: 0 /12'. The 'Messaging' column contains a text input field with placeholder 'Start typing to add a tag.' and a note 'Messaging: 0 /12'. The 'Flow/Direction' column shows 'N/A'. The 'Comments' column has a text input field with placeholder 'Enter an optional comment.' and a note '0 /200'. The 'Actions' column includes a red 'Remove' button (labeled e) and a yellow 'Add I/O' button (labeled f). Navigation buttons at the bottom include 'PREVIOUS' (labeled g), 'SAVE' (labeled h), and 'NEXT' (labeled i).

- a. **Interfaces** – Capture key properties on port, layer, and connectors for I/O.
- b. **Messaging** – Capture key properties on format and communication details of I/O.
- c. **Flow/Direction** – I/O path such as In, Out, Both, or N/A
- d. **Comments** – Supporting information such as required ICD to reference for Messaging.
- e. **Remove Button** – Delete existing I/O row from table
- f. **Add Button** – Insert new I/O row in table
- g. **Previous Button**
- h. **Save Button**
- i. **Next Button**

When selecting Hardware Asset, additional tables will be shown for Power Input/Output.

## Step 4 – Business Organization

- j. **Business Sector** – The Northrop Grumman business sector that this asset belongs to.
- k. **Business Division** – The business division the asset belongs to (list of options will change based on Business Sector selection).
- l. **Operating Unit (OU)** –
- m. **Business Unit (BU)** –
- n. **Reason** – Purpose for business organization
- o. **Remove Button** – Delete existing business organization row from table
- p. **Add Button** – Insert new business organization row in table
- q. **Previous Button**
- r. **Save Button**
- s. **Next Button**

## Step 5 – Pedigree

(See [section 9.2](#) for a full breakdown for ART, TRL and MRL levels).

- a. **Under Version Control** – Asset is under configuration management using version control tools such as, but not limited to, Git, SubVersion (SVN), Clearcase, etc.
- b. **Security Assessment** – Asset has completed security assessment review for vulnerabilities, hardening, anti-tampering, etc.
- c. **Change Control Board** – Asset has been reviewed and processed through Change Control Board (CCB).
- d. **Asset Readiness Tier (ART)** - a schema for representing the overall maturity of an asset from a combined perspective of its technical maturity, organizational support, and reusability.
- e. **ART Justification** – Reason and background on ART value specified
- f. **Technology Readiness Level (TRL)** - Specification assessment of technical readiness of an asset.

- g. TRL Justification** – Reason and background on TRL value specified
- h. Manufacturing Readiness Level (MRL)** - A term used by the DOD assessment on maturity.
- i. MRL Justification** – Reason and background on MRL value specified
- j. Previous Button**
- k. Save Button**
- l. Next Button**
- m. CM&D Building Block – CCB Editor Access Only** – Denotes if Asset is reusable component from CM&D
- n. Aligns to Architecture Review Board (ARB) Reference Architecture (RA) – CCB Editor Access Only –** Specifies CM&D BB CCB

## Step 6 – Locations, References and Links

Each asset must have at least one relevant URL location associated with it. Example URLs include your asset's Wiki page, SharePoint site, GitHub, and a file directory path.

The screenshot shows a user interface for managing URLs. At the top, there's a header with a back arrow and the title 'LOCATIONS, REFERENCES, AND LINKS'. Below the header, a note says 'You must enter at least 1 URL Location.' and provides an example URL. A text input field 'Enter a name or title for your URL (optional)' has a character count of '0 /2048'. A '+' button is next to it. The main area is a table with three columns: 'URL', 'Name/Title', and 'Actions'. The first row in the table has a URL 'http://yoursite.com' and a Name/Title 'My Asset Website'. The 'Actions' column contains a remove button. Navigation buttons 'PREVIOUS' (g), 'NEXT' (i), and a 'SAVE' button (h) are at the bottom.

- a. URL/File Path** – Where to enter in the full URL (or file) path.
- b. URL Name** – Enter a name or title to display the URL.
- c. Add Button** – Once the URL information has been entered, click the + button to add it to your asset. The list of added URLs will be available in the table below..
- d. URL** – The added URL (or file) path.
- e. Name/Title** – The added Name/Title of the URL
- f. Remove Button** – Click to remove a URL from an Asset.
- g. Previous Button**
- h. Save Button**
- i. Next Button**

## Step 7 – Points of Contact (POC)

Currently limited to twelve points of contact per asset.

The screenshot shows a web-based application for managing Points of Contact (POC). At the top left is a logo with a person icon and the text 'POINTS OF CONTACT'. To its right is a search bar with placeholder text 'Search contacts by name (last, first) or MyID' and a red-bordered button labeled 'INDICATES REQUIRED FIELDS.' Below the search bar is a message: 'Currently limited to twelve (12) points of contact.' The main area contains a table with the following data:

Last	First	MyID	E-Mail	Phone	Title	Actions
Koliofotis	Michael	A14316	michael.koliofotis@ngc.com	(410) 993-7839	Creator	<span>a</span>
Brogan	Andrew	A17251	andy.brogan@ngc.com	(703) 803-5365	Technical	<span>b</span>

Below the table are several buttons: 'PREVIOUS' (with a circular arrow icon), 'g' (with a circular arrow icon), 'SAVE' (with a save icon), 'h' (with a circular arrow icon), 'NEXT' (with a circular arrow icon), and 'i' (with a circular arrow icon). A small dropdown menu in the 'Actions' column is set to 'Technical'.

- a. **Search Input** – Search for POCs by name (last, first) or MyID
- b. **POC List/Table** – Asset POC information (name, MyID, etc.)
- c. **Creator POC** – Name of person that created Asset, cannot be removed, automatically added.
- d. **Added POC** – Names added to table once selected from Search Input.
- e. **POC Title** – Each POC needs to have one or more title(s)/role(s) defined (Creator, I&T, Program, Primary, Secondary, Technical, or VV&A).
- f. **Remove POC** - Click to remove a specific user from the POC list.
- g. **Previous Button**
- h. **Save Button**
- i. **Next Button**

## Step 8 – Legal and Contract

The screenshot shows the 'LEGAL AND CONTRACT' step of the asset creation process. The interface includes the following components:

- Usage Rights:** A text input field labeled 'a'.
- Export Restrictions:** A text input field labeled 'b'.
- Developed by External Partner:** A dropdown menu with options 'YES' and 'NO'. 'YES' is selected and highlighted in green. This triggers additional fields.
- Usage Conditions:** A text input field labeled 'd'.
- Intellectual Property:** A dropdown menu with options 'YES' and 'NO'. 'YES' is selected and highlighted in green. This triggers additional fields.
- Invention Disclosure Title:** A text input field labeled 'f'.
- Docket Number:** A text input field labeled 'g'.
- Add an inventor here...**: A placeholder text labeled 'h'.
- Inventors:** A table labeled 'j' showing a single row with an 'Actions' button.
- URL:** A text input field labeled 'k'.
- URL List/Table:** A table labeled 'm' showing a single row with an 'Actions' button.
- Navigation Buttons:** 'PREVIOUS' (labeled 'n'), 'SAVE' (labeled 'o'), and 'NEXT' (labeled 'p').

- a. **Usage Rights** – Provide any legal restrictions, required licenses or terms and conditions for this asset.
- b. **Export Restrictions** – If asset is under Export control, provide relevant information such as export document number or contract information.
- c. **Developed by External Partner** – Asset supported or created by outside entity such as university, corporation, etc.
- d. **Usage Conditions** – That may apply to External Partner developed Asset.
- e. **Intellectual Property** – Denote whether or not this asset is Intellectual Property (*note: if this field is switched to "yes," items d-k will appear*).
- f. **Invention Disclosure Title**
- g. **Docket Number**
- h. **Add Inventors** – Field to input the inventor name(s)
- i. **Add Inventor Button** – Needs to be clicked once per inventor name.
- j. **Inventors List/Table** – Inventors listed for the asset
- k. **Add URL** – Field to input any relevant IP URLs.
- l. **Add URL Button** – Needs to be clicked once per URL address.
- m. **URL List/Table** – URLs listed for the asset.
- n. **Previous Button**
- o. **Save Button**
- p. **Next Button**

 SUBMIT TO STORE

 COMPLIANCE AGREEMENT

Before your asset is submitted, please agree to the following terms.

By clicking, "[I Agree, Submit](#)". You are agreeing that your asset meets the following Tech Asset Store compliance requirements:

- No Classified [\[?\]](#)
- No Foreign [\[?\]](#)
- No Proprietary Level 2
- DFARS Compliant [\[?\]](#)
- Has Configuration/Version Control [\[?\]](#)

[PREVIOUS](#) [I AGREE, SUBMIT](#)

## Step 9 – Submit to Store

Before submitting to the Store, asset authors must review the compliance agreement to ensure their asset meets all of the necessary requirements.

 ASSET SUBMITTED



**test** has been successfully submitted to the Tech Asset Store for review!

Thank you for your contribution to the Tech Asset Store. Our Governance Board will review your asset shortly. If you would like to make any edits to the asset, you can do so on the [user profile](#) or [browse page](#).

[SUBMIT NEW ASSET](#) [VIEW YOUR PROFILE](#) [BACK TO HOME](#)

After clicking on "I AGREE, SUBMIT", a final screen will be displayed showing successful submission.

## 6.2 Resume from Partial Save

The Submit Asset workflow process can be done in stages. This allows the user to start a submission process and resume that process at a later time.

To access an existing workflow, select the '**My Assets**' option located under your login name.

My Assets

Asset Name	Status	Actions
New Asset	SUBMITTED	

- 'STARTED' – An asset that has not completed the submission process. If Reviewer rejects your asset, it will be thrown back to this state as well to edit and re-submit.
- 'SUBMITTED' – An asset that has been submitted but not yet accepted by the Internal TAS review process.
- 'RELEASED' – An asset that has been accepted.

Clicking on the edit icon will allow you to edit the asset in the workflow process.

## 6.3 Change (update) Asset

Assets can only be updated by the original submitter or users listed in the POC portion of the asset.

To edit an asset, use the **Browse** screen to display the asset. If you are the original submitter or listed as a POC then the 'EDIT' button should appear next to the asset.

Select the 'EDIT' button and follow the screens to facilitate the update. Please ensure that you click the 'I AGREE, SUBMIT' button to submit your edits for review.

If you see that an asset needs an update but do not have edit rights, contact TAS support via the "Contact Us" form on the FAQ page. You can select the 'Asset info is incorrect' in the subject line and provide any updated info in the Message line. We will try to facilitate the correction.

## 6.4 Delete Asset

Assets can only be deleted by a TAS **Editor**. If you believe that your asset needs to be deleted, contact TAS support via the "Contact Us" form on the FAQ page.

# 7.0 External Connection

## 7.1 Import Assets

The store has the ability to import multiple assets via CSV data format. Users can download the template file from the 'SUBMIT ASSET' screen by selecting the 'Import Asset(s)' button and selecting the 'Download CVS template'. Users can then populate the template file with the required information. Select the 'Import CSV' button to upload the template file to the TAS store. Assets imported in this way will still need to be approved by the governance process before they can be seen in the store.

MAAC requirements – required fields in the template file are noted in red.



## 7.2 Export Assets

The ability to export assets will be supported in a future release.

## 7.3 REST API

At the bottom of each page is a link to the TAS REST API to support developers for integration into the TAS store via external Northrop Grumman applications. The REST API is a web based protocol for message requests. Please contact TAS support for further information.

# 8.0 Help, FAQ and Contact Info page

## 8.1 Help

- A link to our "Contact Us" email [techasset@ngc.com](mailto:techasset@ngc.com) is provided at the bottom of each page.
- A link to this user guide is provided at the bottom of each page.

## 8.2 FAQs

- This store has a FAQ page that has a collection of frequently asked questions. Please scan through these FAQs before contacting support.

## 8.3 Site Contact Info form

- Support can also be contacted by using the 'Contact Us' form on the FAQ page.
- Feedback is always appreciated.
  - In addition to the contact form, you can [fill out a usability survey](#) to provide feedback to the TAS team.

# 9.0 Glossary of Terms

## 9.1 Acronyms used in this document.

**ART** – Asset Readiness Tier

**CCB** – Change Control Board

**CM&D** - Capability Maturation and Deployment

**CRAD** – Contract Research and Development

**DEC** – Digital Engineering Center

**DFARS** - Defense Federal Acquisition Regulation Supplement

**eCOE** - Engineering Center of Excellence

**FAR** - Federal Acquisition Regulations

**IRAD** – Internal Research and Development

**MAAC** – Minimum Asset Acceptance Criteria

**MRL** – Manufacturing Readiness Level

**NGUSN** – Northrop Grumman United States Network

**RA** - Reference Architecture

**TAS** – Technology Asset Store

**TRL** – Technical Readiness Level

## 9.2 Definitions

**Asset** - An asset is any potentially reusable entity that may either 1) provide a portion or all of a technology-based capability or system to be delivered to external customers, or 2) facilitate part(s) of an engineering process.

**Asset Readiness Tier** - The asset readiness tier (ART) is a schema for representing the overall maturity of an asset from a combined perspective of its technical maturity, organizational support, and reusability.

ART 1 and 2 can only be assigned by a TAS Reviewer or CCB, tiers 3 and 4 can be assigned by the asset submitter.

Asset Readiness Tier (ART)	Definition	
1	<ul style="list-style-type: none"><li>• Managed under CM&amp;D CCB</li><li>• Approved by a CM&amp;D governance board</li><li>• Significant organizational commitment to long-term planning, production, and sustainment</li><li>• For use in deliverable systems/capabilities</li></ul>	Increasing asset maturity and reusability
2	<ul style="list-style-type: none"><li>• Managed under an owner's CCB and</li><li>• Reviewed for readiness and reusability by an authorized peer review board</li><li>• For use in or supports production of deliverable systems/capabilities</li></ul>	
3	<ul style="list-style-type: none"><li>• CM controlled</li><li>• Owner evaluated reusability</li><li>• Owner evaluated readiness at a minimum level consistent with lab validation</li></ul>	
4	<ul style="list-style-type: none"><li>• CM controlled</li><li>• Owner evaluated reusability</li><li>• Owner evaluated readiness to be an initial proof of concept</li></ul>	

**Building Blocks** – A building block is an asset intended for reuse that has been reviewed, vetted, and certified by an approved governance process.

- Building blocks are assets, as defined previously. This means that they can be formed from the wide varieties of assets discussed above, and that building blocks of different types can be combined to form larger, more complex building blocks.

- Building blocks are intended for reuse; they do not become reusable by chance or luck. It takes planning, deliberation, and extra effort to make a truly reusable asset.
- Building blocks are subject to a governance process that verifies their reusability through expert review and assessment. A discussion of the issues surrounding building block governance is beyond the scope of this paper, but it's important to recognize that no one-size-fits-all governance process suffices for all building blocks, due to their wide variety. Instead, different governance domains (including responsible organizations) are needed for different building block types.

**Editor** – A term used by this site that describes an elevated account given to a Northrop Grumman employee that will allow setting of the normalization and elevated Tier levels.

**Engineering Center of Excellence** – The eCOE is the premier organization that promotes collaboration and the use of best practices around a specific focus area to drive business results across multiple domains and geographic regions.

<https://oursites.myngc.com/ENT/eCOE/SitePages/home.aspx>

**Normalization** – The normalization of an asset is the extent to which the organization expects and intends it to be reused. Only CCB members can assign Mandatory, Required or Recommended to an asset. Asset submitters can select either Available or N/A.

Normalization	Definition
<b>Available</b>	Assets may be reused if desired, but there is no specific expectation that they will be reused.
<b>Recommended</b>	Assets should be considered for reuse in particular contexts, and represent preferred default options for those contexts. Other equivalent assets, COTS components, etc., may be chosen instead of recommended assets without providing justification.
<b>Required</b>	Assets must be considered for reuse in particular contexts during SAARR reviews, and represent the expected option to be selected when applicable. Alternatives may be suggested during SAARR reviews, but should require strong justification for selection.
<b>Mandatory</b>	Assets are required and must be considered for <i>immediate</i> reuse in appropriate contexts, even by ongoing programs. Non-reuse of a mandatory asset where it is applicable should require strong justification. (This degree of normalization is likely to be extremely rare, due to the potential for cross-organizational impacts.)

**Manufacturing Readiness Level** – A term used by the DOD assessment on maturity.

- N/A – The MRL is Not Applicable.
- 1 – Basic Manufacturing Implications Identified.
- 2 – Manufacturing Concepts Identified.
- 3 – Manufacturing Proof of Concept Developed.

- 4 – Capability to produce the technology in a laboratory environment.
- 5 – Capability to produce prototype components in a production relevant environment.
- 6 – Capability to produce a prototype system or subsystem in a production relevant environment.
- 7 – Capability to produce systems, subsystems, or components in a production representative environment.
- 8 – Pilot line capability demonstrated; Ready to begin Low Rate Initial Production.
- 9 – Low rate production demonstrated; Capability in place to begin Full Rate Production.
- 10 – Full Rate Production demonstrated and lean production practices in place.

**Reference Architecture** - A blueprint/schematic to guide potential new products during proposal, design, or development process. Designation as a Reference Architecture requires adjudication by the appropriate governing body.

**Reviewer** – A term used by this site that describes an elevated account given to a Northrop Grumman employee that will allow the complete management of assets within the Tech Asset Store.

**Roles** – Access levels for the users of the Tech Asset Store (User, Reviewer or Editor)

**Technology Asset Store** – A Northrop Grumman internal web application (this site) developed by Northrop Grumman to provide a catalog of searchable and reusable assets.

**Technical Readiness Level** - Specification assessment of technical readiness of an asset.

- N/A – The TRL is Not Applicable.
- 1 – Basic Principals Observed and Reported.
- 2 – Technology Concept and/or Application Formulated.
- 3 – Analytical and Experimental Critical Function and/or Characteristic Proof-of-Concept.
- 4 – Component and/or Breadboard Validation in Laboratory Environment.
- 5 – Component and/or Breadboard Validation in Relevant Environment.
- 6 – System/Subsystem Model or Prototype Demonstration in Relevant Environment.
- 7 – System Prototype Demonstration in Relevant Environment. Pilot line capability demonstrated; Ready to begin Low Rate Initial Production.
- 8 – Actual System Completed and Qualified Thorough Test and Demonstration.
- 9 – Actual System Proven Through Successful Mission Operations.

**User** – A term used by this site that describes any Northrop Grumman employee with valid network credentials. Allows access to view all assets within the Tech Asset Store.