
Synergi Plant Training

Facility management

Facility Management & Facility Tree Hierarchy

- Facility Management is used for managing assets
- Facility Tree is the tool used for navigating the assets
- Facility tree lists all assets in hierarchy with parent and child relationship

Synergi Plant IDMS Facility Tree

- COMPANY
 - PLANT
 - PRODUCTION UNIT
 - PROCESS UNIT
 - TAG
 - ELEMENT
 - CML

The screenshot displays the Synergi Plant IDMS Facility Tree interface. The top navigation bar includes 'Synergi Plant : AIRMS', 'Facility Data', 'RBI', 'Work Pack', 'Thickness Monitoring', 'Dashboard', 'Utilities', and 'RBI Se'. Below the navigation bar, there are tabs for 'Asset details', 'Import / Export', 'Inspection report', and 'Anomaly Report'. The main content area is titled 'Facilities : DNV' and features a 'Treewiew' and 'Type Search' section. The tree view on the left shows a hierarchy starting with 'DNV', followed by 'Plant A', 'Prod Unit 01', '01. Corrosion Circuits', 'Unit X01', '00.PRDs', '2-WW-13-0140-S-A2-1', '8-HM-13-0143-N-A2-1', '8-HM-13-0179-N-A2-1', 'D-211', '01. Wall Thickness Monitoring', 'D-211 Head', 'D-211-Shell', '01. RBI Onshore Inspections', 'CML-01' through 'CML-14', 'X-171', 'X-27', 'Prod Unit 02' through 'Prod Unit 05', 'Plant B' through 'Plant E', and 'Sample Plant'. The right side of the interface shows a table with columns 'Asset Type' and 'Asset Key'. The table contains the following data:

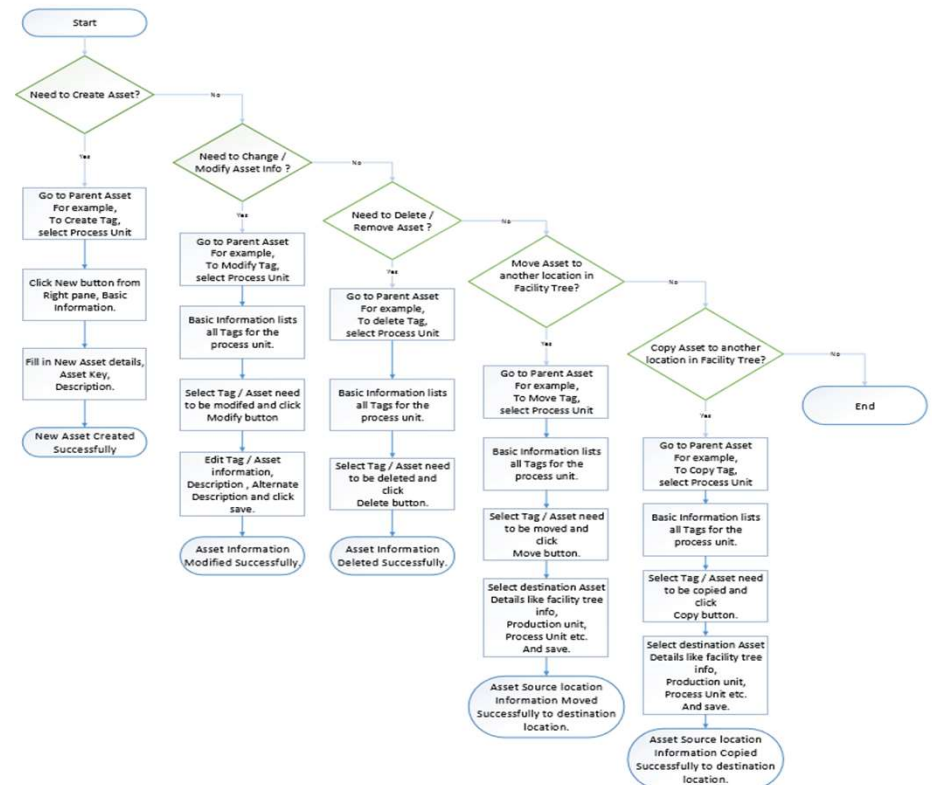
Asset Type	Asset Key
Plant	PLANT A
Plant	PLANT B
Plant	PLANT C
Plant	PLANT D
Plant	PLANT E
Plant	SAMPLE PLANT

Asset Management Flow Chart

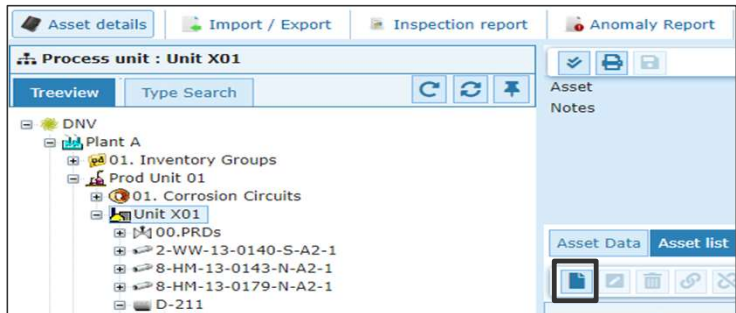
Asset Management flow chart explains different steps to create assets and manage assets.

Manage Asset

- Create New Assets
- Modify Asset, Asset Name and Description
- Delete Selected Asset
- Move Tag between Process Units
- Copy Tag between Process Units

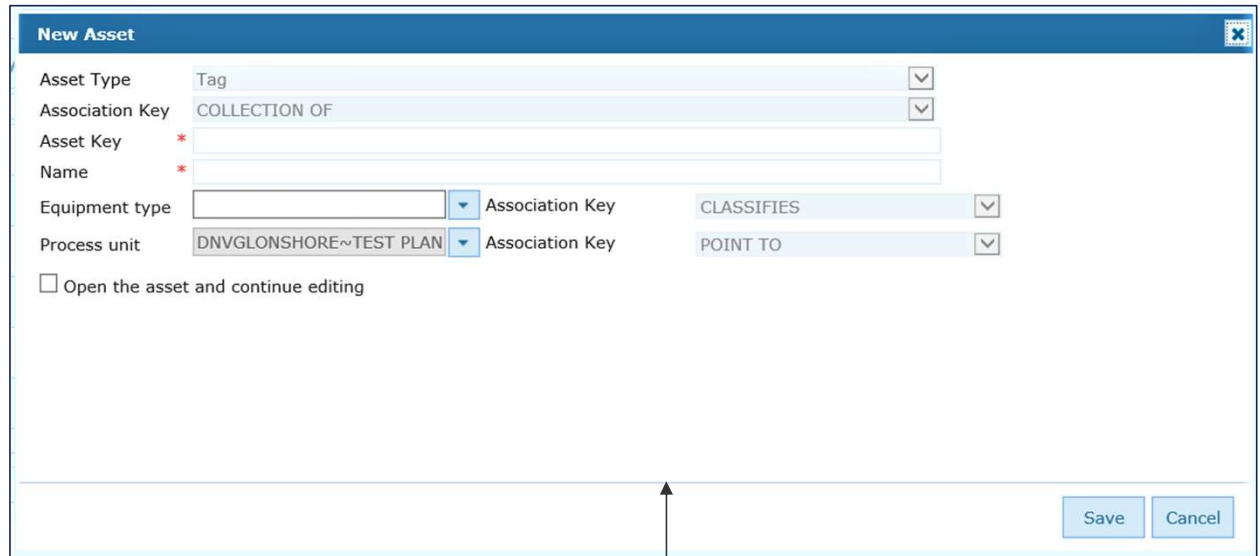


Create Facility / Asset



➤ To Create New Tag

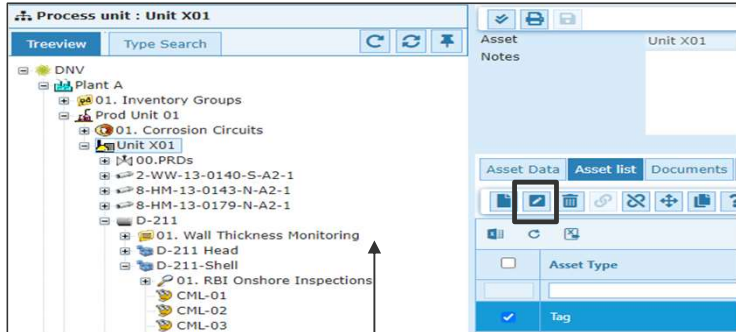
- Select Asset details menu
- Select Parent Asset
 - Asset Type - Process Unit
 - Asset Name- **Unit X01**
- Select Asset List
- Click New Button



➤ Enter New Tag details

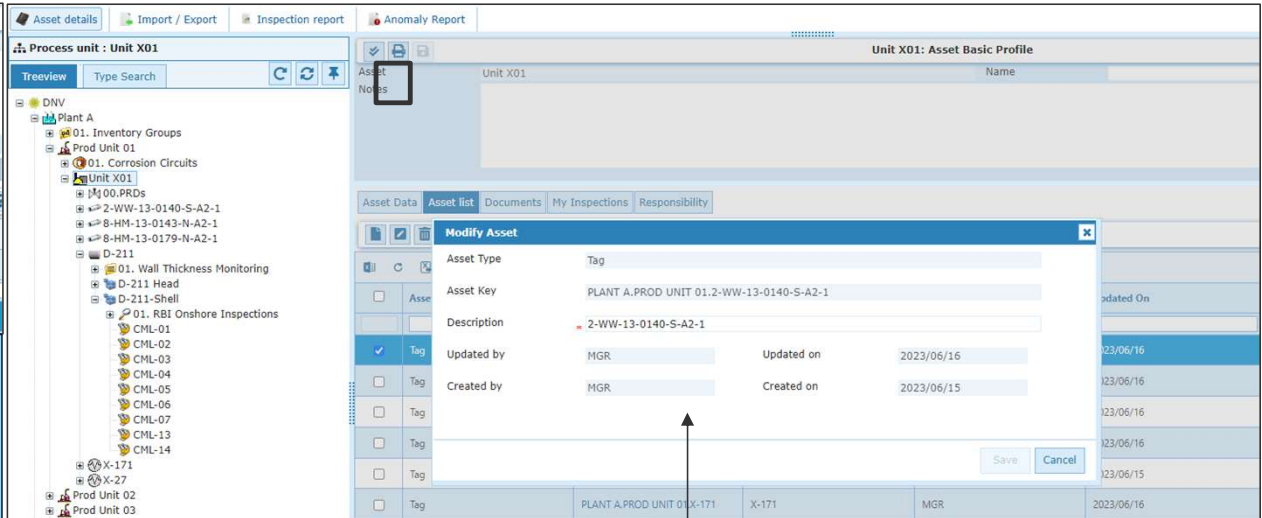
- Enter Asset Key
- Enter Asset Name
- Select Equipment Type and Click Save.

Modify Facility / Asset (Tag: 2-WW-13-0140-S-A2-1)



➤ Modify Tag

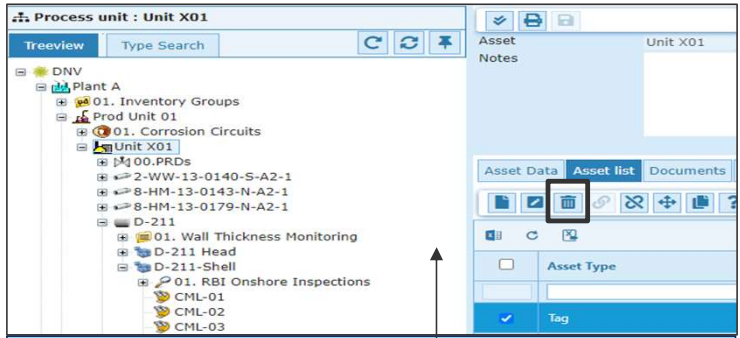
- Select Asset details menu
- Select Parent Asset
 - Asset Type - Process Unit
 - Asset Name- **Unit X01**
- Select Asset List and Select Tag
- Click Modify Button



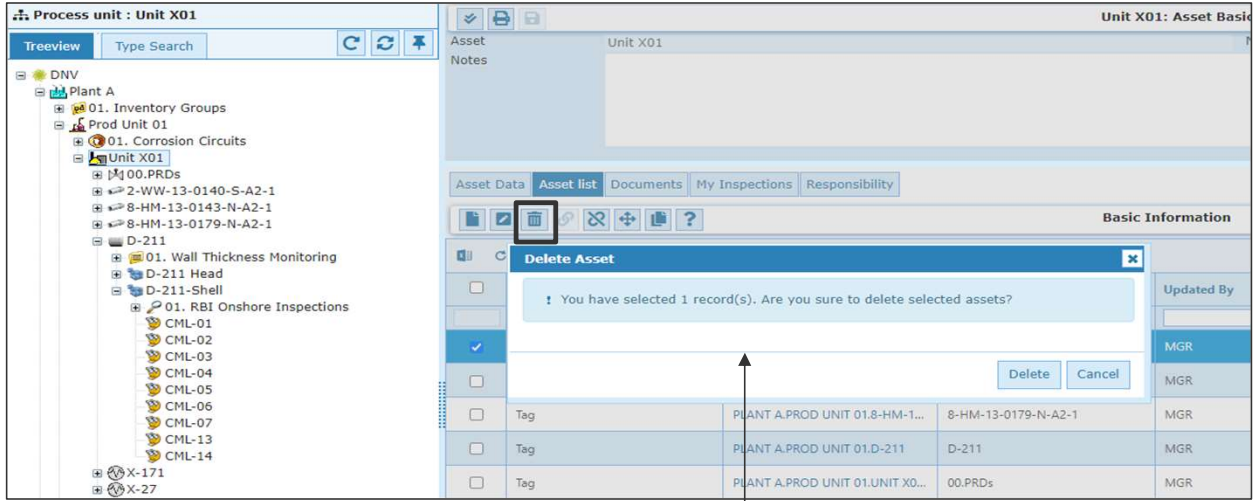
➤ Modify Tag details

- Enter Description
- Click Save

Delete Facility / Asset (Tag: 2-WW-13-0140-S-A2-1)

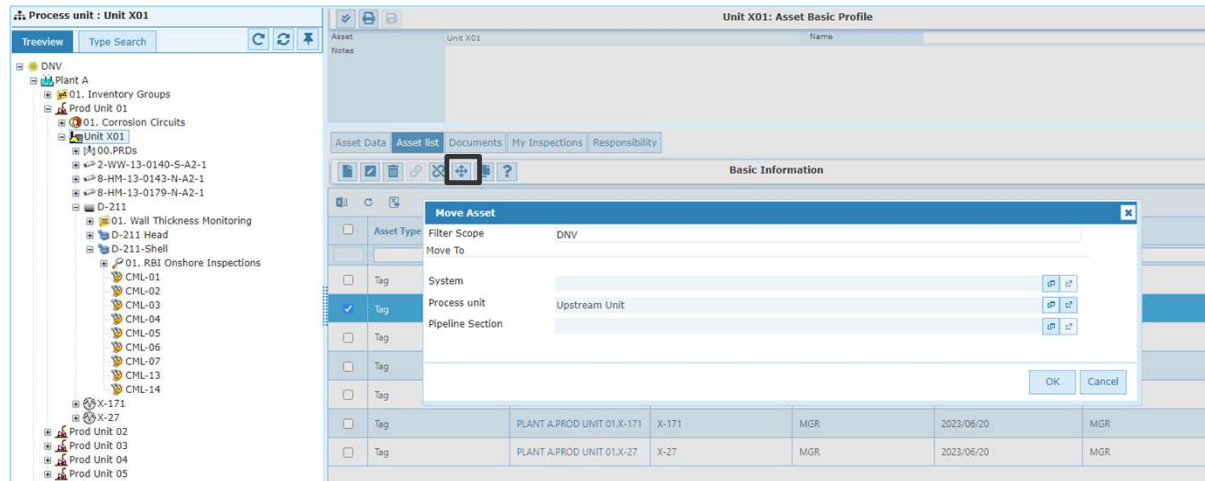


- **Delete Tag**
- Select Asset details menu
- Select Parent Asset
 - Asset Type - Process Unit
 - Asset Name- **Unit X01**
- Select Asset List and Select Tag
- Click Delete Button



- **Delete Tag details**
- Delete Asset dialog opened
- Click Delete button to delete and remove Tag from Facility Tree
- Deleted Assets are stored in Recycle bin and can be restored as per our needs.

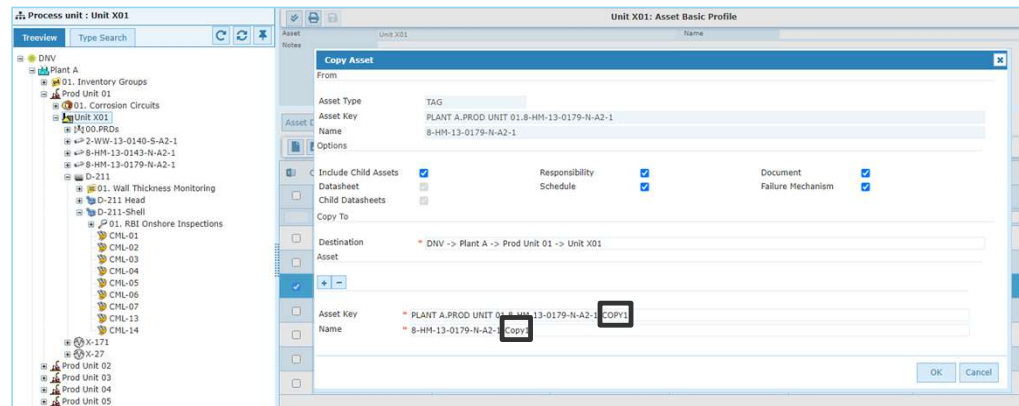
Move Tag from one Process Unit to another Process Unit



Move Tag between Process Unit

- Select Parent Asset – **Unit X01** and select Tag: **8-HM-13-0143-N-A2-1**
- Click Move button and open Move Asset Screen
- Change Filter Scope to a higher level can move the Tag to a wider range
- Select Filter Scope as **DNV** and destination Process Unit as **Sample Plant -> Upstream Unit**
- Tag Moved successfully to new location

Copy Tag: Create New Tag by copying Tag data : 8-HM-13-0179-N-A2-1



Create New Tag using Copy Utility

Copy Tag is used to create New Tag with a Default "-1" appending to asset key and description.

You can modify the asset key and description for easy recognition. e.g.: **8-HM-13-0179-N-A2-1-COPY1**

Duplicate Asset Key is not allowed in Synergi Plant

For all assets Asset Key should be different and unique

Tag information are also copied to new Tag, the source Tag data like, Responsibility, Document, Datasheet Asset Data, Schedule, Failure Mechanism details also copied to newly created Tag

New Tag can be created in the same or different Process Unit depending on the Destination

Asset Data

- Tag Design data and other technical, mechanical and chemical data required for Inspection and RBI calculations are stored in the Asset Data page.

Tag Asset Data contains three sections of data.

- ***Basic Information***

- Basic Information section contains information like asset description, Service Start Date

- ***Asset Construction***

- Asset Construction section contains information like Materials data, Thickness data
- Reference configuration document, Asset Construction.xlsx as full list

- ***Operating Conditions***

- Operating Conditions section contains information like Chemical Phase, Operating Pressure
- Reference configuration document, Chemicals lookup values.xlsx as full list

Asset Data: Basic Information

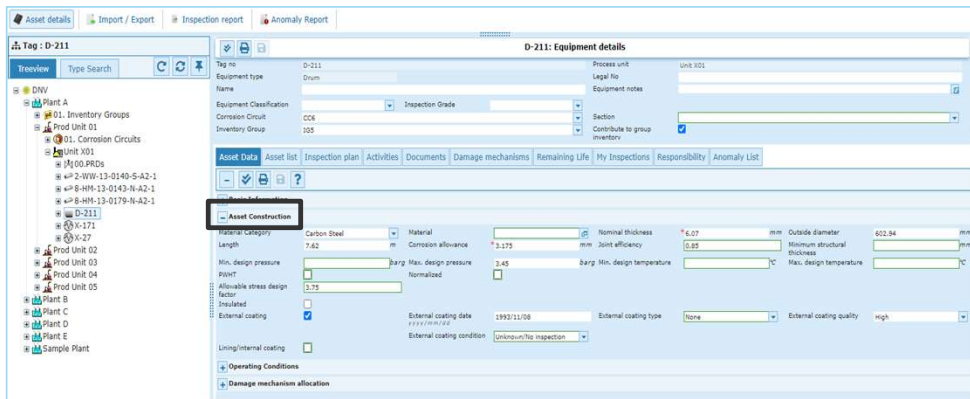
The screenshot displays the 'Basic Information' section for asset D-211. The interface includes a treeview on the left, a top navigation bar with tabs like 'Asset details', 'Import / Export', 'Inspection report', and 'Anomaly Report'. The main area shows the 'D-211: Equipment details' form. The 'Basic Information' section is highlighted with a red box and contains the following fields:

- Description: W-1 OVHD Accumulator
- Service start date: 1993/01/01
- Type: DRUM
- Vessel shape: Horizontal
- Torrispherical head?:
- External corrosion driver: Mild
- Ambient temperature: 23.89 °C
- Likelihood pressure option: Operating Pressure
- Consequence pressure option: Operating Pressure
- Pressure - expert: barg

Basic Information section lists total 10 property columns, and all are optional values. **Details** listed in the below table, gives all applicable and available lookup/drop down values for each property and as well date format, user entry fields are also mentioned for respective Properties. **UOM** – Unit of Measurement for the property.

No.	Property Name	UOM	Details
1	Description		More details about Asset
2	Service Start Date		Start Date (DD/MM/YYYY, Date Format)
3	Type		Subtype of the equipment type
4	Vessel Shape		Horizontal, Vertical , Sphere
5	Torri spherical head		If the equipment has a Torri spherical head
6	External Corrosion Driver		Moderate, Mild, Dry, Severe
7	Ambient Temperature	Deg C	User Entry
8	Likelihood Pressure Option		Operating Pressure, Design Pressure, User Pressure
9	Consequence Pressure option		Operating Pressure, Design Pressure, User Pressure
10	Pressure Expert	barg	User Entry

Asset Data : Asset Construction



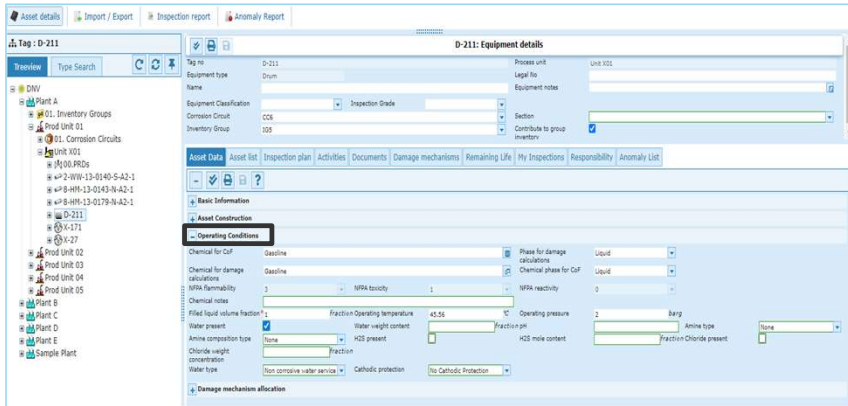
Asset Construction section lists total 25 property columns, and all are optional values. Material, Design code, thickness, temperature and other details are listed.

Details listed in the property table as reference for Asset Construction.xlsx excel file and lookup/drop down values for relevant property and as well as date format, Check Box (Yes / No) and user entry fields are also mentioned for respective Properties.

UOM – Unit of Measurement for the property.

SNo.	Property Name	UOM	Details
1	Material Category		Refer Asset Construction.xlsx
2	Material		Refer Asset Construction.xlsx
3	Nominal Thickness	mm	User Entry
4	Outside Diameter	mm	User Entry
5	Length	mm	User Entry
6	Corrosion Allowance	mm	User Entry
7	Joint Efficiency		User Entry
8	Min. Structural Thickness	mm	User Entry
9	Min. Design Pressure	barg	User Entry
10	Max. Design Pressure	barg	User Entry
11	Min. Design Temperature	Deg C	User Entry
12	Max. Design Temperature	Deg C	User Entry
13	PWHT		Yes / No (Checkbox)
14	Normalized		Yes / No (Checkbox)
15	Pipe Design Code		ASME B31.1, ASME B31.3, ASME B31.4, ASME B31.8
16	Pipe Design Factor		User Entry
17	Mechanical Allowance	mm	User Entry
18	Allowable Stress Design Factor		User Entry
19	Insulated		Yes / No (Checkbox)
20	External Coating		Yes / No (Checkbox)
21	External Coating Date		Date format: DD/MM/YYYY
22	External Coating Type		Refer Asset Construction.xlsx
23	External Coating Quality		None, Poor, Medium, High
24	External Coating Condition		Options of damage condition
25	Liner		Yes / No (Checkbox)

Asset Data: Operating Conditions



Operating Conditions section lists total 21 property columns, and all are optional values. **Details** listed in the below table, as reference for chemical lookup document and lookup/drop down values and as well user entry fields are also mentioned for respective Properties. **UOM** – Unit of Measurement for the property.

SNo.	Property Name	UOM	Details
1	Chemical		Total 1715 Chemicals
2	Chemical Phase		No Value, Liquid, Gas
3	Chemical for COF		Total 1707 Chemicals
4	Chemical Phase for COF		No Value, Liquid, Gas
5	NFPA Flammability		Calculated value
6	NFPA Toxicity		Calculated value
7	NFPA Reactivity		Calculated value
8	Chemical Notes		User Entry
9	Filled Liquid Volume Fraction	fraction	User Entry
10	Operating Temperature	Deg C	User Entry
11	Operating Pressure	barg	User Entry
12	Water Present	Yes/No	
13	Water Weight Content	fraction	
14	Amine Type		None, MEA, DEA, DIPA, MDEA
15	Amine Composition Type		None, Fresh, Lean, Rich
16	H2S Present	Yes/No	
17	H2S Mole Content	fraction	
18	Chloride Present	Yes/No	
19	Chloride Weight Concentration	fraction	
20	Water Type		Options of water type
21	Cathodic Protection		Options of cathodic protection

Tag : D-211

D-211: Equipment details

Tag no: D-211 Process unit: Unit X01
 Equipment type: Drum Legal No:
 Name:
 Equipment Classification: Inspection Grade:
 Corrosion Circuit: CC6 Section:
 Inventory Group: IG5 Contribute to group inventory:

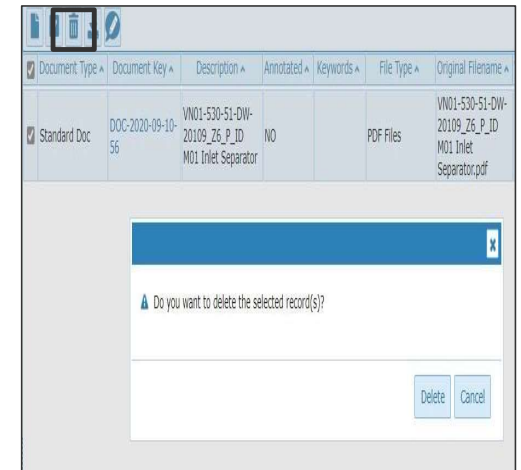
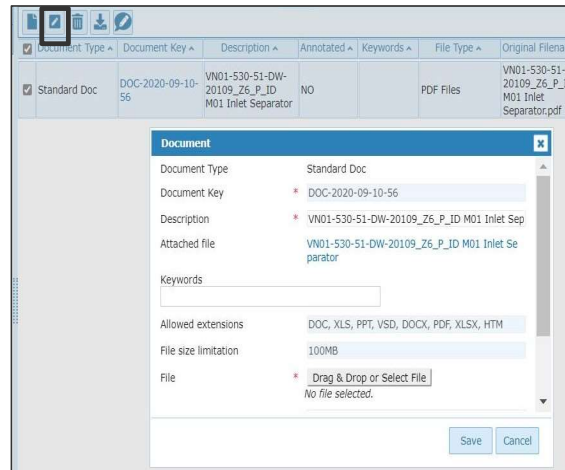
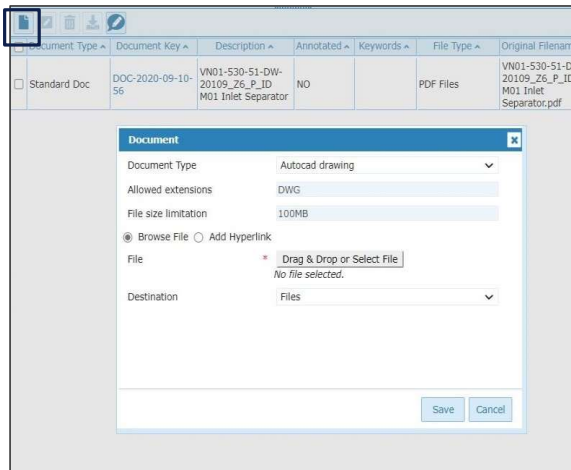
Asset Data Asset list Inspection plan Activities **Documents** Damage mechanisms Remaining Life My Inspections Responsibility Anomaly List

Document Type	Document Key	Description	Annotated	Keywords	File Type	Stored Filename	Original Filename	Version No
Sketch	DOC-2023-06-21-0250	DemoSketch-D-211	NO	Sketch	GIF File	DemoSketch-D-211_26...	DemoSketch-D-211.GIF	1

Document

Document module is used to attach documents to Synergi Plant assets.

Create New, Edit, Delete Document



Attaching Documents

Select any Asset like Tag / Production Unit / Process Unit / Plant / Element / CML

Open Document Page

Click Either New or Edit or Delete button.

Select Document Type, Enter Document Description, Using Drag and Drop, select attachment document file and Click Save. Allowed Extension is list of file type supported for the Document Type.

Document Types

Document

Document Type: Autocad drawing

Allowed extensions: DWG

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Autograph

Allowed extensions: DGN

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Equipment drawing

Allowed extensions: PDF, DOCX, XLSX, JPEG, PNG

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Failure report

Allowed extensions: PDF, DOC, DOCX, XLS, XLSX, PNG, JPEG, JPG

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Inspection report

Allowed extensions: VSD, XLSM, JPG, GIF, DOC, DWG, PDF, DOCX, X

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Pipe Isometric

Allowed extensions: PDF, DOCX, XLSX, JPEG, PNG

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Repair Document

Allowed extensions: JPG, GIF, XLSX, DOCX, PDF

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Thermal imaging

Allowed extensions: IS2

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Photograph

Allowed extensions: VSD, PNG, TIFF, JPG, BMP, GIF

File size limitation: 100MB

Browse File Add Hyperlink

Document Types

Document

Document Type: Hyperlink Doc

Document Key: * DOC-2020-09-10-0057

Description: * DNV GL

Keywords:

Url: * www.dnvgi.com

Document

Document Type: Scan Document

Allowed extensions: VSD, PDF, JPG, GIF

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Sketch

Allowed extensions: PDF, VSD, GIF, DWG, DOCX, JPG, BMP, DOC

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: Standard Doc

Allowed extensions: DOC, XLS, PPT, VSD, DOCX, PDF, XLSX, HTM

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: PID Drawing

Allowed extensions: DWG, VSD, BMP, PDF

File size limitation: 100MB

Browse File Add Hyperlink

Document

Document Type: PFD Drawing

Allowed extensions: DWG, PDF, VSD, BMP

File size limitation: 100MB

Browse File Add Hyperlink

Facility Import / Export (Bulk Loading)

- Facility Import / Export Utility used for importing and exporting Synergi Plant Asset Hierarchy using Excel file.
- **Excel Template** can be generated with hierarchy structure to populate new assets.
- **Facility Data** can export all hierarchy assets to excel file.
- **Upload** and **Import** can be used to import asset hierarchy for all levels.
- **Status**, lists Import status

The screenshot displays the Synergi Plant AIRMS interface. The top navigation bar includes 'Synergi Plant : AIRMS', 'Facility Data', 'RBI', 'Work Pack', 'Thickness Monitoring', 'Dashboard', 'Utilities', and 'RBI Setup'. The user is logged in as 'MGR | EN-US | SYNPLT572' with version '5.7.2.629 / 5.7.2.084'. The main content area shows the 'Facilities : DNV' section with a treeview on the left and a table on the right. The treeview shows a hierarchy starting with 'Plant A', '01. Inventory Groups', 'Prod Unit 01', '01. Corrosion Circuits', and 'Unit X01', which contains several sub-assets like '100.PRDs', '2-WW-13-0140-S-A2-1', etc. The table on the right, titled 'Facility Hierarchy', has columns for 'Document Key', 'Description', 'File Type', 'Original Filename', 'Version No', 'Updated By', and 'Updated On'. One entry is visible: 'DOC-2023-05-01-0125' with description 'FacilityHierarchy_CMLs', file type 'Microsoft Excel 2007-2010 Document File', original filename 'FacilityHierarchy_CMLs.xlsx', version '1', updated by 'MGR', and updated on '2023/05/01'.


Document Key ^	Description ^	File Type ^	Original Filename ^	Version No ^	Updated By ^	Updated On ^
<input type="checkbox"/> DOC-2023-05-01-0125	FacilityHierarchy_CMLs	Microsoft Excel 2007-2010 Document File	FacilityHierarchy_CMLs.xlsx	1	MGR	2023/05/01

Synergi Plant Search


Synergi Plant Search functionalities are used to search various details like Asset, Document, Inspection, Action



General Search – Simple search option with keyword can find particular and required asset details



Type Search – New Search functionality available to search several information like Document, Inspection, Activity details and Asset search using Item Search



Using Type Search can configure Search criteria columns or Result set data's as per user requirement and can save Search criteria for easy access

General Search

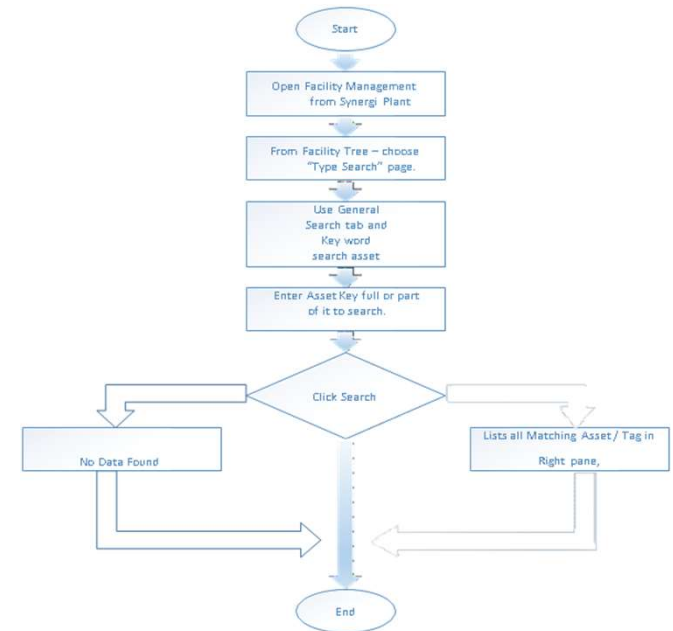
Asset Key	Tag No	Type
PLANT A.PROD UNIT 01.X-171.X-171-SHELL	X-171-Shell	ELEMENT
PLANT A.PROD UNIT 01.X-27.CML-06	CML-06	CML
PLANT A.PROD UNIT 01.UNIT.XD1.INSPECTION 2017-2(3)	Inspection 2017	RBONSHOREACTIVITY
PLANT A.PROD UNIT 01.2-WM-13-0140-S-A2-1.CML-04	CML-04	CML
PLANT A.PROD UNIT 01.8-HM-13-0143-A1-A2-1.CML-04	CML-04	CML
PLANT A.PROD UNIT 01.UNIT.XD1.FEB 1993 INTERNAL INSPECTION	Feb 1993 Internal Inspection	RBONSHOREACTIVITY
PLANT A.PROD UNIT 01.X-27.CML-03	CML-03	CML
PLANT A.PROD UNIT 01.X-27.CML-16	CML-16	CML
PLANT A.PROD UNIT 01.X-171.CML-01	CML-01	CML
PLANT A.PROD UNIT 01.D-211.CML-13	CML-13	CML
PLANT A.PROD UNIT 01.8-HM-13-0179-N-A2-1	8-HM-13-0179-N-A2-1	TAG
PLANT A.PROD UNIT 01.X-27.CML-11	CML-11	CML
PLANT A.PROD UNIT 01.X-27.X-27-CHANNEL	X-27-Channel	ELEMENT

General Search / Key Word Search

Enter Keyword, either full or part of Asset key will list all matching assets of all Asset Types, Process Unit, Tag, Element....

Result Set

Result table lists Asset Key, Tag No. (Asset Name) and Type (Asset Type)



Flow Chart: General Search

Type Search

- **Type Search** is a new feature introduced in Synergi Plant 5.7. Type Search as wide search options to search and locate various information like Asset details, Documents, Inspection Plan, Action, Part details and Item Details
 - Any Type Search option will have two sections, **Search criteria** and **Result Panel**.
 - **Plant (*)** is compulsory and Mandatory search criteria for all kind of Type Search utilities
 - Type Search as option to save Search Criteria to create Custom Search
 - Type Search as configuration options.
 - New Type Search utility can be configured
 - Adding new search criteria column can be configured
 - Adding new Result set column can be configured
 - *Document Search* - Search Documents based on selection criteria, Plant, Document Type, Document Key
 - *Item Search* - Search Items based on selection criteria, Plant, Tag No, Equipment Type



Create Custom Search

- Type Search as option for user to create own custom search.
- Select Search criteria values.
- Select all columns list to display
- Save search

Equipment Loca...	Tag	Equipment Type	Name	Service Start Date	Legal No	Material	Chemical
Plant A>>Prod Unit 01...	X-171	Exchanger Shell Tube		1981/11/14		Carbon Steel	Gasoline
Plant A>>Prod Unit 01...	X-27	Exchanger Shell Tube		1976/11/15		Carbon Steel	Gasoline

Document Search

The screenshot shows a software interface for document search. On the left is a sidebar with search criteria, and on the right is a table of search results.

Search Criteria (Left Panel):

- Treeview: Type Search
- Search criteria: Sample Plant Sketch
- General search
- Tag Search
- Part Search
- Document Search (expanded):
 - Plant: Sample Plant
 - Production Unit: [Empty]
 - Process Unit: [Empty]
 - Asset No.: [Empty]
 - Activity No.: [Empty]
 - Document type: Sketch
 - Document key: [Empty]
 - Description: [Empty]
 - Keyword: [Empty]
 - Filename: [Empty]
 - Search scope: [Empty]
 - Date added - From: yyyy/mm/dd
 - Date added - To: yyyy/mm/dd
- Buttons: Refresh, Search, Export, Count, Cancel

Search Results Table (Right Panel):

Document type	Filename	Document descr...	Version	Linked asset	Asset Type	Linked activity	Activity descr...
Sketch	DemoSketch-Exchange...	DemoSketch-Exchanger	1	X-171	Tag		
Sketch	DemoSketch-Exchange...	DemoSketch-Exchanger	1	X-27	Tag		
Sketch	DemoSketch-D-211.GIF	DemoSketch-D-211	1	D-211	Tag		

Document Search, Plant criteria is mandatory value to be passed. Document Search Asset selection options as multiple hierarchy level to select Production Unit, Process Unit and Tag criteria. Using this different asset level criteria, required attached documents that are available to the selected criteria are searched.

Synergi Plant Training

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