European Inspection Management

Contents

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Chapter 1

Overview

Topics:

About European Inspection Management

In Germany, inspections of pressure-containing assets are regulated by the industrial safety regulation (**BetrSichV**). The aim of this regulation is to guarantee the protection of employees' health and safety when using work equipment. With this module, GE Digital APM will provide a solution to help categorize the inspection activities according to Government Regulation based on pressure, volume, and fluid characteristics. According to this categorization, Compliance Management module of GE Digital APM can recommend applicable inspection task types along with recommended interval based on each asset type. This module will also help you identify the certification requirements of Inspectors. For example, ZÜS (Approved Inspection Body) and bP (Qualified Person) based on the criticality of the asset.

This functionality is fully integrated with Compliance Management module and Inspection Management module.

Chapter 2

Configuration

Topics:

About Configuring European Inspection Management

As an administrator, you must configure the following before an Inspector uses the data to create an inspection plan for an asset:

- Create Fluid Records
- Add Fluid Data
- Assign Assets to European Compliance Strategy Template

Create Fluid Records

About This Task

To create process fluid data in Fluid Data family, the fluid name must exist in the Integrity Fluid Name System Code Table. For more information on System Code Tables, refer to the System Codes and Tables documentation.

Procedure

1. Access the **System Codes and Tables** page.
2. From the System Tables section, select **Integrity Fluid Name**.
   The details of the Integrity Fluid Name table appears.
3. In the **System Code** subsection, select +.
   The **Create System Code** window appears.
4. In the **ID** box, enter the ID for the fluid.

   Note: The ID must be unique and must not be greater than 50 characters in length.
5. In the **Description** box, provide a description for the fluid.

   Note: The description must not exceed 255 characters in length.
6. Select one or more of the following options:
   - **Default**: Select the check box if you want this fluid to be the default fluid for the Integrity Fluid Name System Code Table.
   - **Active**: Select the check box if you want the System Code to be active.
7. Select **Save**.
   The new fluid is added and appears in the **System Code** subsection.

Next Steps

After you create the System Code for a fluid, do the following.

- Log out of the application and log back in, as the newly added fluid may not appear in the Fluid Data datasheet due to caching.
- Add Fluid Data to the fluid record.

Add Fluid Data

Before You Begin

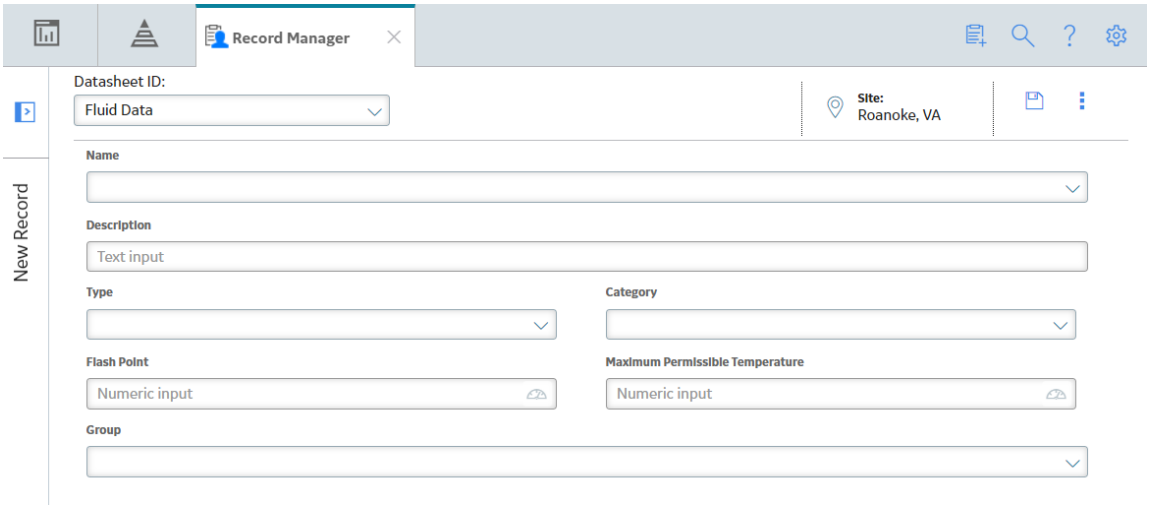
Ensure that the fluid, for which you want to add the fluid properties, is created in the Integrity Fluid Name System Code Table. For more information, refer to the Create Fluid Records on page 4 topic.

About This Task

Now, you must add fluid properties for the new fluid added using Record Manager. For more information on Record Manager, refer to the Record Manager documentation. Based on the properties that you define, a group is assigned to the fluid. For more information on the fluid group assignment, refer to Table F of Annexure - 1.

Procedure

1. Using Record Manager, create a record in the Fluid Data family.
   The Fluid Data datasheet appears.



2. Enter values in the available fields.
   Based on the values, a group is assigned to the fluid.

   Note: If required, you can change the default group assigned to the fluid.

3. Select .
   The fluid properties are added to the fluid record.

Assign Assets to European Compliance Strategy Template

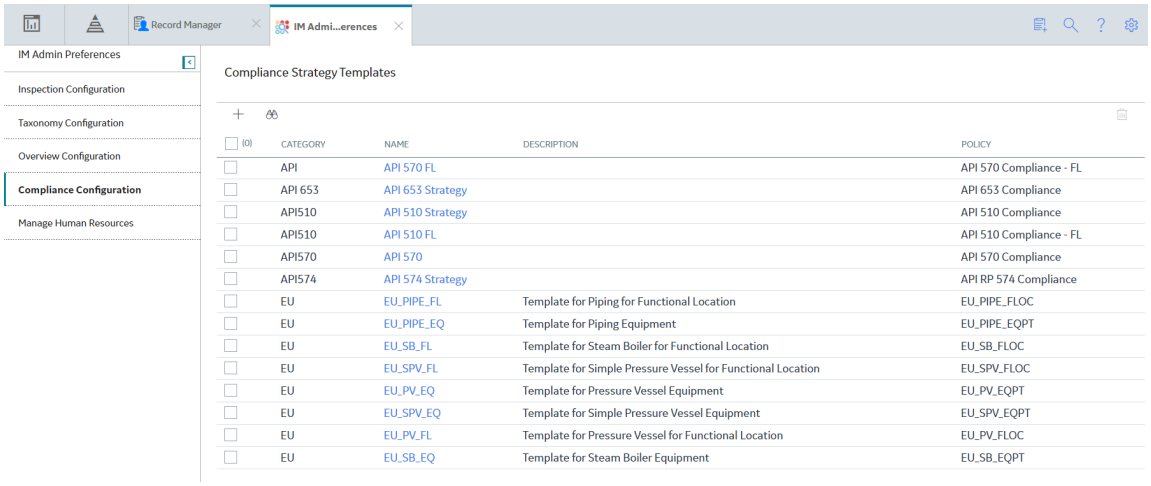
About This Task

GE Digital APM provides eight Compliance Strategy Templates for the European Inspection Compliance. Each Compliance Strategy Template is linked to a policy that enables recommendation generation based on certain guidelines. You can assign assets to the European Inspection Compliance Strategy Templates. After the assets are linked to the compliance strategy templates, Inspection Plans can be created by the MI Compliance Analyst or the MI Compliance Approver. When the Inspection Plan creation is initiated, the policy selected in the Compliance Strategy Template is executed against the assets that are linked to the

template. Creating Inspection plans for assets also generates recommendations according to the guidelines specified in the policy. When an asset is linked to multiple Compliance Strategy Templates, the policy for each template executes, and the generated recommendations are linked to the Inspection Plan and the asset.

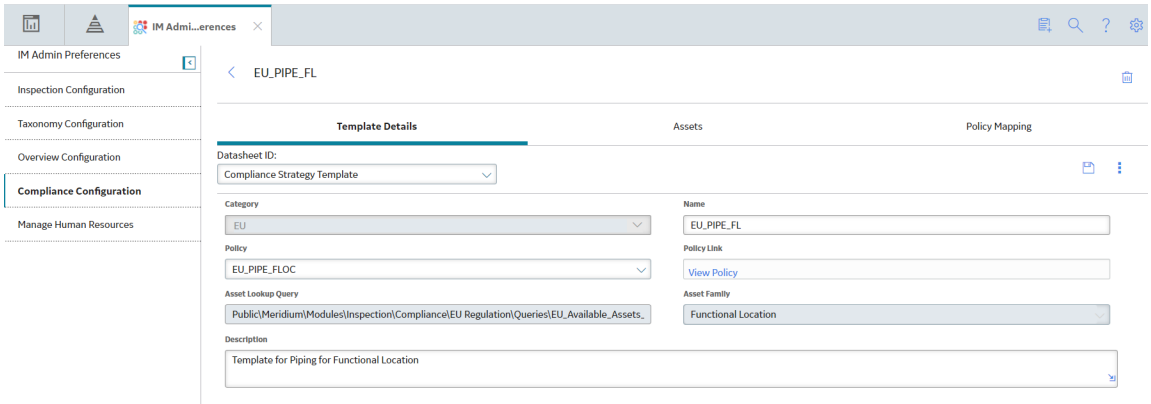
Procedure

1. Access the administrative features of Compliance Management.
   The **Compliance Strategy Templates** page appears, displaying all the available Compliance Strategy Templates.

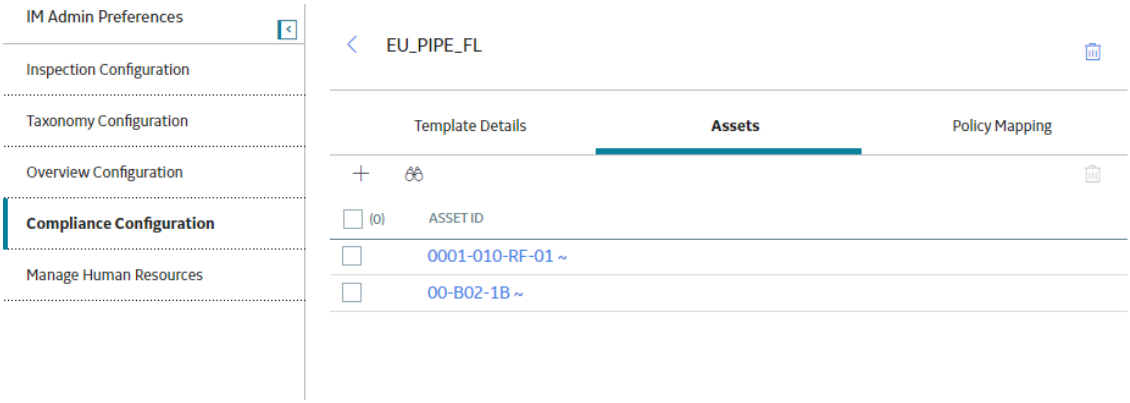


2. Select one of the following Compliance Strategy Templates:
   - **EU_PIPE_FL**: Template for Piping for Functional Location
   - **EU_PIPE_EQ**: Template for Piping Equipment
   - **EU_SB_FL**: Template for Steam Boiler for Functional Location
   - **EU_SPV_FL**: Template for Simple Pressure Vessel for Functional Location
   - **EU_PV_EQ**: Template for Pressure Vessel Equipment
   - **EU_SPV_EQ**: Template for Simple Pressure Vessel Equipment
   - **EU_PV_FL**: Template for Pressure Vessel for Functional Location
   - **EU_SB_EQ**: Template for Steam Boiler Equipment

   The Compliance Strategy Template datasheet appears, displaying the **Template Details** section.



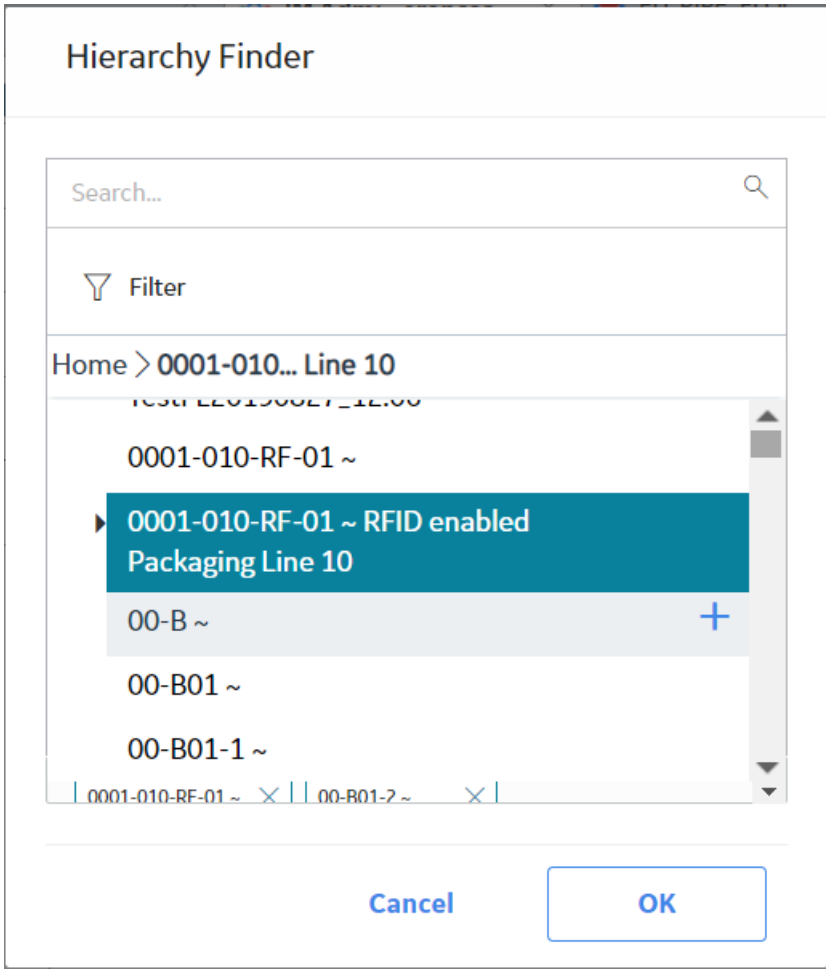
3. Select the **Assets** tab.
   The **Assets** section appears, displaying a list of assets associated with the selected Compliance Strategy Template.



4. In the **Assets** section, select +, and then select one of the options listed in the following table:

Options	Subsequent steps to be performed
Add Assets via Query	a. In the **Add Assets to <Asset ID>** window, next to each query that you want to use to search for assets to add to the Compliance Strategy Template, select the check box, and then select **Next**. **Note:** • After you select the first query and assets, the query that you selected is stored in the Asset Lookup Query field of the Compliance Strategy Template record. Subsequent uses of the Add Asset via Query tool will use the previously selected query by default. Additionally, the results of this query are used in the **Assets without Templates** section of the **Compliance Management Overview** page. To use a different query in the Add Asset via Query tool, select **Previous**, and then select a query from the catalog. • When you use a query to select assets, one of the output fields of the query must be the entity key for an asset. The field in the query must be named ASSET_ENTY_KEY. • If you have already added assets to the Compliance Strategy Template, you can filter the query results using a WHERE parameter; the entity key of the template must be TEMP_ENTY_KEY. The **Select Assets** section appears, displaying the results of the query that you selected. b. In the **Select Assets** section, next to each asset that you want to add, select the check box. c. Select **Finish**.
Add Assets via Finder	a. In the **Hierarchy Finder** window, navigate to the asset that you want to add. b. Next to each asset that you want to add to the Compliance Strategy Template, select the +.

Options	Subsequent steps to be performed



The selected assets appear in the **Hierarchy Finder** window.

c. Select **OK**.

The selected assets appear in the **Assets** section.

Important:

- When you select assets to add, you must select assets that are in the same family as the defined asset family for the template. Additionally, you cannot add the same asset more than once.
- When you are adding assets to the Compliance Strategy Template, the assets listed in the Hierarchy Finder and the queries listed are site filtered.

Tip: If one or more assets cannot be added to the Compliance Strategy Template, an error message will appear. You can select the error to view a list of assets that were not successfully added to the template.

Chapter 3

Workflow

Topics:

European Inspection Management Workflow

About This Task

This workflow provides the basic, high-level steps for using European Inspection Management. The steps and links provided in the workflow do not necessarily reference every possible procedure.

Procedure

1. Identify an Asset
2. View or Modify Asset Technical Data
3. Apply the Suggested Compliance Strategy templates for an Asset
4. Create an Inspection Plan
5. Update Compliance Recommendations for an Inspection Plan
6. Approve an Inspection Plan
7. Implement an Inspection Plan

Identify an Asset

This topic describes how to identify the certification requirements for the inspectors based on the criticality of the assets.

Procedure

1. Access the **Assets** page.
   The Asset Hierarchy appears in the **Assets** page.
2. In the **Hierarchy** section, in the Search box, enter the Asset ID for which you want to create or edit Asset Technical Data, and then press Enter.
   The asset appears in the **Hierarchy** section.
3. Select the Integrity tab, and then select **Inspection Assets** for Inspection Management to view and edit the Inspection Management Overview page for the related asset.

View or Modify Asset Technical Data

This topic describes how to view or modify the Asset Technical Data to determine the certification requirements of the inspectors based on the criticality of the assets.

Procedure

1. Access the **Inspection Management Overview** page.
2. Select and then select **View Asset Technical Data**.
   The Asset Technical Data pane appears, displaying the assets and the related families for Asset Technical Data and NR13 Technical Data.

   Note: All the families for an asset are displayed in the **Has Technical Data** relationship family.
3. To modify a record for Asset Technical Data or NR13 Technical Data, select the related asset from the Technical Data pane.

4. To add a new Asset Technical Data datasheet, select +, and then select the Asset Technical Data from the list displayed.
   A blank Asset Technical Data datasheet appears.
5. As needed, enter values in the available fields. Based on the fields entered in the new datasheet, the certification field is calculated.

Example

Example: Identify certification requirement for a Pressure Vessel

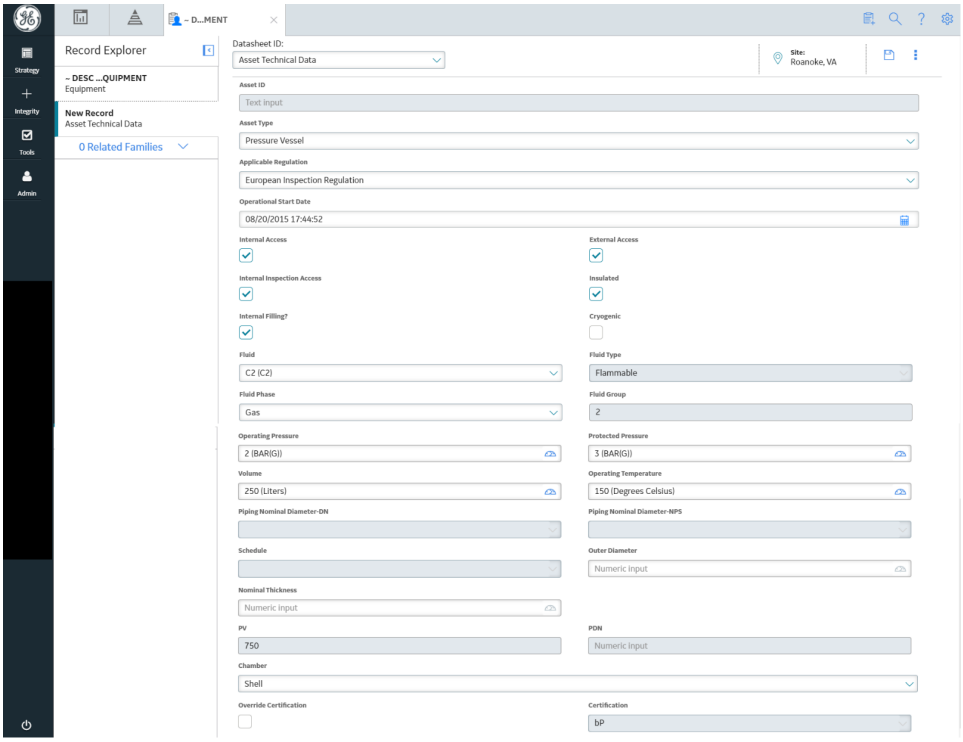
In this example, two records in Asset Technical Data family are created for the Shell Chamber and the Tube Chamber for the Pressure Vessel asset.

Field	Value for Shell Chamber	Value for Tube Chamber
Chamber	Shell	Tube
Fluid	C2	HCL
Fluid Group	2	1
Fluid Phase	Gas	Liquid
Protected Pressure (P)	3 [Bar]	520 [Bar]
Volume (V)	250 [Litre]	30 [Litre]
Outer Diameter (DN)	This field is blank as values for this field are used for the certification calculation of Asset Type is Piping.	This field is blank as values for this field are used for the certification calculation of Asset Type Piping.
PV (Protected Pressure*Volume)	750 [Bar.Litre]	15600 [Bar.Litre]
PDN (Protected Pressure*Outer Diameter)	This field is disabled as the Asset Type is Pressure Vessel.	This field is disabled as the Asset Type is Pressure Vessel.
Certification	bP	ZUS

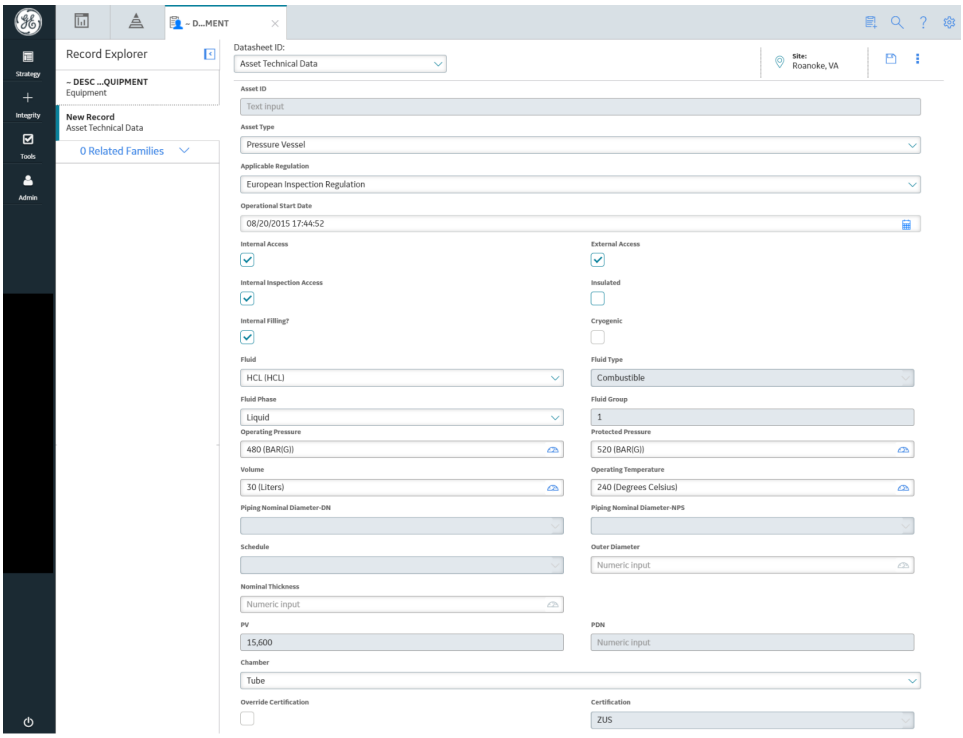
Note:

- For Shell Chamber, refer to Reference Table 4 for the certificate calculation.
- For Tube Chamber, refer to Reference Table 5 for the certification calculation.

Certification calculation for Asset type Pressure Vessel for a Shell chamber:



Certification calculation for Asset type Pressure Vessel for a Tube chamber:

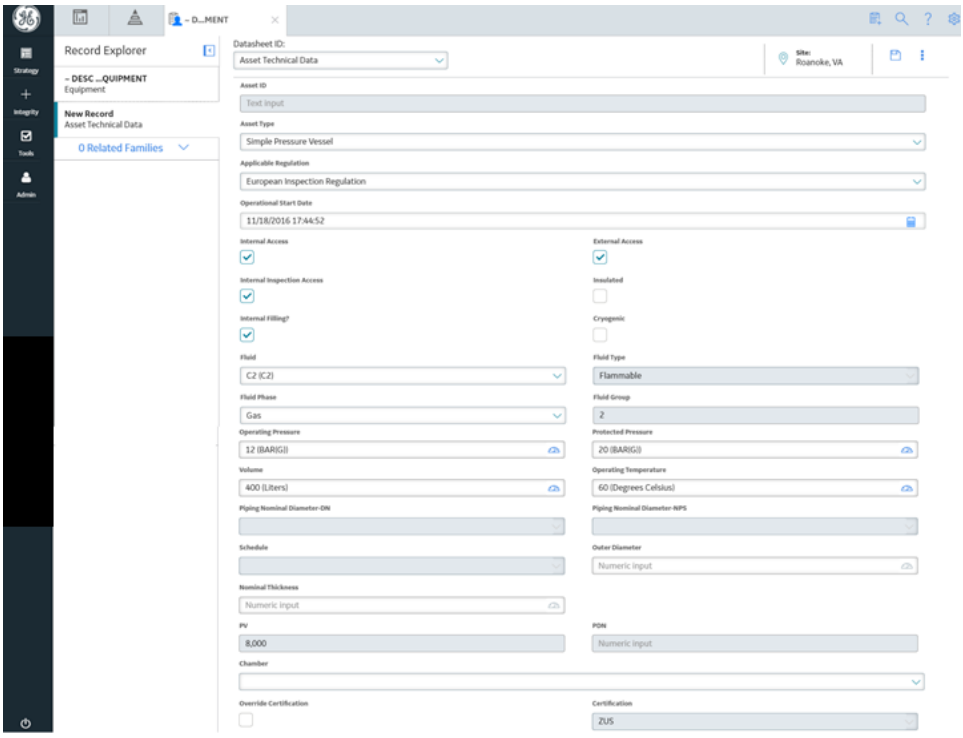


Example: Identify certification requirement for a Simple Pressure Vessel

In this example, a single record is created for the Simple Pressure Vessel asset.

Field	Value
Fluid	C2
Fluid Group	2
Fluid Phase	Gas
Protected Pressure (P)	20 [Bar]
Volume (V)	400 [Litre]
Outer Diameter (DN)	This field is blank as values for this field is used for the certification calculation of Asset Type Piping.
PV (Protected Pressure*Volume)	8000 [Bar.Litre]
PDN (Protected Pressure*Outer Diameter)	This field is disabled as the Asset Type is Simple Pressure Vessel.
Certification	ZUS

Note: For Simple Pressure Vessel, refer to Reference Table 7 for certificate calculation.

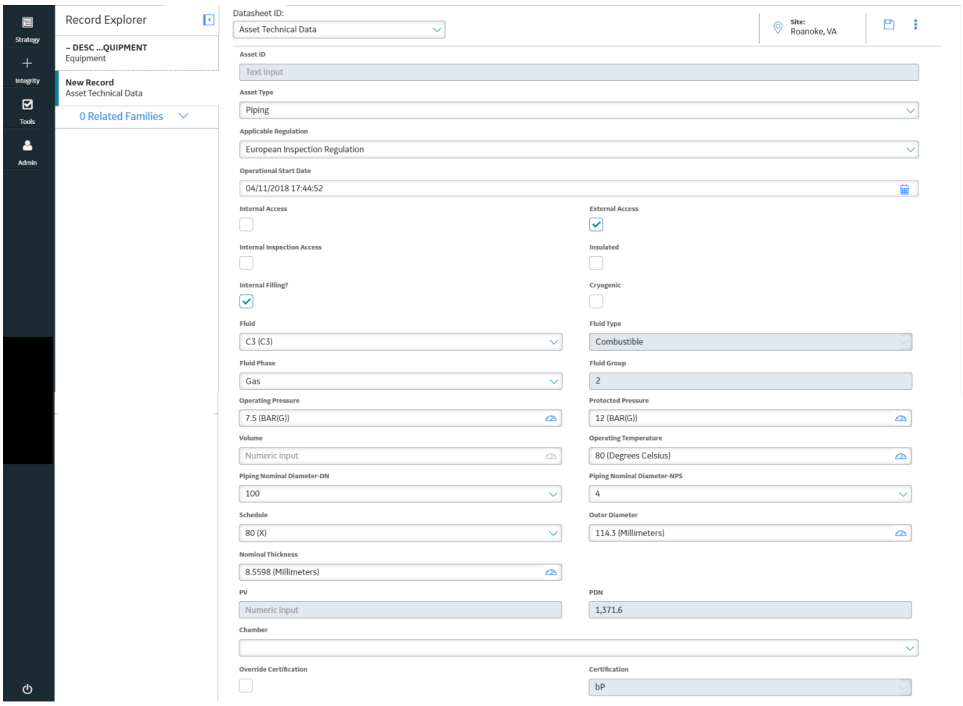


Example: Identify certification requirement for Piping

In this example, a single record is created for the Piping asset.

Field	Value
Fluid	C3
Fluid Group	2
Fluid Phase	Gas
Protected Pressure (P)	12 [Bar]
Volume (V)	This field is blank as values for this field is used for the certification calculation of Asset Type Pressure Vessel, Simple Pressure Vessel, and Steam Boiler.
Outer Diameter (DN)	114.3 [mm]
PV (Protected Pressure*Volume)	This field is disabled as the Asset Type is Piping.
PDN (Protected Pressure*Outer Diameter)	1371.6 [Bar.mm]
Certification	bP

Note: For Piping, refer to Reference Table 9 for certificate calculation.

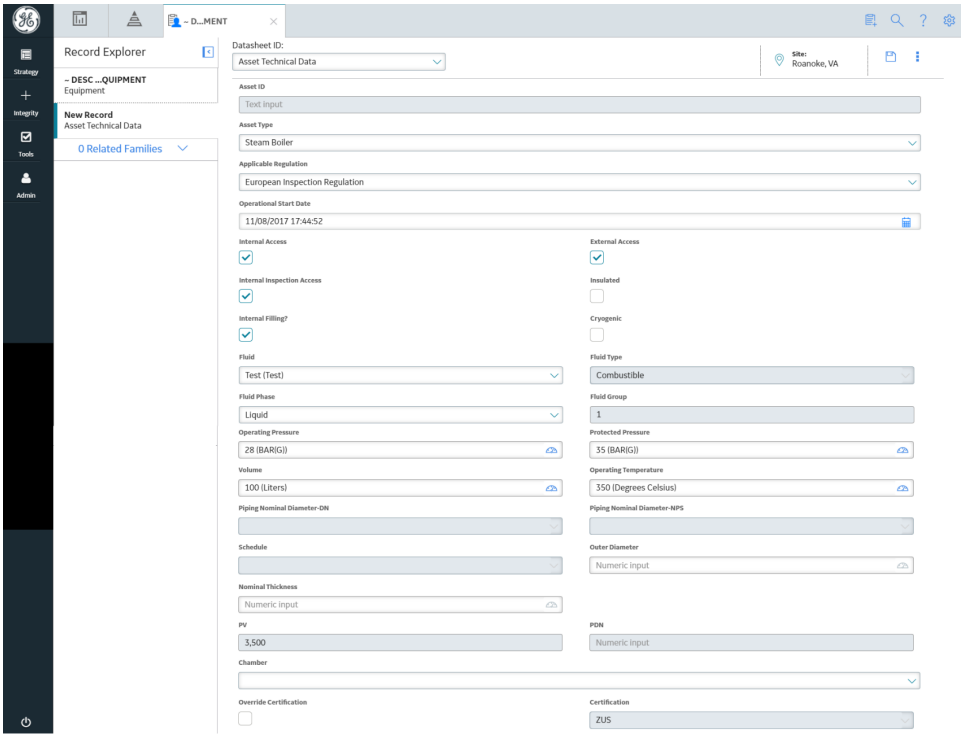


Example: Identify certification requirement for a Steam Boiler

In this example, a single record is created for the Steam Boiler asset.

Field	Value
Fluid	Test
Fluid Group	1
Fluid Phase	Liquid
Protected Pressure (P)	35 [Bar]
Volume (V)	100 [Litre]
Outer Diameter (DN)	This field is blank as values for this field is used for the certification calculation of Asset Type Piping.
PV (Protected Pressure*Volume)	3500 [Bar.Litre]
PDN (Protected Pressure*Outer Diameter)	This field is disabled as the Asset Type is Steam Boiler.
Certification	ZUS

Note: For Steam Boiler, refer to Reference Table 9 for certificate calculation.



Apply Suggested Compliance Strategy Templates for an Asset

Users can get suggested Compliance Strategy Templates for assets that are in the **Assets without Templates** section of the **Compliance Management Overview** page. This section contains assets that

do not have linked Compliance Strategy Templates, but match queries attached to Compliance Strategy Templates.

Before You Begin

Procedure

1. Access the **Compliance Management Overview** page, and then select the **Assets without Templates** tab.
   The **Assets without Templates** section appears.
2. Select **Suggest Templates**.
   A window appears, stating that the current Suggested Compliance Template records will be deleted if you proceed.
3. Select **Yes**.
   The Suggest Templates process executes. A scheduled job is created.
4. **Optional:** If you want to view the status of the job, select  .
   The **Schedule Logs** page appears, displaying a list of all the operations in GE Digital APM that are in progress, along with the percentages of completion. You can also access a list of operations that have been successful or have failed.
5. Select the check boxes next to the Asset IDs for which, you want to apply the suggested templates, and then select **Apply Template**.
   The **Confirm Apply Template** window appears asking you to confirm if you want to apply the suggested templates to the selected assets.
6. Select **Yes**.
   The templates are applied to the selected assets, and the assets appear in the **Assets without Inspection Plans** section of the **Compliance Management Overview** page.

Results

Note: For European Inspection Compliance, GE Digital APM has 8 Compliance Strategy Templates that are available for use. When assets are added, the query is added to the Compliance Strategy Template record and is saved for later use. If a Compliance Strategy Template does not have a query attached to the record, it is excluded from the Suggest Templates job. Additionally, if an asset does not match a query that is attached to a Compliance Strategy Template, it will not receive a suggested Compliance Strategy Template.

Create an Inspection Plan from the Compliance Management Overview Page

You can create an Inspection Plan for assets that are linked to Compliance Strategy Templates.

Before You Begin

The assets must have one or more Compliance Strategy Templates linked to them.

Procedure

1. Access Compliance Management, and then select the **Assets without Inspection Plans** tab.
   The **Assets without Inspection Plans** section appears, displaying a list of available assets based on the current filter.
2. In the Assets section, select the check boxes against the rows containing the assets for which, you want to create an Inspection Plan.

The selected assets are highlighted.

3. Select **Create Inspection Plans**.
   The job status appears in the page heading, displaying the progress of the Inspection Plan creation.

   Note: When the process is complete, you can select  to access the **Schedule Logs** page.

Update Compliance Recommendations for an Inspection Plan Using the Asset Hierarchy

Procedure

1. Access the **Assets** page.
   The Asset Hierarchy appears in the **Assets** page.
2. In the left pane, in the **Hierarchy** section, enter the Asset ID in the Search box, and then press Enter.
3. Select the asset for which you want to access the Inspection Plan.
   The **<Asset Name>** workspace appears.
4. Select the **Integrity** tab.
5. Select the link next to Compliance Management.
   The **Inspection Plan** page appears.
6. Select **Update Compliance Recommendations** ().
   The **Confirm Update** window appears.
7. Select **Yes**.
   The job status appears in the **Compliance Management Overview** page, displaying the progress of the update.

   Note: When the process is complete, you can select  to access the **Schedule Logs** page. After you have updated the Compliance Recommendations, you can perform the following actions:

   - Change the state of the Compliance Recommendation to Superseded.
   - Change the state of the Compliance Recommendation to Not Required.
   - This unlinks superseded Compliance Recommendations from the master recommendation.

   For more information, refer to the Modify a Compliance Recommendation topic.

   You can also delete a Compliance Recommendation.

Update Compliance Recommendations for an Inspection Plan

Procedure

1. Access Compliance Management, and then select the **Assets with Inspection Plans** tab.
2. Select the check boxes next to each assets for the Inspection Plan for which you want to update the Compliance Recommendations.
3. Select **Update Compliance Recommendations**.
   The **Confirm Update** window appears, asking you if you want to update the selected Inspection Plans.
4. Select **Yes**.

   Tip: If any Inspection Plans for the selected assets are in the Approved state, the **Reason for Revision** window appears. In the text box, enter a reason for updating the Compliance Recommendations for the Inspection Plans, and then select **Done**.

The job status appears in the **Compliance Management Overview** page, displaying the progress of the update.

Note: When the process is complete, you can select  to access the **Schedule Logs** page.

Approve an Inspection Plan

Procedure

1. Access the Inspection Plan that you want to approve.
2. Select **Proposed**, followed by **Approve**, and then select **Done**.
   A message appears, stating that the Inspection Plan has been approved.

   Note:

   - The inspection plan is promoted as a strategy in ASM. You can view the strategy in ASM by selecting **Open Strategy**.
   - After you approve an Inspection Plan, you cannot delete, supersede, or designate recommendations as Not Required. You must first move them to the Modified state.
   - While the Inspection Plan is being modified, you cannot delete, supersede, or designate recommendations as Not Required.

Implement an Inspection Plan

Before You Begin

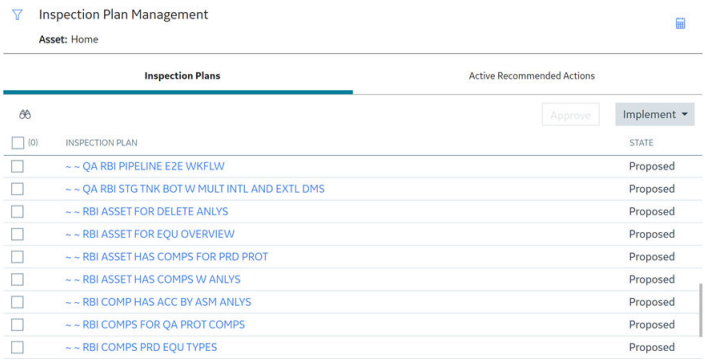
- Ensure that the **Implement Recommended Actions to Tasks in ASM** setting is set to False in the **Inspection Configuration** section of the **IM Admin Preferences** page.
- You must have an Inspection Plan that is in the Approved state.

About This Task

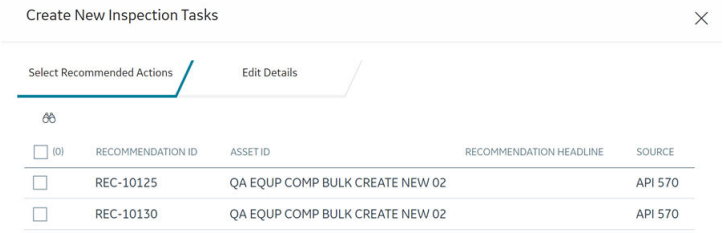
This task describes how to implement an Inspection Plan to an Inspection Task. When you implement an Inspection Plan, all the Compliance Recommendations associated with the Inspection Plan are implemented to Inspection Tasks.

Procedure

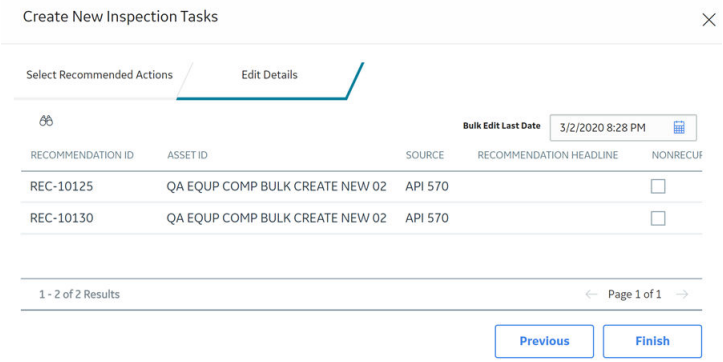
1. In the module navigation menu, select **Integrity** > **Compliance Management**.
   The **Compliance Management Overview** page appears.
2. Select  .
   The **Inspection Plan Management** page appears, displaying the **Inspection Plans** section.



3. In the **Inspection Plans** section, next to each Approved Inspection Plan that you want to implement, select the check box.
4. Select **Implement**, and then select **Create New**.
   The **Create New** window appears, displaying the **Select Recommended Actions** section. This section displays all the Recommendations linked to the Inspection Plan that have not been implemented to Tasks.



5. Select each Recommended Action for which you want to create new Inspection Tasks, and then select **Next**.
   The **Edit Details** section appears.



6. As needed, modify the details for the Recommended Actions that you selected.

   Important: You can modify the Last Date in bulk using the Bulk Edit Last Date or modify the Last Date for individual records in **Edit Details** section only for the recurring recommendations.

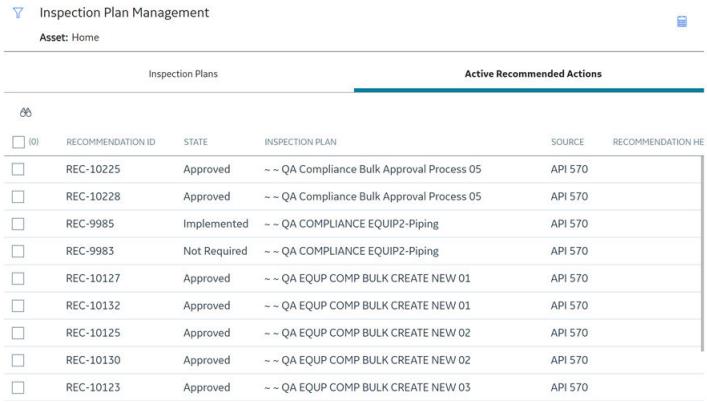
   Tip: If a recommendation is not recurring, select the corresponding check box in the **NONRECURRING** column.
7. Select **Finish**.
   The **Confirm Implementation** window appears.
8. Select **Yes**.

The newly created Inspection Tasks are linked to the selected Recommended Actions and linked to the Asset related to the Inspection Plan.

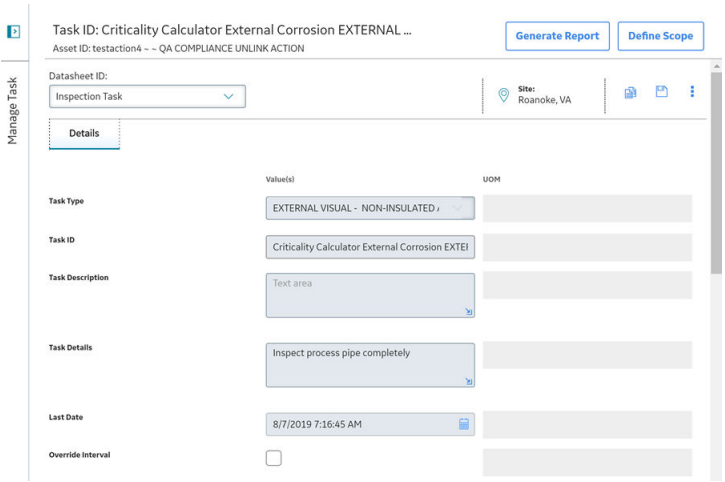
Next Steps

You can define scope or generate reports for the inspection tasks associated with the recommendations that are in Implemented state.

1. In the **Compliance Management Overview** page, select **Active Recommended Actions**.
   The **Active Recommended Actions** section appears, displaying the recommended actions that have Inspection Plans.



2. Search for the recommendations in Implemented state, and then select the corresponding link in the **Linked Inspection Task** column.
   The Inspection Task datasheet appears, containing the **Define Scope** and **Generate Reports** buttons using which you can define the scope and generate reports for the inspection tasks.



Chapter 4

Reference

Topics:

General Reference

Security Groups

The following table provides a list of the baseline family-level privileges that exist for the Security Groups:

Security Group	Privileges to the Fluid Data Family	Privileges to the Asset Technical Data Family	Privileges to the Compliance Recommendation Mapping Family
MI RBI Administrator	View, Update, Insert, Delete	View, Update, Insert, Delete	View, Update, Insert, Delete
MI RBI Analyst	View, Update, Insert, Delete	View, Update, Insert, Delete	View, Update, Insert, Delete
MI Thickness Monitoring Viewer	View	View	View
MI RBI Viewer	View	View	View
MI Thickness Monitoring User	View	View	View
MI Thickness Monitoring Inspector	View	View	View
MI Thickness Monitoring Administrator	View, Update, Insert, Delete	View, Update, Insert, Delete	View, Update, Insert, Delete
MI Inspection	View, Update, Insert, Delete	View, Update, Insert, Delete	View, Update, Insert, Delete
MI Inspection Viewer	View	View	View

Compliance Strategy Templates

The following table lists the Compliance Strategy Templates for the European Inspection Management:

Compliance Strategy Template	Asset Type	Policy	Family	Query
EU_PIPE_FL	Piping	EU_PIPE_FLOC	Functional Location	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_Piping_FLOC
EU_PIPE_EQ	Piping	EU_PIPE_EQPT	Equipment	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_Piping_EQP

Compliance Strategy Template	Asset Type	Policy	Family	Query
EU_SB_FL	Steam Boiler	EU_SB_FLOC	Functional Location	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_SteamBoiler_FLOC
EU_SB_EQ	Steam Boiler	EU_SB_EQPT	Equipment	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_SteamBoiler_EQP
EU_SPV_FL	Simple Pressure Vessel	EU_SPV_FLOC	Functional Location	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_SPV_FLOC
EU_SPV_EQ	Simple Pressure Vessel	EU_SPV_EQPT	Equipment	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_SPV_EQP
EU_PV_FL	Pressure Vessel	EU_PV_FLOC	Functional Location	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_PressureVessel_FLOC
EU_PV_EQ	Pressure Vessel	EU_PV_EQPT	Equipment	Public\Meridium \Modules\Inspection \Compliance\EU Regulation\Queries \EU_Available_Assets_PressureVessel_EQP

Annexure-1

Table F: Fluid Group Table

The following table lists the specific conditions for the different fluid categories used for European Inspection Management:

Fluid Category	Conditions		Fluid Group
Explosive	Not Applicable	Not Applicable	1
Flammable Category 1	Not Applicable	Not Applicable	1
Flammable Category 2	Not Applicable	Not Applicable	1
Flammable Category 3	TB > FP	FP<=55 degree Celsius (131 degree Fahrenheit)	1
Pyrophoric	Not Applicable	Not Applicable	1
Acute Toxic Category 1	Not Applicable	Not Applicable	1
Acute Toxic Category 2	Not Applicable	Not Applicable	1
Oxidising	Not Applicable	Not Applicable	1
Corrosive	Not Applicable	Not Applicable	2
Flammable Category 3	TB <= FP	Not Applicable	2
Others	Not Applicable	Not Applicable	2
* TB : Max. Permissible Temperature			
* FP : Flash Point			

Table R: Reference Table Chart

The following table lists the reference table charts for the equipment categories:

Asset Type	Physical State	Fluid Group	Table
Boiler	Not Relevant	Not Relevant	2
Pressure Vessel	Gas	1	3
Pressure Vessel	Gas	2	4
Pressure Vessel	Liquid	1	5
Pressure Vessel	Liquid	2	6
Simple Pressure Vessel	Gas	2	7
Piping	Gas	1	8
Piping	Gas	2	9

Asset Type	Physical State	Fluid Group	Table
Piping	Liquid	1	10
Piping	Liquid	2	11

Table - 1

The following table lists the Inspection interval for the asset types used for European Inspection Management:

Asset Type	External Examination	Internal Examination	Strength Test
Steam Boiler in Table 2	1 Year	3 Years	9 Years
Pressure Vessel in Table 3, Table 4, Table 5, and Table 6	2 Years	5 Years	10 Years
Simple Pressure Vessel in Table 7	Not Applicable	5 Years	10 Years
Piping in Table 8, Table 9, Table 10, and Table 11	5 Years	Not Applicable	5 Years

Table - 2

The following table lists the test responsibilities for the Boiler equipment category:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
>2	0.5< PS <=32	<=200	bP	bP
<=1000	0.5 < PS <= 32	200< PS.V<= 1000	ZÜS	bP
>1000	0.5 < PS <= 32	Not Applicable	ZÜS	ZÜS
<= 1000	0.5 < PS <= 32	>1000	ZÜS	ZÜS
> 2	>32	Not Applicable	ZÜS	ZÜS

Table - 3

The following table lists the test responsibilities for the pressure vessels with gas for the Fluid Group - 1:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
1<V<=200	>0.5	25<PS.V <=200	bP	bP
>200	0.5<PS<=1	Not Applicable	bP	bP
<=1	200<PS<=1000	Not Applicable	ZÜS	bP
>1	>1	200<PS.V<=1000	ZÜS	bP
<=1	>1000	Not Applicable	ZÜS	ZÜS
>1	>1	>1000	ZÜS	ZÜS

Table - 4

The following table lists the test responsibilities for the pressure vessels with gas for Fluid Group - 2:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
1<V<=200	>0.5	50<PS.V<=200	bP	bP
>200	0.5<PS<=1	Not Applicable	bP	bP
>1	>1	200<PS.V<=1000	ZÜS	bP
<=1	>1000	Not Applicable	ZÜS	ZÜS
>1	>1	>1000	Not Applicable	Not Applicable

Table - 5

The following table lists the test responsibilities for the pressure vessels with liquids for Fluid Group - 1:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
Not Applicable	0.5<PS<=10	>200	bP	bP
<=1	>500	<=1000	bP	bP
<=1	>500	1000<PS.V<=10000	ZÜS	bP
>1	>500	<=10000	ZÜS	bP
>1	10<PS<=500	>200	ZÜS	bP
Not Applicable	>500	>10000	ZÜS	ZÜS

Table - 6

The following table lists the test responsibilities for the pressure vessels with liquids for Fluid Group - 2:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
<=1	>1000	<=1000	bP	bP
<=10	>1000	1000<PS.V<=10000	ZÜS	bP
Not Applicable	10<PS<=500	>10000	ZÜS	bP
Not Applicable	>500	>10000	ZÜS	ZÜS

Table - 7

The following table lists the test responsibilities for Simple Pressure Vessels:

V [Litre]	PS [Bar]	PS.V [Bar-Litre]	Non-Recurring Inspection	Recurring Inspection
Not Applicable	0.5<PS<=30	50<PS.V<=200	bP	bP
Not Applicable	0.5<PS<=1	200<PS.V<=10000	bP	bP
Not Applicable	1<PS<=30	200<PS.V<=1000	ZÜS	bP
Not Applicable	1<PS<=30	1000<PS.V<=10000	ZÜS	ZÜS

Table - 8

The following table lists the test responsibilities for Piping with gases for Fluid Group - 1:

Sl. No.	DN[Millimeter]	PS[Bar]	PS.DN[Bar-mm]	Non-Recurring Inspection	Recurring Inspection
1	>25	>0.5	<=2000	bP	bP
2	>25	>0.5	>2000	ZÜS	ZÜS

Table - 9

The following table lists the test responsibilities for Piping with gases for Fluid Group - 2:

DN[Millimeter]	PS[Bar]	PS.DN[Bar-mm]	Non-Recurring Inspection	Recurring Inspection
>32	>0.5	1000<PS.DN<=2000	bP	bP
>32	>0.5	>2000	ZÜS	ZÜS

Table - 10

The following table lists the test responsibilities for Piping with liquids for Fluid Group - 1:

DN[Millimeter]	PS[Bar]	PS.DN[Bar-mm]	Non-Recurring Inspection	Recurring Inspection
>25	>0.5	>2000	ZÜS	ZÜS

Table - 11

The following table lists the test responsibilities for Piping with liquids for Fluid Group - 2:

DN[Millimeter]	PS[Bar]	PS.DN[Bar-mm]	Non-Recurring Inspection	Recurring Inspection
>200	>10	>5000	ZÜS	ZÜS

Family Field Descriptions

Asset Technical Data

Asset Technical Data datasheet stores asset-related information required for certification calculation.

The table below provides an alphabetical list and description of the fields that exist for Asset Technical Data. The information in the table reflects the type and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage
Applicable Regulation	Character (255)	Stores the regulation type that is applicable to an asset.	This field is populated with a list of regulations to be linked to an asset. This field is populated with a description of system codes stored in MI_INTGY_REGULATION system code table. For European Inspection Management, Applicable Regulation is listed as an European Inspection Regulation. This field is required to calculate certification requirements for the asset of the following types: • Pressure Vessel • Simple Pressure Vessel • Steam Boiler • Piping
Asset ID	Character (255)	Stores the ID of an asset.	This field is populated with the Equipment Record ID or with the Functional Location ID.

Field	Data Type	Description	Behavior and Usage
Asset Type	Character (255)	Stores the type of asset.	This field is populated with descriptions of the system codes that are stored in the MI_INTGY_ASSET_TYPE system code table. This field is required to calculate certification requirements for the asset of the following types: • Pressure Vessel • Simple Pressure Vessel • Steam Boiler • Piping
Certification	Character (255)	Stores the certification value.	This field populates the Calculated Certification for the Asset based on the tables in Annexure - 1. The values in this field are populated from a drop-down list box and contains a list of system codes that exist in the MI_CERTIFICATION system code table. The Certification field populates with one of the following values: • ZÜS • bP **Note:** By default, the Certification field is disabled. Select Override Certification checkbox if you want to choose a value from the Certification drop-down box.
Chamber	Character (255)	Stores information about the type of chamber.	This field contains a list of system codes that exist in the MI_CHAMBER system code table. You can choose from the baseline values. The values in this field are populated from a drop-down list box. Refer to the System Code Table for details regarding the type of chamber.
Cryogenic	Boolean	Mentions whether the asset is operated under cryogenic conditions.	This field records additional information regarding the asset. Select the checkbox if the asset operates under the cryogenic conditions.

Field	Data Type	Description	Behavior and Usage
External Access	Boolean	Mentions whether the physical access for the asset is available externally.	This field records additional information regarding the asset. Select the checkbox if external access is available for the asset inspection.
Fluid	Character (255)	Specifies the name of the fluid which is stored within an asset.	This field is required to calculate certification requirements for the asset of the following types: • Pressure Vessel • Simple Pressure Vessel • Piping
Fluid Group	Character (255)	Stores the fluid group.	This field is populated automatically when you select a fluid. The Fluid Group is Group 1 or Group 2.
Fluid Phase	Character (255)	Specifies the fluid phase.	This field is populated with relevant values from a drop-down list box when you select a fluid. The values in this field exist in the system code table. The Fluid Phase is liquid or gas.
Fluid Type	Character (255)	Stores the fluid type.	This field is populated automatically when you select a fluid. The Fluid Type is Flammable or Combustible.
Insulated	Boolean	Mentions whether the asset is insulated.	This field can be used to record additional information about the asset. Select the check box if the asset is insulated.
Internal Access	Boolean	Mentions whether internal access is available for an asset.	This field can be used to record additional information about the asset. Select the check box if internal access is available to inspect an asset.
Internal Filling	Boolean	Mentions whether the fluid is filled internally.	This field can be used to record additional information about the asset. Select the check box if the asset is filled internally.
Internal Inspection Access	Boolean	Mentions whether an asset is inspected internally.	This field can be used to record additional information about the asset. Select the check box if there is access available to inspect an asset internally.

Field	Data Type	Description	Behavior and Usage
Nominal Thickness	Numeric	Specifies the manufactured or the estimated thickness used as a base measurement.	This field is populated automatically based on a specified piping nominal diameter value and schedule.
Operating Pressure	Numeric	Specifies the pressure of an asset during normal operation.	The value for this field can be specified manually using the datasheet.
Operating Temperature	Numeric	Specifies the temperature of an asset during a normal operation.	The value for this field can be specified manually using the datasheet.
Operational Start Date	Date	Mentions the operational start date for an asset.	Select  for the Operation start date.
Outer Diameter	Numeric	Specifies the diameter of a piping asset from the outer wall surface.	This field is populated automatically based on a specified Piping Nominal Diameter value and Schedule. This field is required to calculate certification requirements for the Asset Type Piping.
Override Certification	Boolean	Specifies whether the calculated certification is to be overridden.	If you select the Override Certification checkbox, you can override the certification field, and then select the value for the Override Certification field from a drop-down list box.
PDN	Numeric	Mentions the value of Protected Pressure x Outer Diameter.	This field is populated automatically from the multiplication of Protected Pressure and Outer Diameter.

Field	Data Type	Description	Behavior and Usage
Piping Nominal Diameter - DN	Numeric	Specifies a nominal diameter for piping.	This field populates Piping Nominal Diameter as per ISO specifications. The values in Piping Nominal Diameter field is populated by a drop-down list box. This field will be disabled if Piping is not selected as the Asset Type. When a value is selected for the Piping Nominal Diameter - NPS or the Piping Nominal Diameter - DN fields: • A list of possible values are generated for the Schedule field. • After a value is selected for the Schedule field, the Pipe Properties reference table populates the Nominal Thickness and the Outside Diameter fields.
Piping Nominal Diameter - NPS	Numeric	Specifies a nominal pipe size for piping.	The field populates Piping Nominal Diameter according to the ASME specifications. The values in the Piping Nominal Diameter field will be populated by a drop-down list box. This field will be disabled if Piping is not selected as the Asset Type. When a value is selected for the Piping Nominal Diameter - NPS or the Piping Nominal Diameter - DN fields: • A list of possible values is generated for the Schedule field • After a value is selected for the Schedule field, the Pipe Properties reference table populates the Nominal Thickness and the Outside Diameter fields.

Field	Data Type	Description	Behavior and Usage
Protected Pressure	Numeric	Stores the protected pressure of the asset.	Value for this field can be specified manually using the datasheet. This field is required to calculate certification requirements for the asset of the following types: • Pressure Vessel • Simple Pressure Vessel • Steam Boiler • Piping
PV	Numeric	Mentions the value of Protected Pressure x Volume.	This field is populated automatically from the multiplication of Protected Pressure and Volume.
Schedule	Character (255)	Specifies the schedule number corresponding to the wall thickness of the pipe.	When a value is selected for either the Piping Nominal Diameter - NPS or the Piping Nominal Diameter - DN fields, a list of possible values is generated for the Schedule field in a drop-down list box. This field will be disabled and blank if Asset Type is not selected as Piping.
Volume	Numeric	Specifies the amount of fluid stored within an asset.	The value for this field can be specified manually using the datasheet. Value for this field can be specified manually using the datasheet. This field is required to calculate certification requirements for the asset of the following types: • Pressure Vessel • Simple Pressure Vessel • Steam Boiler

Fluid Data

Fluid Data datasheet stores fluid-related information required for the certification calculation.

The table below provides an alphabetical list and description of the fields that exist for Fluid Data. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage
Category	Character (255)	Stores the fluid category list according to Table - F.	This field contains a list of system codes which exist in the MI_INTGY_FLUID_CTGY system code table. The values in this field are populated from a drop-down list box.
Description	Character (255)	Stores the fluid description.	This field is populated automatically from the selected fluid name.
Flash Point	Numeric	Stores the flash point of the fluid.	The value for this field can be specified manually using the datasheet.
Group	Character (255)	Specifies the fluid group according to Table - F.	This field is populated automatically according to the rules in Table - F. This field contains a list of system codes that exist in MI_INTGY_FLUID_GROUP system code table.
Maximum Permissible Temperature	Numeric	Stores the maximum permissible temperature of the fluid.	Specify the value for this field manually using the datasheet.
Name	Character (255)	Stores the name of the fluid.	This field contains a list of system codes that exist in the MI_INTGY_FLUID_NAME system code table. You can choose from the baseline values, populated from a drop-down list box.
Type	Character (255)	Stores the type of fluid.	This field contains a list of system codes that exist in the FLUID TYPES system code table. The fluid type is Combustible or Flammable.

Compliance Recommendation Mapping

The Compliance Recommendation Mapping family stores details related to Compliance Recommendations Mapping.

The table below provides an alphabetical list and description of the fields that exist for the Compliance Recommendation Mapping family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage
Reference	Character (255)	Specifies the reference to the system code.	This field stores the references of a mapping record which exist in the MI_MAPPING_REFERENCE system code table.
Source Family	Character (255)	Stores the ID of the family from which it is mapped.	This field contains the ID of the source family from which it is mapped.
Source Field	Character (255)	Stores the ID of the field from which it is mapped.	This field contains the ID of the source field from which it is mapped.
Target Family	Character (255)	Stores the ID of the target family from which it is mapped.	This field contains the target ID of the family to which it is mapped.
Target Field	Character (255)	Stores the ID of the target field from which it is mapped.	This field contains the target ID of the family to which it is mapped.

Policies

Policies

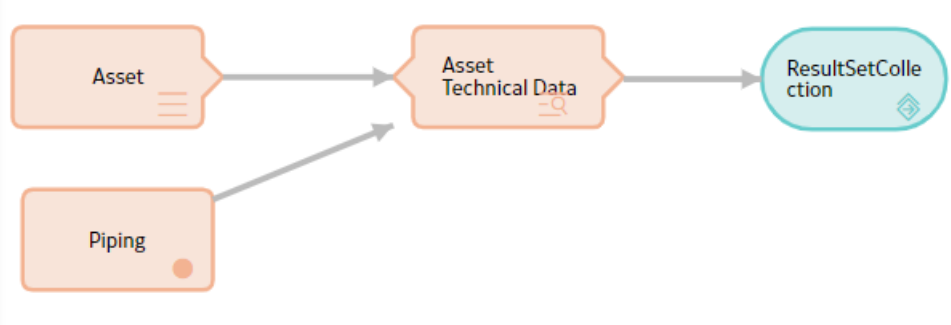
GE Digital APM provides eight Policies for the European Inspection Compliance. You can use these Policies in the Compliance Strategy Templates to generate the Compliance Recommendations in intervals specified in the Inspection Requirements for European Regulation. The following table lists the names of the Policies along with the IDs of the corresponding Compliance Strategies:

Policy Name	Description	Compliance Strategy ID
EU_PIPE_EQPT	Generates European Compliance Recommendations for Piping with respect to the Asset family.	• EU_PIPE_EV_STRAT_008 • EU_PIPE_IV_STRAT_004 • EU_PIPE_STR_STRAT_012
EU_PIPE_FLOC	Generates European Compliance Recommendations for Piping with respect to the Functional Location family.	• EU_PIPE_EV_STRAT_008 • EU_PIPE_IV_STRAT_004 • EU_PIPE_STR_STRAT_012
EU_PV_EQPT	Generates European Compliance Recommendations for Pressure Vessel with respect to the Asset family.	• EU_PV_EV_STRAT_005 • EU_PV_IV_STRAT_001 • EU_PV_STR_STRAT_009
EU_PV_FLOC	Generates European Compliance Recommendations for Pressure Vessel with respect to the Functional Location.	• EU_PV_EV_STRAT_005 • EU_PV_IV_STRAT_001 • EU_PV_STR_STRAT_009

Policy Name	Description	Compliance Strategy ID
EU_SB_EQPT	Generates European Compliance Recommendations for Steam Boiler with respect to the Asset family.	• EU_SB_EV_STRAT_007 • EU_SB_IV_STRAT_003 • EU_SB_STR_STRAT_011
EU_SB_FLOC	Generates European Compliance Recommendations for Steam Boiler with respect to the Functional Location family.	• EU_SB_EV_STRAT_007 • EU_SB_IV_STRAT_003 • EU_SB_STR_STRAT_011
EU_SPV_EQPT	Generates European Compliance Recommendations for Simple Pressure Vessel with respect to the Asset family.	• EU_SPV_EV_STRAT_006 • EU_SPV_IV_STRAT_002 • EU_SPV_STR_STRAT_010
EU_SPV_FLOC	Generates European Compliance Recommendations for Simple Pressure Vessel with respect to the Functional Location family.	• EU_SPV_EV_STRAT_006 • EU_SPV_IV_STRAT_002 • EU_SPV_STR_STRAT_010

EU_PIPE_EQPT

This Policy is used in the Compliance Strategies to generate European Compliance Recommendations for Piping with respect to the Asset family. The following image illustrates the model of the EU_PIPE_EQPT policy:



This policy uses two input nodes:

- Asset: This is an entity node which represents the Equipment family.
- Piping: This is a constant node of string `Piping`.

The node, Asset Technical Data Filter is a Query node that runs the EU_Piping_Filter_EQ query. The Asset Technical Data Filter node uses the Entity Key of the Asset represented by the Asset node and the string represented by the Piping node as prompts for the EU_Piping_Filter_EQ query. When the Policy is executed, it generates a result set that contains the following information:

- The Entity Key of the Asset Technical Data related to the Asset represented by the Asset node.
- The Family ID of Asset Technical Data related to the Asset represented by the Asset node.
- The Strategy ID used to generate the Compliance Recommendation.

The policy then uses this information in the result set to generate the Compliance Recommendations and map the data to it, using the Compliance Recommendation Mapping family.

System Code Tables

European Inspection Management System Code Tables

The following table lists the System Code Tables for European Inspection Management:

System Table ID	System Table Description	System Code ID	System Code Description	Function
MI_INTGY_FLUID_CTGY	Integrity Fluid Category	Explosive	Explosive	Fluid Data
		Flammable Category 1	Flammable Category 1	
		Flammable Category 2	Flammable Category 2	
		Flammable Category 3	Flammable Category 3	
		Pyrophoric	Pyrophoric	
		Acute Toxic Category 1	Acute Toxic Category 1	
		Acute Toxic Category 2	Acute Toxic Category 2	
		Oxidising	Oxidising	
		Corrosive	Corrosive	
		Others	Others	
NR13_FLAMMABLE	NR13_FLAMMABLE	C	Combustible	Fluid Data
		I	Flammable	
FLUID TYPES	Fluid Types	Gas	Gas	Fluid Data
		Liquid	Liquid	
MI_INTGY_ASSET_TYPE	Integrity Asset Type	Steam Boiler	Steam Boiler	Asset Technical Data
		Pressure Vessel	Pressure Vessel	
		Simple Pressure Vessel	Simple Pressure Vessel	
		Piping	Piping	
MI_CERTIFICATION	Certifications	ZÜS	ZÜS	Asset Technical Data
		bP	bP	
MI_INTGY_REGULATION	Integrity Inspection Regulations	European Inspection Regulation	European Inspection Regulation	Asset Technical Data
MI_MAPPING_REFERENCE	MI Mapping Reference	ATD - CR	Asset Technical Data - Compliance Recommendation	Compliance Recommendation Mapping
MI_INTGY_FLUID_NAME	Integrity Fluid Name			Fluid Data
MI_INTGY_FLUID_GROUP	Integrity Fluid Group	1	1	Fluid Data
		2	2	

System Table ID	System Table Description	System Code ID	System Code Description	Function
MI_CHAMBER	Chamber	AHRS	Half pipe jacket	Asset Technical Data
		AR	Jacket	
		AVRS	Full pipe jacket	
		DISK	Disk	
		FARM	Loading arm	
		GASK	Gasket	
		GAUG	Gauge	
		GSMT	Total object	
		HEAD2	Head2	
		HEAD	Head1	
		IR	Interior	
		IVRS	Interior coil	
		JAC2	Jacket 2 chamber	
		JAC3	Jacket 3 chamber	
		JACK	Jacket 1 chamber	
		NOZZ	Nozzles	
		PRDR	Hot chamber	
		RDDR	Tube chamber	
		RUDR	Shell chamber	
		SHEE	Sheet	
		SHEL	Shell	
		SLTG	Hose	
		SORA	Miscelleneous chamber	
		SRVR	Cold chamber	
		TUBE	Tube	
		TUSH	Tubesheet	

Queries

Queries

The following table lists the queries for European Inspection Management:

Name of the Query	Query Description
EU_Available_Assets_Piping_EQP	Retrieves all the piping equipment available for linking to a Compliance Strategy Template.
EU_Available_Assets_Piping_FLOC	Retrieves all the piping functional locations available for linking to a Compliance Strategy Template.
EU_Available_Assets_PressureVessel_EQP	Retrieves all the pressure vessel equipment available for linking to a Compliance Strategy Template.
EU_Available_Assets_PressureVessel_FLOC	Retrieves all the pressure vessel functional locations available for linking to a Compliance Strategy Template.
EU_Available_Assets_SPV_EQP	Retrieves all the simple pressure vessel equipment available for linking to a Compliance Strategy Template.
EU_Available_Assets_SPV_FLOC	Retrieves all the simple pressure vessel functional locations available for linking to a Compliance Strategy Template.
EU_Available_Assets_SteamBoiler_EQP	Retrieves all the steam boiler equipment available for linking to a Compliance Strategy Template.
EU_Available_Assets_SteamBoiler_FLOC	Retrieves all the steam boiler functional locations available for linking to a Compliance Strategy Template.
EU_Piping_Filter_EQ	Retrieves all the asset technical data records related to a piping equipment.
EU_Piping_Filter_FL	Retrieves all the asset technical data records related to a piping functional location.
EU_PresssureVessel_Filter_EQ	Retrieves all the asset technical data records related to a pressure vessel equipment.
EU_PresssureVessel_Filter_FL	Retrieves all the asset technical data records related to a pressure vessel functional location.
EU_SimplePressureVessel_Filter_EQ	Retrieves all the asset technical data records related to a simple pressure vessel equipment.
EU_SimplePressureVessel_Filter_FL	Retrieves all the asset technical data records related to a simple pressure vessel functional location.
EU_SteamBoiler_Filter_EQ	Retrieves all the asset technical data records related to a steam boiler equipment.
EU_SteamBoiler_Filter_FL	Retrieves all the asset technical data records related to a steam boiler functional location.