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1 Document Overview

The purpose of this document is to provide best guidance to Classification administrators and users. This document includes pointers and additional information to use Teamcenter classification in its maturity model. It also extends to the existing documentation in logical order and adds technical information for achieving the different phases being covered here.

The scope of this document is to provide an overview of the application and help users get started with installation, deployment, sample data creation and using all the relevant utilities. It also points to the official online documentation in order to avoid duplication.

This document will be updated with each release of Active Workspace and will be enriched by including new topics based on the feedbacks and frequently asked questions (FAQ’s) from various forums. We hope this document will provide you help and guidance with Classification.

Disclaimer:
Don’t try these commands or utilities in a production environment without knowing their implications. If you are using the utilities and commands for the first time, it is highly advisable to first try in sandbox or testing environment, gain the know-how, acquire the confidence, and then proceed with usage on stable platform.
2 Overview of Teamcenter Classification

Classification is a process where you define objects by providing attributes to make an object easy to find for reuse. During the classification process, you enter attributes that help in the searching of the object, such as measurements, material, facets, and unit of measure. The more attributes you provide, the easier the object is found.

Libraries are used to organize classified objects with similar characteristics or application in a hierarchy. For instance, if you were looking for a bolt, you would start by searching for the bolt library. Once you find the bolt library, then you can perform additional searches, use filters, or browse through the hierarchy to find the object that meets your criteria.

Value path from Classification to Libraries is progressively shown in the order in the graphics.
Value path from Classification to Libraries
Extend

Step 2: Extend to leverage new presentation with Next Generation Classification

User → Active Workspace

Classification → Mapping → Next Generation Classification

Teamcenter

Value path from Classification to Libraries
Transform

Step 3: Transform your business with the full potential of libraries

User → Active Workspace

Classification → Mapping → Next Generation Classification

Library

Teamcenter

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2.1 Snapshot of sample Classification data

Figure 1: Snapshot of Classification data extended from base Classification to Presentation layer to Libraries
3 Classification

Using a classification system helps you reduce costs by allowing you to reuse existing parts. This also helps in consolidating or eliminating duplicate or outdated parts. By classifying your company’s data, such as, standard parts, technology data and manufacturing equipment, you save time because components are easier to find and retrieve. Classification is used to create and maintain a hierarchical classification structure based on the attribute values of your workspace objects that allow unique identification of individual objects. Using the Classification application, you can create a hierarchy of groups and classes to organize the groups of attributes that reflect your classification system.

3.1 Teamcenter releases that support them
Classification is supported in all Teamcenter releases as an integral part of the Foundation feature.

3.2 Installation with TEM selections
Classification will be deployed as an integral part of the Foundation feature

3.3 Supported scenarios in Active Workspace

3.3.1 Search in Active Workspace
Classification data has been exposed in Active Workspace beginning with AW 2.1, as part of following use cases:

- indexing classified objects will include the associated Classification data
- search by Classification Class ID or Name
- search by Classification Attribute values
- filter by Classification class or attribute values
- indexing multiple classification (new from AW 3.2)
- summary stylesheets for classified objects can be configured to display the associated Classification data (Class path and attributes)
- compare classified objects using their Classification attributes (new from AW 3.1.1)
3.3.1.1 Configuring Classification data for Indexing

Classification Type (Class) and Attributes will have to be configured for indexing.

To configure Classes for indexing: Classification Classes are configured for indexing, by addition of a “Search Index” type of View to these Classes.

There are two ways to add “Search Index” View:

1. Manually adding a View individually under the desired Class(es) –
   a. To enable this functionality in RAC, users must set the preference
      `ICS_searchindex_view_visible = TRUE`
   b. “Create View” operation will now list the “Search Index” type of View for creation

   **Note:** At this point –
   - ✓ The specified Class(es) are configured for Indexing and Filtering.
   - ✗ Class Attributes for all these Class(es) are not yet configured for Indexing or Filtering
2. Mass setup for specified Class(es) –
   a. smlutility now exposes a couple of switches to create (“-create_indexing_views”) and delete (“-delete_indexing_views”) Search Index views. For additional information, please refer to LMD section

   **Note:** At this point –

   ✓ The specified Class(es) are configured for Indexing and Filtering
   ✓ Class Attributes for all these classes are also configured for Indexing and Filtering, without requiring any additional steps.

**To configure Classes for Filtering:** By configuring Classes for Indexing, will automatically allow Filtering using Class values. There is no separate control over Filtering of Class values.

**To configure Attributes for Indexing:** To configure Indexing, Class Attributes must be added to the underlying “Search Index” view.

   **Note:** If new Attributes are added for Indexing, SOLR schema will need to be regenerated as well as SOLR will need to be re-indexed so these Attribute values are searchable

**To configure Attributes for Filtering:** To configure Filtering, View Attributes from the “Search Index” should have their “Filter” property set to TRUE.

   **Note:** If new Attributes are added for Filtering, SOLR schema will need to be regenerated as well as SOLR will need to be re-indexed so these Attribute values are searchable
3.3.2 Compare objects using their Classification properties
Starting with release AW 3.2, users can compare objects using their Classification properties, in addition to their properties.

Figure 2: Classification properties rendered when comparing objects

3.3.2.1 Configure addition of Classification properties to “Compare” view
This configuration is bundled with the Classification Server feature for Active Workspace for the default “Search Results” location.

For other locations, refer to TBD for configuration instructions. Users should include following configuration:

```xml
<ColumnDef objectType="WorkspaceObject" propertyName="ics_subclass_name" width="250"/>
```

3.3.2.2 Control display of Classification properties within the “Compare” view
Once configured, Classification properties will be shown for the selected objects if at least two of the selected objects are classified.

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For controlling which Classification properties are displayed, you can use the existing **Arrange** panel to choose from following options, as shown:

**Figure 3: Classification properties configuration within Arrange panel**

---

### 3.3.3 Authoring in Active Workspace

Starting with Active Workspace 3.1, Authoring capabilities to classify objects have been exposed as a “pre-production” feature.

This can be enabled by setting a preference **ICS_AW_enable_classification = TRUE**

Current capabilities for classifying objects are exposed for following:

- All Teamcenter Workspace object types as listed in the existing preference “ICS_classifiable_types”
- Single classification for any given Workspace object (i.e. users cannot use AW to multiply classify objects; this has to be performed in other clients)
Figure 4: Browse Classification hierarchy for a Class to classify into
Figure 5: Search for Class to classify into
3.3.4 TEM deployment for Active Workspace

Starting with Active Workspace 3.2, Classification data can be configured directly via TEM deployed features.

For this purpose Classification features is exposed in TEM under the following feature branches:

- Active workspace > Server > Reuse and Standardization
- Active workspace > Client > Reuse and Standardization

For comparison and deployment instructions, refer to Teamcenter releases that support them

Specifications Management is supported from Teamcenter 11.2 Release onwards

3.4 Installation with TEM selections

Specifications Management is included and deployed as part of the Library Management feature.

For installation instructions of Library Management feature, refer section Installation with TEM selections.
3.5 Supported scenarios in Active Workspace

*Specifications Management* is currently exposed via TC Programmatic Interface in RAC and other custom applications.

Active Workspace does not currently expose the *Specifications Management* functionality.

Classification and Library Management Apps in Active Workspace section below.
4 Classification Presentation Layer (a.k.a. Next Generation Classification)

Based on the class hierarchy, you can additionally create a presentation hierarchy that provides more flexibility than the storage hierarchy. The presentation hierarchy serves as a platform for implementing new library management capabilities. It provides the ability to deal with legacy Classification features such as creating a class hierarchy, adding classification objects to a classification hierarchy, classifying workspace objects, searching for classification objects, and modifying and deleting objects from a classification hierarchy.

<table>
<thead>
<tr>
<th>Property values that are stored in a storage hierarchy...</th>
<th>... are displayed in a presentation hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class雍ClassBase</td>
<td>Standard parts</td>
</tr>
<tr>
<td>Cus3MechParts</td>
<td>Mechanical parts</td>
</tr>
<tr>
<td>Cus3SpecialParts</td>
<td>Standard parts</td>
</tr>
<tr>
<td>Cus3MfgParts</td>
<td>Standard metric bolts</td>
</tr>
<tr>
<td>Cus3ProdParts</td>
<td>Std0M6Bolt</td>
</tr>
<tr>
<td>Cus3NormParts</td>
<td>Std0Bolt</td>
</tr>
<tr>
<td>Cus3EeiParts</td>
<td>Std0HexBolt</td>
</tr>
<tr>
<td>Cus3Capacitor</td>
<td>Std0RndBolt</td>
</tr>
<tr>
<td>Cus3Resistor</td>
<td>Std0WdBolts</td>
</tr>
<tr>
<td>Std0StdParts</td>
<td>Std0Nut</td>
</tr>
<tr>
<td>Std0Bolt</td>
<td>Std0Washer</td>
</tr>
<tr>
<td>Std0M6Bolt</td>
<td>Std0Washers</td>
</tr>
<tr>
<td>Std0HexBolt</td>
<td>Std0Washers</td>
</tr>
<tr>
<td>Std0RndBolt</td>
<td>Std0Washers</td>
</tr>
<tr>
<td>Std0WdBolts</td>
<td>Std0Washers</td>
</tr>
<tr>
<td>Std0Nut</td>
<td>Std0Washers</td>
</tr>
</tbody>
</table>

4.1 Teamcenter releases that support them

Classification Presentation layer is supported from Teamcenter 11.2 Release onwards
4.2 Installation with TEM selections
Classification Presentation layer is deployed as part of the Library Management feature.

For installation instructions of Library Management feature, refer section **Installation with TEM selections** below.

4.3 Data extension of Classification data into Classification Presentation Layer

4.3.1 Extending existing Classification data into the Presentation layer (command examples)
Classification data can be extending into the Presentation layer by using following command line utility:

```
clsutility –cid=<group_or_class_id>
```

This will extend the Classification sub-hierarchy under the specified Group or Class.

a. For Classification Groups, this will create Presentation layer Group Nodes with the same ID as the associated Groups
b. For Classification Classes, this will create Presentation layer Master Nodes with “storage_class_type” property same as their associated Classes

Additional optional switches:

a. For including ICOs in this sub-hierarchy, users can specify the **–include_instances** switch
b. For excluding the sub-hierarchy, and only extend the specified Group or Class, users can specify the **–exclude_children** switch

4.3.2 Automatic synchronization between Classification data and the corresponding Presentation layer
Classification Presentation Layer supports **automatic synchronization** with the underlying Classification data (Class hierarchy and ICOs) by shadowing certain operations.

**Table 1: Mapping between Classification Class and Node hierarchy object types**

<table>
<thead>
<tr>
<th>Object types from Classification (Class hierarchy)</th>
<th>Corresponding Object types from the Presentation layer (Node hierarchy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Group Node</td>
</tr>
<tr>
<td>Abstract class</td>
<td>Master Node</td>
</tr>
<tr>
<td>Storage class</td>
<td>Master Node</td>
</tr>
<tr>
<td>Classification Object (ICO)</td>
<td>Classification Element</td>
</tr>
</tbody>
</table>
### Table 2: Operations mapping between Classification Class and Node hierarchies

<table>
<thead>
<tr>
<th>Operation on Class hierarchy</th>
<th>Operation required on Node hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add / Delete Group</td>
<td>Add / Delete Group Node</td>
</tr>
<tr>
<td>Add / Delete Class</td>
<td>Add / Delete Master Node</td>
</tr>
<tr>
<td>Add / Delete ICO</td>
<td>Add / Delete Classification Element</td>
</tr>
</tbody>
</table>

There are two conditions that need to be met for automatic synchronization to function:

- a. Master switch needs to be turned ON, by setting preference `CLS_auto_sync_node_hierarchy = TRUE`
- b. The source object (Classification Group / Class / ICO) that will trigger the Auto sync, will need to have a “link” established:
  - a. A Group Node has the same ID as the Classification Group
  - b. A Master Node has the “storage_class_type” property pointing to the associated Classification Class
  - c. A Classification Element will refer to the associated ICO

Once these conditions are met, then the changes to each of the “source” objects will be reflected on the corresponding objects in the Presentation layer

### 4.4 Co-existence of Classification data with the Presentation layer by establishing linkages (recommendations)

Classification Class (storage) hierarchy and the Node (presentation) hierarchy can be kept in-sync by either of the following methods:

- a. Manual execution of ‘clsustility’ [see *Extending existing Classification data into the Presentation layer (command examples)*]
- b. Enabling Automatic synchronization [see *Automatic synchronization between Classification data and the corresponding Presentation layer*]

### 4.5 Supported scenarios in Active Workspace

#### 4.5.1 Search and Browse Classification hierarchy using Visual Navigation Cards (VNC)

Visual Navigation cards allows users to configure displaying of larger images while rendering the selected level in the Classification node hierarchy.
Figure 7: Visual Navigation Cards (VNC) shown for Classification filter to being “Search and Browse” navigation

Figure 8: Visual Navigation Cards (VNC) shown for Classification filter after drilling down the hierarchy
4.5.1.1 Configuration options

Administrators can configure the properties displayed on the VNC using standard “configuration mechanism used for Tiles”.

To achieve this, administrators will use following Teamcenter object types to configure the Classification hierarchy tiles:

- `Cls0HierarchyNode`
5 Libraries Management

A library holds classification data that is filtered to suit a particular business need. Libraries present only a subset of classified data, hiding irrelevant or sensitive data and simplifying access to the data.

Conceptually, you can consider a library as a layer on top of the presentation hierarchy exposing only data relevant to a particular domain or activity. You can expose the same data in multiple libraries and each library can contain multiple hierarchies. A hierarchy is composed of library nodes. A classifying library node references a node in the presentation hierarchy which, in turn, references a storage class. Additionally, you can store non-classified data in separate library nodes.

For snapshot of the sample data please refer to the Sample Data Creation section below,

5.1 Teamcenter releases that support them

Teamcenter Library Management is available from Teamcenter 11.x onwards

5.2 Installation with TEM selections

A new category, Reuse and Standardization, is added to the Teamcenter installation menu. Under this category, you find the option to install Library Management.

Library Management installs a data model and functionality that supports creating and configuring multiple libraries to meet the reuse needs of business processes and targeted sets of users. Library Management leverages Classification and includes a rules-based search capability for enforcing technical constraints in the context of a design process (known as Specifications, which is a distinct and separate feature from Specification Manager used to support the Consumer Packaged Goods industry).
The lbrmanager command line utility is also included with this feature.

**Note** Deploying the Library Management feature automatically deploys the following prerequisite features:

- Advanced PLM Services for Applications
- Advanced PLM Services for Partitioning
- Advanced PLM Services for Realization
- Next Generation Classification foundation

Library Management installation does not affect data dictionaries from a functionality or content perspective. Data dictionaries continue to be supported as an independent capability in Teamcenter.

### 5.3 Administering Libraries

To administrator Libraries, currently Administrators have to use a command line interface.

#### 5.3.1 Create/Display/Publish/Retract Library objects

##### 5.3.1.1 Create a Standalone Library

```bash
lbrmanager -u=<userId> -p=<password> -g=<group> -create -library -id=MechanicalPartsLibrary -name=MechanicalPartsLibrary -descr="Mechanical Parts Library" -type=Domain -disciplines="Mechanical,Electrical"
```

For more about above command:

```bash
lbrmanager -u=<userId> -p=<password> -g=<group> -create -library -h
```

For displaying a Library

```bash
lbrmanager -u=<userId> -p=<password> -g=<group> -show -libraries -id=MechanicalPartsLibrary
```
5.3.1.2  Create a Hierarchy
lbrmanager -u=<userId> -p=<password> -g=<group> -create -hierarchy -id=FixturesHierarchy -name=FixturesHierarchy -descr="Fixtures Hierarchy" -libraryId=MechanicalPartsLibrary

For more about above command:
lbrmanager -u=<userId> -p=<password> -g=<group> -create -hierarchy -h

For displaying a Hierarchy
lbrmanager -u=<userId> -p=<password> -g=<group> -show -hierarchies -libraryId=MechanicalPartsLibrary -id=FixturesHierarchy

5.3.1.3  Create a Library Node
lbrmanager -u=<userId> -p=<password> -g=<group> -create -node -id=Assemblies -name=Assemblies -descr="All Assemblies" -libraryId=MechanicalPartsLibrary -hierarchyId=FixturesHierarchy

For more about above command:
lbrmanager -u=<userId> -p=<password> -g=<group> -create -node -h

For displaying a Node
lbrmanager -u=<userId> -p=<password> -g=<group> -show -nodes -libraryId=MechanicalPartsLibrary -id=Assemblies

5.3.1.4  Create a child Library Node
lbrmanager -u=<userId> -p=<password> -g=<group> -create -node -id=BasePlate -name=BasePlate -descr="Base Plate" -libraryId=MechanicalPartsLibrary -hierarchyId=FixturesHierarchy -parentNodeId=Assemblies

For more about above command:
lbrmanager -u=<userId> -p=<password> -g=<group> -create -node -h

For displaying a Node
lbrmanager -u=<userId> -p=<password> -g=<group> -show -nodes -libraryId=MechanicalPartsLibrary -id=BasePlate
5.3.1.5  Display the above created Library

```
lbrmanager -u=<userId> -p=<Password> -g=<group> -show -libraries -id=MechanicalPartsLibrary
```

[MechanicalPartsLibrary] MechanicalPartsLibrary---------------Library created in command 1
  |-[FixturesHierarchy] FixturesHierarchy-----------------------Hierarchy created in command 2
  |-[Assemblies] Assemblies-----------------------------------Node created in command 3
  |-[BasePlate] BasePlate------------------------------------Child Node created in command 4

5.3.1.6  Publish an Item to create a Library Element

Prerequisite Data:

- 01.01 Create two Item [ name, id ] as BasePlateItem1, BasePlateItem2
- 01.02 Create a text file as BasePlate.txt
- 01.03 Content of BasePlate.txt
  
  -type=Item -mfkPropNames=item_id -item_id=BasePlateItem1
  -elemPropNames=lbr0ElementId -lbr0ElementId=BasePlateLE01
  -type=Item -mfkPropNames=item_id -item_id=BasePlateItem2
  -elemPropNames=lbr0ElementId -lbr0ElementId=BasePlateLE02

```
lbrmanager -u=<userId> -p=<password> -g=<group> -publish -objectsFromFile -libraryId=MechanicalPartsLibrary -nodeId=BasePlate -inputFile=BasePlate.txt
```

For more about above command:

```
lbrmanager -u=<userId> -p=<password> -g=<group> -publish -h
```

For displaying a Library with Library Element:

```
lbrmanager -u=<userId> -p=<password> -g=<group> -show -nodes -libraryId=MechanicalPartsLibrary -id=BasePlate
```

[MechanicalPartsLibrary] MechanicalPartsLibrary---------------Library created in command 1
  |-[FixturesHierarchy] FixturesHierarchy-----------------------Hierarchy created in command 2
  |-[Assemblies] Assemblies-----------------------------------Node created in command 3
  |-[BasePlate] BasePlate------------------------------------Child Node created in command 4
    |-[BasePlateLE01] BasePlateItem1---------------------------Element created in command 6
    |-[BasePlateLE02] BasePlateItem2---------------------------Element created in command 6

5.3.1.7  Retract an Item to remove a Library Element

```
lbrmanager -u=<userId> -p=<Password> -g=Engineering -retract -byElementkey -libraryId=MechanicalPartsLibrary -nodeId=BasePlate -elementIds=BasePlateLE01
```

For more about above command:

```
lbrmanager -u=<userId> -p=<password> -g=<group> -retract -h
```
5.3.1.8 Instantiate a Library Element into a Collaborative Design

Prerequisite Data:

01.04 Create Collaborative design, whose ID is DesignID01

```
1brmanager -u=<userId> -p=<password> -g=<group> -instantiate -test -designId=DesignID01-libraryId=MechanicalPartsLibrary -elementId=BasePlateLE02
```

For more about above command:

```
1brmanager -u=<userId> -p=<password> -g=<group> -instantiate -h
```

5.3.2 Setup membership rules

```
1brmanager -u=<userId> -p=<password> -g=<group> -create -memberRule -name=TestRule -nodeId=BasePlate -libraryId=MechanicalPartsLibrary -propName=sml01001 -sml01001="steel"
```

For more about above command:

```
1brmanager -u=<userId> -p=<password> -g=<group> -create -memberRule -h
```

5.3.3 Evaluate membership rules

```
1brmanager -u=<userId> -p=<password> -g=<group> -evaluate -memberRules -libraryId=MechanicalPartsLibrary
```

For more about above command:

```
1brmanager -u=<userId> -p=<password> -g=<group> -evaluate -memberRules -h
```

5.4 Supported scenarios in Active Workspace

In addition to Teamcenter components, configuring Library Management on Active Workspace requires deploy of following additional feature templates using TEM –

a. Deploy Indexing and Configuration features on Server

Select following from the **Active Workspace > Server Extensions** branch within the Feature tree

```
  > Reuse and Standardization
     - Classification Server
     - Next Generation Classification Server
     - Library Management Server
```

This will ensure correct configuration of all the Indexing parameters for Classification and Library Management artifacts.
Additionally, all the necessary preferences and other configuration for display are also configured.

b. **Deploy Client features**

Select following from the **Active Workspace > Client** branch within the Feature tree

![Deployment feature tree]

This will ensure all the Client functionality relative to Classification and Library Management features is contributed to the Client deployment

Deploying **Library Management Server** feature will configure –

- Indexing of Libraries
- Indexing of Library Elements, which will include –
  - Element ID, Name
  - Associated Classification Attributes
  - Associated Classification Node hierarchy
- Tile configuration for following object types –
  - Library
  - Hierarchy
  - Hierarchy Nodes
- Style-sheets for following object types –
  - Library Element with **Classification Properties** and the underlying **Library Object** section
  - Item Revisions will also include Library Element section

For detailed comparison of indexing options, refer to the **Deployment options** section.
5.4.1 Search and Browse Library contents using Visual Navigation Cards (VNCs)

Visual Navigation cards allows users to configure displaying of larger images while rendering the selected level in the Classification node hierarchy.

Figure 9: Tools Library "location" shown in "Search and Browse" mode

5.4.1.1 Configuration options

Administrators can configure the properties displayed on the VNC using standard “configuration mechanism used for Tiles”.

To achieve this, administrators will use following Teamcenter object types to configure the Classification hierarchy tiles:

- **Lbr0Library** (top level of a Library structure)
- **Lbr0Hierarchy** (2nd level of a Library structure)
- **Lbr0HierarchyNode** (remaining levels of a Library structure)

5.5 Extend the same example hierarchy from Next Generation Classification
6 Specifications Management
Specifications are design or component selection guidelines set up by expert users for a particular domain or discipline. Using specifications provides a rule-based configuration that guides you in finding only those components suitable to a particular design situation, for example, \textit{Find a pump suitable for a high pressure oil pipe and NPS=4}. The specifications are typically applied while searching the library using specification information as additional input. Specifications are created in the context of a library and can be associated to one or more libraries. They are revisable.

6.1 Teamcenter releases that support them
\textbf{Specifications Management} is supported from Teamcenter 11.2 Release onwards

6.2 Installation with TEM selections
\textbf{Specifications Management} is included and deployed as part of the \textbf{Library Management} feature.

For installation instructions of Library Management feature, refer section \textit{Installation with TEM selections}.

6.3 Supported scenarios in Active Workspace
\textbf{Specifications Management} is currently exposed via TC Programmatic Interface in RAC and other custom applications.

Active Workspace does not currently expose the \textbf{Specifications Management} functionality.
7 Classification and Library Management Apps in Active Workspace

7.1 Deployment options
Administrators will be able to choose from following server features for Indexing and configuration of Classification and Library Management applications:

Table 3: Functional comparison for Server Features

<table>
<thead>
<tr>
<th>Functions</th>
<th>Classification</th>
<th>Next Generation Classification (Presentation layer)</th>
<th>Library Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index Classification Attributes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Index Classification Classes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Index classifying objects</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Hierarchical filtering of Classes</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Index Catalog data</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Index Library Elements</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Visual Navigation Cards (VNC) for Classes</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Visual Navigation Cards (VNC) for Library Nodes</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Compatible Client Feature (see table below)</strong></td>
<td><strong>Classification client</strong></td>
<td><strong>Library Management client</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4: Minimum Release matrix for various Functions

<table>
<thead>
<tr>
<th>Functions</th>
<th>Server Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Classification</td>
</tr>
<tr>
<td>Index Classification Attributes</td>
<td>AW 2.1</td>
</tr>
<tr>
<td>Index Classification Classes</td>
<td>AW 2.1</td>
</tr>
<tr>
<td>Index classifying objects</td>
<td>AW 2.1</td>
</tr>
<tr>
<td>Hierarchical filtering of Classes</td>
<td>AW 3.1</td>
</tr>
<tr>
<td>Index Catalog data</td>
<td></td>
</tr>
<tr>
<td>Index Library Elements</td>
<td></td>
</tr>
<tr>
<td>Visual Navigation Cards (VNC) for Classes</td>
<td></td>
</tr>
<tr>
<td>Visual Navigation Cards (VNC) for Library Nodes</td>
<td></td>
</tr>
</tbody>
</table>

Following client side features will expose the above server components –

### Table 5: Functional comparison for Client Features

<table>
<thead>
<tr>
<th>Functions</th>
<th>Client Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Classification</td>
</tr>
<tr>
<td>Classification Authoring</td>
<td>✓</td>
</tr>
<tr>
<td>Browse Classification Class hierarchy</td>
<td>✓</td>
</tr>
<tr>
<td>using Visual Navigation cards</td>
<td></td>
</tr>
<tr>
<td>Browse Library hierarchy using Visual Navigation cards</td>
<td></td>
</tr>
<tr>
<td>Dedicated “location” for Search and Browse</td>
<td></td>
</tr>
</tbody>
</table>
7.2 Deploying via TEM

Following new features are introduced in the **Active Workspace > Server Extensions** feature group:

![Server Extensions Features](image1)

Following new features are introduced in the **Active Workspace > Client Extensions** feature group:

![Client Extensions Features](image2)

---

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8 Common use case examples:

8.1 Indexing Classification Data for Active Workspace search
Please refer to section *Search in Active Workspace* above.

8.2 Extending Classification data → Classification Presentation layer → Library Management
Please follow the value path depicted in the [Overview section](#) to gradually and progressive transition into increasing capability of your classified data.

The below diagram depicts the Teamcenter Classification maturity model for the customer thereby which customer gets a streamlined user experience.

8.3 Indexing Presentation layer data for Active Workspace search and browse
Please refer to section *Search and Browse Classification hierarchy using Visual Navigation Cards (VNC)* above.

8.4 Indexing Library data for Active Workspace search and browse
Please refer to section *Search and Browse Library contents using Visual Navigation Cards (VNCs)* above.

8.5 Upgrade considerations
Classification and Library Management Applications continue to add functionality that can be leveraged by progressively populating additional information into the SOLR database.

After upgrading Teamcenter unified or Active Workspace releases, users will continue to get see the pre-upgrade behavior without having to upgrade the contents of their SOLR database.

**However, to pick up newer functionality, users will have to upgrade the contents of SOLR. To achieve this, following sequence must be followed to regenerate the SOLR schema and then upgrade it’s**

8.5.1 Pre-upgrade considerations
Following steps must be performed manually before upgrade, so some of the Post-Upgrade steps are not required to be performed again, as they will be included in the Upgrade process:

- Clear SOLR database (to get rid of old data)
- Remove .XSLT and .XSD files from `%TcFTSIndexer_HOME%\working` directory

---

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8.5.2 Post-upgrade considerations

Following steps must be performed manually to upgrade the SOLR contents

- Clear SOLR database (to get rid of old data)
- Remove .XSLT and .XSD files from %TcFTSIndexer_HOME%\working directory
- Run bmide_modeltool to generate new schema (xsd,xslt etc.)
  - **Note**: If preceding steps were performed as part of Pre-upgrade preparations, then this step can be ignored, as TEM will handle this as part of Upgrade
- Re-index data into SOLR
9  Sample Data Creation

9.1  Using MRL library
For walking through a Sample Data example, we will use the “Manufacturing Resource Library” that is kitted as part of **advanced_installations** folder.

During this process, we will import the MRL hierarchy first, which will then act as the “base Classification data”.

This will be then extended to the Presentation layer before populating into multiple Libraries.

These steps will be executed using command line interface.

*Figure 10: Snapshot of Classification data extended from base Classification to Presentation layer to Libraries.*

9.1.1  Importing MRL data from the CD
Refer to the installing and configuring the Manufacturing Resource Library section in the Teamcenter 11.2.3 documentation for instructions on importing the MRL data.

*NOTE: Access to the above link requires a WebKey Username and Password.*

9.1.2  Extending MRL hierarchy into Presentation layer
As detailed in section, the entire MRL hierarchy along with their ICOs can be extended into the Presentation layer by the following command:

```plaintext
clsutility -import -hierarchy -cid=MRM -include_instances
```

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9.1.3 Creating and populating Libraries from this MRL hierarchy

Resource Management hierarchy will be extended into multiple Libraries as such:

- Resources Library
  - Factory Resources hierarchy
  - Fixtures hierarchy
  - New Resources hierarchy
  - Machining Data
- Tools Library
  - Tools Hierarchy

To do this, these **Library** and **Hierarchy** objects will need to be created manually using command line utility:

- To create a Library, refer section **Create a Standalone Library**
- To create a Hierarchy, refer section **Create a Hierarchy**

Then the entire “Node hierarchy” will need to be extended / imported from Classification Presentation layer using command line utility.

There are two ways of doing this –

1. **Import Node hierarchy without Elements, with Membership Rules**
   a. Import the Node hierarchy
      Example:
      ```
      lbrmanager -create -nodesFromClassification -
      libraryId="ResourcesLib" -hierarchyId="FactoryRes" -
      clsNodeId=FRL
      ```
   b. **Setup Membership rules**
      For details, please refer the **Setup membership rules** section
   c. **Evaluate Membership rules**
      For details, please refer the **Evaluate membership rules** section

2. **Import Node hierarchy with Elements, without Membership Rules**
   Example:
   ```
   lbrmanager -create -nodesFromClassification -
   libraryId="ResourcesLib" -hierarchyId="FactoryRes" -
   clsNodeId=FRL -includeInstances
   ```
# 10 Troubleshooting / Issues Catalogue

**WARNING:** The links in the following table point to Active Workspace html documentation on the Doc Center which currently cannot be accessed without a WebKey Username and Password.

Information on Active Workspace troubleshooting: [Configuration and Extensibility Troubleshooting](#)

For additional details, see below:

<table>
<thead>
<tr>
<th>Symptom / Problem</th>
<th>Solution(s) - Click on the Links to view details</th>
</tr>
</thead>
</table>
| **Cannot search** by Classification properties | Follow steps to [Configure Classification Search (optional)](#)  
*For steps after configuration changes, please refer to [Remerge Solr and Teamcenter schemas and reindex](#)* |
| Classification search **works**, but no facets (or Unassigned facets) | Follow steps 2 and 3 in section [Configure Classification Search (optional)](#)  
*For steps after configuration changes, please refer to [Remerge Solr and Teamcenter schemas and reindex](#)* |
| **Cannot search** / filter Library Elements using Classification properties | 1. Follow steps to [Configure Classification Search (optional)](#)  
2. Check configuration of Library Elements (Follow same as Step 3 in section [Configure Classification Search (optional)](#))  
*For steps after configuration changes, please refer to [Remerge Solr and Teamcenter schemas and reindex](#)* |
| **Incorrect Filters** list for Library Elements | 1. Follow steps 2 and 3 in section [Configure Classification Search (optional)](#)  
2. Now "Open up" Dynamic Prioritization preferences to enable showing all the configured Filters to allow further investigate. So set values to:  
   a. AWC_dynamicPriority_hideSingleValueFacetCategories = TRUE  
   b. AWC_dynamicPriority_hideUnassignedValueFacetCategories = TRUE  
*For steps after configuration changes, please refer to [Remerge Solr and Teamcenter schemas and reindex](#)* |
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