windchill® rv&s

Microsoft Excel Integration

13.1.0.0

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Introduction

The Windchill RV&S to Microsoft® Excel® integration combines the powerful spreadsheet features of Microsoft Excel with the flexible workflow of PTC Windchill RV&S. Users can work with Windchill RV&S item data in either product and keep the information in sync. This integration can be used for any situation where Excel's functionality is useful. For example, gathering requirements or managing features for projects.

> **Note**
>
> The Windchill RV&S integration with Excel uses XML functionality. For the list of supported versions, go to the **Browse Documentation** section of the PTC Support Portal.

The integration also allows the import and export of requirement documents between Windchill RV&S and Excel. Unstructured documents can be created in Excel and structure added using the Windchill RV&S Document view. The integration works with both embedded and attached documents in Windchill RV&S. The integration ZIP file (`Windchill_RVS-`*version number*`_ MSExcel-Integration-x64.zip`) is available for download from the **Download Software** section of the PTC Support Portal.

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Overview

The Microsoft Excel integration uses the Excel data list (or table) to store Windchill RV&S data. The integration supports users who need to use the features of Excel to manage and process data stored within Windchill RV&S. The integration allows you to use Windchill RV&S data within Excel to produce requirement documents, reports, and charts, and to perform data analysis for project planning. Users can also import Windchill RV&S data into an Excel sheet and publish data in an existing Excel sheet to Windchill RV&S. An Excel data list comprises a series of rows containing related data. The integration works through an add-in component that provides access to functionality through the Microsoft Excel **Data** menu. The integration supports:

- Creation of new Windchill RV&S items from data entered in Microsoft Excel

  You can use the integration to create an empty data list in Excel, and manually enter new data as required. You can then publish this data to Windchill RV&S, which automatically creates Windchill RV&S items based on the existing rows in the data list.

- Creation of new data in Microsoft Excel from existing Windchill RV&S items

  You can import Windchill RV&S items based on an Windchill RV&S query or, in the case of the requirement document type, by document (item) ID. This creates a new data list in Excel and populates it with Windchill RV&S data. For each item found in the Windchill RV&S query, the integration creates a row in the Excel data list.

- Data synchronization

  Once an item is created, you can track and monitor state changes for that item by resynchronizing the data list in Excel. This both publish and retrieves updates for all the rows in the Excel data list.

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Before You Start in Microsoft Excel

This section provides details on basic system requirements, integration components, assumptions, and key considerations for the Microsoft Excel integration as follows:

- Windchill RV&S Server Requirements on page 7

- Client Requirements in Microsoft Excel on page 7

- Integration Components on page 7

- Assumptions about Microsoft Excel on page 8

- Key Considerations about Microsoft Excel on page 8

Windchill RV&S Server Requirements

- General requirements for the Windchill RV&S Server and database are as described in the *Windchill RV&S Help Center*.
- Windchill RV&S 13.1.

Client Requirements in Microsoft Excel

- Microsoft Windows (For the list of supported versions, see the PTC Release Advisor.
- Microsoft .NET Framework 4.7.2 runtime or higher
- For an automated enterprise-wide installation by an administration, ensure that you also have the following:
  - Windows Installer 2.0
  - Shared Add-in Support Update for Microsoft .NET Framework 4.7.2 runtime or higher.
- Microsoft Visual Studio 2010 Tools for Office runtime.
- Microsoft Excel (For the list of supported versions, see to the PTC Release Advisor.
- Administrators require the PTC Windchill RV&S administration client for configuring ACL permissions and setting up Windchill RV&S workflows.
- If you are connecting to the Windchill RV&S Server through the Windchill RV&S client,Windchill RV&S 13.1 must be installed on the same machine as the Excel integration. If you are connecting to the Windchill RV&S server through the Windchill RV&S API within the Excel integration, you do not require the Windchill RV&S client.

  For more information, see .

Integration Components

The Microsoft Excel integration includes the following components:

- `Windchill_RVS-`*version number*`_MSExcel-Integration-x64.zip`—the Windchill RV&S to Microsoft Excel Integration install (with Setup Wizard) is available for download from the **Download Software** section of the PTC Support portal.
- The XML mapping templates that configure the integration, including:

      MS_Excel_Defects.xml.sample
      MS_Excel_Requirements_Document.xml.sample

```
MS_Excel_Test_Suite.xml.sample
MS_Excel_RM2007_Requirement_Document.xml.sample
```
The sample XML mapping templates are contained in `Windchill_RVS-`
`version number-Server- Templates.zip`, available for download
from the **Download Software** section of the PTC Support portal.

⚠ **Caution**

If you modified the XML mapping template files, ensure that you create
backup copies of your modified templates before extracting any new template
files.

Assumptions about Microsoft Excel

•   You know how to use Microsoft Excel. For more information about using the
    product, refer to the appropriate documentation from the product vendor.

•   If you are modifying a mapping template, you understand and can use XML.
    If you need to modify a template and do not understand XML, contact PTC-
    Windchill RV&S Support.

Key Considerations about Microsoft Excel

When using an English version of Excel on a machine with regional settings
configured for a non-English language, an error may occur when running the
integration. This is the error you would receive: `Old Format or Invalid`
`Type Library`. For more information on this error and how to resolve it,
browse to the following Microsoft Support Web page.

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Setting the Windchill RV&S Server Connection Policy

Before users can work with the Microsoft Excel integration, the administration must configure the Windchill RV&S server to allow remote API connections to the server. This enables integration users to connect to and run commands on the server. The default connection policy allows only a specific set of IP addresses to connect. The required setting allows all clients to connect. The connection policy is specified in the following file on the Windchill RV&S server:

installdir\config\client\IntegrityClientSite.rc
where *installdir* is the path to the directory where you installed the Windchill RV&S server.

To set the Windchill RV&S Server connection policy

1. In a text editor, open the `IntegrityClientSite.rc` file.

2. Comment out the following default policy:

   ```
   daemon.connectionPolicy=mks.ic.common.policy.
   ICAllowSpecificConnectionPolicy
   ```

3. Uncomment the following policy:
   ```
   daemon.connectionPolicy=mks.ic.common.policy.
   ICAllowAllConnectionPolicy
   ```

💡 **Tip**

  To comment out a policy, insert a # symbol as the first letter of the property. To uncomment a policy, remove the # symbol.

This allows clients to request an API connection, all connecting clients still require the proper authentication. If there is a requirement to specify individual users ability to connect, use a comma-delimited list of user IDs to define the property for `daemon.validUsersList`. Using a comma-delimited list does not change the connection policy setting.

4. To have the changes take effect, restart the Windchill RV&S server.

📝 Note

For more information on configuring the Windchill RV&S server to allow remote API connections, see the *Windchill RV&S Integrations Builder Guide*.

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Installing the Microsoft Excel Integration

You install the Microsoft Excel integration using the Setup Wizard provided with the `Windchill_RVS-`*`version number`*`_MSExcel-Integration-x64.zip` file. The integration ZIP file is available for download from the **Download Software** section of the PTC Support portal. There are two integration installation options included in the ZIP file:

* `setup.exe`. This is recommended for individual users installing the integration.
* `IntegrityExcelAddInSetup-x64.msi`. This is recommended for an automated enterprise-wide installation by an administration. Before you run an installer, ensure that you have the prerequisites listed in Client Requirements in Microsoft Excel on page 7.

To Install the Microsoft Excel Integration on a Client Machine

1. Close Microsoft Excel, if currently open.
2. From the `Windchill_RVS-`*`version number`*`_MSExcel-Integration-x64.zip` file, extract all files to a common directory, and run the `setup.exe` or `IntegrityExcelAddInSetup-x64.msi` file. The Setup Wizard opens.
3. To continue, follow the instructions provided in the Setup Wizard.
4. To exit the Setup Wizard, click **Close**. You can now open Microsoft Excel on a client machine and configure the required Microsoft Excel properties. For more information, see Customizing the Microsoft Excel Integration on page 15.

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Repairing or Removing the Integration

You can use the Setup Wizard to repair or remove the Microsoft Excel integration.

💡 **Tip**

You can also remove the Microsoft Excel integration using Windows **Start ▸ Control Panel ▸ Add or Remove Programs**.

To Repair or Remove the Microsoft Excel Integration Using the Setup Wizard

1. Ensure that you close Microsoft Excel before attempting to repair or remove the integration.

2. From the `Windchill_RVS-`*version number*`_MSExcel-Integration-x64.zip` file, extract and run the `setup.exe` file. The Setup Wizard displays.

3. Select one of the available options as required:

   • To repair the integration with Windchill RV&S, select the option for Repair Windchill RV&S to Microsoft **Excel Integration**.

   • To remove the integration with Windchill RV&S, select the option for Remove Windchill RV&S to Microsoft **Excel Integration**.

4. To continue the selected operation, click **Finish**. The integration with Windchill RV&S is repaired or removed, according to the option you selected.

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Connecting to the Windchill RV&S server

To perform commands in Excel that require authentication, such as synchronizing or retrieving items, the Excel integration must establish a connection with the Windchill RV&S server. In a new Excel session, the following options are available from the **Connection Details** window when you perform a command that requires authentication:

* **Connect using PTC** Windchill RV&S client establishes a server connection through the Windchill RV&S client installed on the same machine as the Excel integration. By using a local connection point when connecting to the server, resource-intensive processing tasks run through the client, reducing load on the server. This is the default option. When connecting to the server through the client, the default connection information stored in the client preferences is used. However, if prompts for connection information are enabled, you can enter or change that information in the Windchill RV&S client connection information windows that display. After connecting to the server through the client, any previously stored Excel Custom Properties are deleted and an `MKS Connection Using Client=true` property is added. This ensures that the **Connection Details** window does not display in subsequent sessions, unless you manually set the property to `MKS Connection Using Client= false`.

> 📋 **Note**
>
> For any property changes to take effect, you must set the property, save the Microsoft Excel `.xls` file, and start a new Excel session.

If any connection information prompts are enabled, Windchill RV&S client connection information windows display once during the Excel session for the first command requiring authentication. Otherwise, connection information stored in the client preferences is used.

- **Connect to PTC** Windchill RV&S server establishes a direct server connection through the Windchill RV&S API within the Excel integration. If the Windchill RV&S client is not installed on the same machine as the Excel integration, you must choose this option. In the available fields, enter server connection information. For subsequent sessions or if you previously connected using the **Connect using PTC** Windchill RV&S client option, the **Hostname** and **Port** fields are filled out.

- **Use SSL** secures connection to Windchill RV&S server.

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Customizing the Microsoft Excel Integration

This section includes the following topics to assist with customizing the Microsoft Excel integration:

- XML Mapping Template on page 16
- Windchill RV&S Custom Properties on page 17
- Enabling SSL Communication on page 18
- Logging For Microsoft Excel on page 19

XML Mapping Template

The following XML mapping templates provide sample mappings for running the Microsoft Excel integration with Windchill RV&S:

- `MS_Excel_Defects.xml.sample`, providing a sample mapping configuration for Defects. By default, the template supports the `Defect` type.

- `MS_Excel_Requirements_Document.xml.sample`, providing a sample mapping configuration for Requirement Documents. By default, the template supports the `Requirement type`.

- `MS_Excel_Test_Suite.xml.sample`, providing a sample mapping configuration for test suites. By default, the template supports the `Test Case` type. For more information on test suites, see the *Windchill RV&S Help Center*.

📝 Note

- Ensure that the internal field values in the XML mapping template reflect the Windchill RV&S field names as installed for your workflow. For general information on configuring the XML mapping template, see Configuring a Mapping Template on page 32. For more detailed information, contact PTC-Windchill RV&S Support.

- If changes are made to the fields visible with the supported type, the selected template must be modified.

- The external name for `Summary` should not be changed.

To Modify the Excel Integration XML Mapping Template

1. From the `Windchill_RVS-`*version number*`-Server-Templates.zip` file, extract the sample mapping templates to the following directory on the Windchill RV&S server:

   installdir`\data\gateway\mappings\`

   where *installdir* is the path to the directory where you installed the Windchill RV&S server.

> ⚠ **Caution**
>
> If you have previously modified the XML mapping template files, ensure that you create backup copies of your modified templates. You must do this before extracting any new template files provided with this integration.

2. Rename the files to remove the `.sample` extension, and then modify the XML mapping fields as required to correspond to your existing workflow. Ensure that the internal field values used in the XML mapping template correspond to the Windchill RV&S field names as installed for your existing workflow. Using Excel Integration with a type other than the type defined in a template needs a few primary steps. You must create a copy of the template and change the name attribute to indicate the type that it is used with. All field mappings must then be modified to correspond with the selected type. For general information on modifying the XML mapping templates for Excel, see Configuring a Mapping Template on page 32.

To Import a Mapping Template

To integrate a subset of the fields in any template, you import the mapping template into Excel. You can then drag and drop the required fields from the template into an Excel data list. For more information, see Importing the XML Mapping Template on page 22. To import a mapping template in Excel, click the **Add-ins** tab and select **Import Map**.

> 📝 **Note**
>
> If a field is mandatory in the Windchill RV&S workflow, it is designated as mandatory in XML mapping template. This is for users do not attempt to publish without first entering data for that field. If a field is required in the XML mapping template, that field should be set as mandatory in the Windchill RV&S workflow. This is for users cannot create and item without creating a field.

Windchill RV&S Custom Properties

To use the integration with Microsoft Excel, certain custom properties are configured for each worksheet file you are working on. The required custom properties are created automatically when you run the first synchronization operation. The required integration properties are configured under **Office Button ▸**

Prepare ▸ Properties. Click the **Document Properties** panel and **Advanced Properties**. Properties are configured under the **Custom** tab in the **Properties** box. The following properties are automatically configured for each Microsoft Excel `.xls` file when you run a synchronization with Windchill RV&S:

Name	Type	Value
`PTC Integrity Server Hostname`	Text	Name of the Windchill RV&S server
`PTC Integrity Server Port`	Number	Port number used by Windchill RV&S to connect to the Windchill RV&S server. By default, the port number is 7001. Check with your Windchill RV&S administration to confirm the correct port number.

`PTCIntegrityXml Map_1`
 	
`PTCIntegrityXml Map_2`
 	
`PTCIntegrityXml Map_3`
 	
`PTCIntegrityXml Map_4`
 	
… incremented by one for each data list used with the integration
	Text	The name of the XML mapping template used with the integration. The templates are configured to use the supported features of the Microsoft Excel integration. You can also modify the templates to suit the workflows and types used for your projects. For more information on modifying a template, see Customizing the Microsoft Excel Integration on page 15.

Enabling SSL Communication

When using the Windchill RV&S integration with Microsoft Excel, you can choose a Secure Sockets Layer (SSL) connection. To configure SSL for the Microsoft Excel integration:

1. Open the Microsoft Excel (`.xls`) file and click the Microsoft Office Button. From the menu, select **Prepare ▸ Properties**. Click the **Document Properties** panel and select **Advanced Properties**.

2. Click the **Custom** tab and in the **Name** field, add a property for `MKS SSL Connection`

3. In the **Type** field, select **Yes or no**. In the **Value** field, choose the **Yes** option. To accept the changes click **Add**, and then **OK**.

4. Save and reopen the `.xls` file. The SSL connection to Microsoft Excel is now enabled. For Microsoft Excel, SSL communications are enabled on a per-session basis. Therefore, if you close Excel, you must reset the `MKS SSL Connection` property to use secure communications when you start a new session. To deactivate SSL during the same Excel session, you can set `MKS SSL Connection` to **No**.

📝 **Note**

To use an SSL connection with the Microsoft Excel integration, you must also enable SSL communications for the server-side API. The API authenticates its session via a separate HTTP connection to the Windchill RV&S server. To allow this authentication to use the SSL connection, the Certificate Authority associated with the SSL certificate must be registered with the JDK used by the Windchill RV&S server.

Logging For Microsoft Excel

Logging is enabled by default for the Microsoft Excel integration. Log and error messages are sent to a temporary subdirectory under the home directory of the user. On Windows, the file for client logging is:

`C:\Document and Settings\`*username*`\Local Settings\Temp\excelint.log`

The file for API logging is:

`C:\Document and Settings\`*username*`\Local Settings\Temp`

Logging and error messages can be used to assist with any diagnostic work. The log files are retained until the integration is restarted.

📝 **Note**

The location for log files depends on the value set for the system variable `TMP`. If the system variable is not set, then the value of the user variable `TEMP` is used.

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Using the Microsoft Excel Integration

Integration actions are available only within Excel workbooks. Each Windchill RV&S item is represented by a row, and each item field is represented by a column. Related fields are presented as a list of related Windchill RV&S item IDs. The integration also allows you to work with requirement documents, allowing you to create new documents and edit existing ones. Existing requirement documents can also be retrieved from Windchill RV&S into Excel. You can have multiple data lists/tables within an Excel sheet. You can also manage and analyze the data in the list independently of data outside the list. Synchronizing data between Windchill RV&S and Microsoft Excel does not affect non-Windchill RV&S data.

📝 Note

Ensure that the date format used in your data list matches the default Microsoft Excel date format. For more information on date formats and how they handle the integration, seeDate Fields and Formats on page 30.

You can perform any of the following tasks within the Excel data list:

- Rename or delete columns
- Change the order of columns
- Add columns of non-Windchill RV&S data

📋 Note

A new row added to the Excel data list becomes a new Windchill RV&S item on synchronization.

This section provides information on the following topics:

Importing the XML Mapping Template

The **Import Map** function loads the fields from the XML mapping template into the Excel sheet. After importing the mapping template, you can then display the XML source and use drag and drop to customize the sheet. Once the fields are mapped, you can also rename the column headers with a new display name or change the order of the columns. This will not affect your ability to publish and retrieve updates. Updates to the sheet retrieve and publish data only for the selected subset of fields. For example, if you did not map the `Project` field in your sheet, you cannot publish data to the `Project` field for the Windchill RV&S item.

> 📋 **Note**
>
> If you require all the fields contained in the mapping template, you can use the **Create New List** function to import the complete mapping template. This automatically creates the required columns.

Importing a mapping template using Microsoft Excel

1. To import the mapping template using Microsoft Excel, click the **Add-ins** tab and select **Import Map**. After connecting to the Windchill RV&S Server, the Excel

   Integration Configuration window displays.

2. To complete the import, choose the required template from the **Select a Template** list and click **OK**.

> 📋 **Note**
>
> If you select the Microsoft Excel Requirements Document Template, you can also enter information under **Document Properties**. For more information, see Editing an Existing Requirement Document on page 28.

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3. After importing the mapping template, you can then drag and drop individual fields from Windchill RV&S into the Excel data list.

4. To display the template fields in Excel, click the Microsoft Office Button and then click **Excel Options**. Under **Popular**, select the option for **Show Developer tab in the Ribbon** and click **OK**. In the **XML** section of the **Developer** tab, click **Source** and the **XML Source** pane displays all the fields from the mapping template that you imported.

5. To remove a mapped field, right-click the bolded field name under **XML Source** and choose **Remove element** from the shortcut menu. To remove the column from the sheet, you must manually delete it.

Creating a New List

The **Create New List** function imports the complete mapping template and automatically creates the required columns in the Excel sheet. **Create New List** creates an empty data list, but does not allow you to use drag and drop to select XML fields. To populate the sheet with data, you can use either the **Get Items** or **Synchronize with Query** function. For more information, see Retrieving Items From Windchill RV&S on page 24 and Synchronizing Using Queries on page 25. When working with a requirement document, you can also use the `Synchronize` command to populate the data sheet. For more information, see Creating a New Requirement Document on page 27.

📋 **Note**

- You cannot create item ID numbers. Windchill RV&S creates item ID numbers.

- You can create multiple lists within a single Excel sheet. You can also have multiple lists containing Windchill RV&S and non-Windchill RV&S data.

- If you are creating a large document, you can improve performance when adding requirements by using the `Synchronize with Query` command.

Creating a new list using Microsoft Excel

1. To create a new data list using Microsoft Excel, click the **Add-ins** tab and select **Create New List**. The **Excel Integration Configuration** window displays.

2. From the **Select a Template** list, choose the required template. This imports the mapping template and uses the template fields to create the column headings. For a list of the fields included in the available templates, see Customizing the Microsoft Excel Integration on page 15. You can also enter data in the list and publish it to Windchill RV&S by clicking **Data ▸ Synchronize**. For each row in the Microsoft Excel data list, the integration creates an item in Windchill RV&S.

Retrieving Items From Windchill RV&S

The **Get Items** function allows you to import the mapping template and retrieve all items from the Windchill RV&S query you select. For example, if you selected a query called `All Projects`, **Get Items** creates a new data list that includes all items found by that query.

📋 Note

- Do not attempt to import Windchill RV&S data into an Excel data list that contains existing data.

- The **Select a Query** list displays only those queries that you have added as favorites within Windchill RV&S. For more information on working with queries, see the *Windchill RV&S Help Center*.

If Windchill RV&S items cannot be retrieved, error message displays, providing information on the location to check for additional details (**PTC Status (Reserved)** column or log file). If the **PTC Status (Reserved)** column is not mapped, then an error status window displays information. If the **PTC Status (Reserved)** column is mapped, then any errors are reported in the **PTC Status (Reserved)** column for each row of data.

📋 Note

For more information on the log file, see Logging For Microsoft Excel on page 19.

Retrieving Items from Windchill RV&S Using Microsoft Excel

1. To retrieve items from Windchill RV&S using Microsoft Excel, click the **Add-ins** tab and select **Get Items**, and if required, connect to the Windchill RV&S server. The Excel **Integration Configuration** window displays.

2. From the **Select a Template** list, choose the required template and then select a query from the **Select a Query** list. To complete the operation, click **OK**. All Windchill RV&S items found in the query are retrieved into the Excel sheet, with a row for each item found in the query.

Synchronizing Data

The **Synchronize** function allows you to publish updates from Excel to Windchill RV&S, and from Windchill RV&S into Excel. Changes can include updates to existing Windchill RV&S items or the creation of new items in Windchill RV&S. When publishing data to Windchill RV&S, the list you are synchronizing should not contain any empty rows. For example, if there is no mandatory field, or if a default value is set for a required field), an empty row can cause a new item to be created in Windchill RV&S. The synchronization publishes to Windchill RV&S any updates made to item data in the Microsoft Excel data list. Updates to items in Windchill RV&S are also retrieved into Excel. Any non-Windchill RV&S data in Excel is not affected by the synchronization. The order of the rows in the Excel list is also not affected. Formatting applied to any fields in Excel is not affected. If the same data has been updated in both Excel and Windchill RV&S, this causes a conflict when you attempt to synchronize the data. Conflicts are logged and must be resolved manually. For more information, see Detecting Conflicts on page 29.

Note

- Before running a synchronization, save all changes in your Excel worksheet.
- You can only synchronize one data list per operation.
- If you synchronize a data list that contains a highlighted table cell, an error occurs. To correct the error, move the cursor to de-select the table cell, and repeat the synchronization operation.

Publishing data from Microsoft Excel

1. To synchronize the data between Microsoft Excel and Windchill RV&S data, click the **Add-ins** tab and select **Synchronize**.
2. You are prompted to confirm the synchronization operation. When the synchronization completes, the Microsoft Excel status bar displays `Ready`.

Synchronizing Using Queries

The **Synchronize with Query** function works in two directions: to retrieve items from Windchill RV&S into the Excel sheet, and to publish updates from the Excel sheet to Windchill RV&S. When a synchronization is complete, the Microsoft Excel status bar displays `Ready`. When publishing data to Windchill RV&S, the list you are synchronizing should not contain any empty rows. For example, if there is no mandatory field, or if a default value is set for a required field, an empty row can cause a new item to be created in Windchill RV&S. If new items

are added through a synchronization based on a query, the new items are appended to the bottom of the list. Error information is displayed in the **PTC Status (Reserved)** column.

> 📝 **Note**
> - You can only resynchronize one data list per operation. Synchronizing data between Windchill RV&S and Microsoft Excel does not affect non-Windchill RV&S data.
> - Excel removes empty cells from its output when publishing to Windchill RV&S; therefore, deleted content is updated with values from Windchill RV&S on synchronization.
> - When adding a new requirement to an Excel list using an existing document ID, a requirement is added to the document when you run **Synchronize with Query**.
> - If you are creating a large document, you can improve performance when adding requirements by using the **Synchronize with Query** command.

Retrieving and publishing data using Microsoft Excel

1. To synchronize query-based data between Microsoft Excel and Windchill RV&S data, click the **Add-ins** tab and select **Synchronize with Query**. The **Excel Integration Configuration** window displays.
2. Under **Query**, click the **Select a Query** list and select a query to base your synchronization on. The default query is the one you used to create your data initially. Click **OK** and the integration runs the synchronization.

Working with Requirement Documents

The Windchill RV&S integration with Excel allows you to create a new data list in Excel and publish it as a single requirement document to Windchill RV&S. The new document is created as plain text with a flat structure. Any included subdocuments are also handled by the integration when you run the commands for **Get Items**, **Synchronize**, or **Synchronize with Query**. For more information, see Creating a New Requirement Document on page 27.

> 📝 **Note**
> The procedures for working with requirements documents also apply to test suites.

The integration also allows you to edit existing requirement documents using both Excel and Windchill RV&S. Using the **Get Items** command, you can retrieve an existing document from Windchill RV&S and then edit it in Excel. You can also use the **Synchronize** command to publish and retrieve changes made in either Excel or Windchill RV&S. Existing documents can also be edited in rich text using the Document view in Windchill RV&S, with updates exported to Excel using the Synchronize command. Updates can be made using **Document Properties**. For more information, see Editing an Existing Requirement Document on page 28. To change the structure of a document, use the Windchill RV&S Document view. After making the required changes, you can update the Excel sheet by using **Synchronize** to retrieve the updated document from Windchill RV&S. For more information, see Adding Structure to a Document on page 29. When working with requirement documents, select one of the following templates from the **Select a Template** list:

```
Microsoft Excel Requirements Document
Microsoft Excel Test Suite
Microsoft Excel migrated RM 2007 Requirement Document Template
```

Creating a New Requirement Document

You can use Excel to create a document from an initial set of requirements. When edited in Excel, each listed requirement is created at the top level (root) within the parent document. The integration searches for different requirement types depending on column values. It then runs the associated commands in Windchill RV&S to create new document segments, or to add content to new or existing segments. The document ID and type is maintained for each synchronization. When using the sample templates, the **Category** column indicates whether the Excel row is a comment, heading, or requirement. The sample mapping template can be customized to reflect the information mapping used in your requirement documents. New rows are also added at the top level. If restructuring is required, this should be done using the Document view provided by Windchill RV&S requirements. For more information, see Adding Structure to a Document on page 29.

📝 **Note**

> For any errors where the requirement document is not created successfully, rerun the **Create New List** command, and copy the existing content to the new list.

To Create a New Requirement Document

1. To create a new requirement document using Microsoft Excel, click the Add-ins tab and select **Create New List**. The **Excel Integration Configuration** window displays.

2. From the **Select a Template** list, choose the `Microsoft Excel Requirements Document` and in the **Project** field under **Document Properties**, specify the project name. Text entered in the **Summary field** is used as the item summary. If no text is entered, the requirement document displays a `null` summary.

📝 **Note**

- To create a new requirement document, a valid project name must be specified in the **Project** field. If the **Project** field is blank, the integration uses the default value specified for Project in the mapping template.

- If the **Summary** field is blank, the integration uses the default value specified for `Summary` in the mapping template.

- When creating a list and synchronizing, an error message displays if you have entered an incorrect project name in the **Project** field. To resolve the error, correct the project value in the **Project** column of the Excel data list and then synchronize with Windchill RV&S. The project and its contents are then created correctly.

---

3. To import the template, click **OK**.

4. To generate the requirement document (item) ID, select **Add-Ins ▸ Synchronize** and click **OK**.

5. Enter new rows and text in the Excel data list as required to create the content in your requirement document. You can use the **Category** column to specify whether the Excel row is a comment, heading, or specific type of requirement. Each listed requirement is created at the top level within the parent document.

6. To publish the updates and create the necessary related items in Windchill RV&S, select **Add-Ins ▸ Synchronize** and click **OK**. Windchill RV&S automatically creates the required items and relationships.

Editing an Existing Requirement Document

The integration supports the editing of existing requirement documents using both Excel (plain text) and Windchill RV&S (rich text). The **Category** column allows you to specify the type of content being added, whether it is a heading, comment, or requirement information. New rows inserted in Excel are added at the end of

the existing content in the document. To edit an existing document in Excel, you retrieve the document using **Get Items** and **Document Properties**. Edits made in Excel can then be published to Windchill RV&S using the **Synchronize** command.

To Retrieve an Existing Document from Windchill RV&S for Editing in Excel

1. To retrieve an existing document for editing in Microsoft Excel, click the **Add-ins** tab and select **Get Items**. The **Excel Integration Configuration** window displays.

2. Under **Document Properties**, enter the **Document ID** (the associated Windchill RV&S item number).

3. Click **OK**, and the requirement document is retrieved into the Excel table list.

4. Edit the rows as required to update the document.

5. To publish the information back to Windchill RV&S , run **Add-Ins ▸ Synchronize**.

   Edits made in Windchill RV&S can be exported to Excel using **Document Properties** and specifying a **Document ID** to identify the requirement document you want to update.

📝 **Note**
- You can only work with one requirement document per sheet. For Excel workbooks with multiple sheets, you can import requirements using one Excel sheet for each transaction.

- Excel does not support rich text; therefore if you edit a rich text entry using Excel, it is exported as plain text into Windchill RV&S. Inserted image attachments are not dropped; however, they must be manually restored to their previous location in the document.

Adding Structure to a Document

To change the structure of a document, use the Windchill RV&S **Document** view. For more detailed information on working with requirement documents in the Windchill RV&S **Document** view, see the *Windchill RV&S Help Center*.

Detecting Conflicts

If the same data has been updated in both Excel and Windchill RV&S, you see a conflict when you attempt to synchronize the data. Conflicts are logged and noted in the **PTC Status** column. Details of the field conflicts are included in the log file

and must be resolved manually. To review information on an identified conflict, refer to the `excelint.log` file found in the temporary directory. On Windows, this is under the home directory of the user:

`C:\Document and Settings\`*`userID`*`\Local Settings\Temp`

For the API, conflict information is logged to the `excelintc.log` file in the same temporary directory.

Working With Special Fields

Formulas

Excel formulas can be used within Windchill RV&S data. When the data is published to Windchill RV&S, it uses the resulting field value. Depending on the field mapping used in the mapping template, the formula is replaced with the field value when a synchronization brings updated data from Windchill RV&S.

Date Fields and Formats

The integration uses two date formats—an external (Excel) format and an internal (Windchill RV&S) format. The external Excel format must be specified for date mapping to occur. If the internal Windchill RV&S date format is not specified, it defaults to the simple date (month/day/year).

💡 **Tip**

It is good practice to always specify the internal Windchill RV&S format.

When a date field is set in the XML mapping template, do not leave the value for that date field empty in either Windchill RV&S or Excel. Leaving a date field empty means that the date format cannot be satisfied and causes the retrieval and/or publishing of that item to fail. Within Windchill RV&S there are two date formats:

`MM/dd/yyyy` - (month/day/year) simple date; default format if not otherwise specified

`MM/dd/yyyy hh:mm:ss` - date+time (24 hr format).

📋 **Note**

The internal Windchill RV&S date format defaults to the simple date format; however, if time is required, the secondary date+time format must be specified.

Within Excel, there are three date types – `date` (date only), `time` (time only), and `datetime` (date+time). The date types do not affect the display within Excel, but do affect the way data is handled during import and export. Currently, the integration supports only the `date` type in Excel. Time information can be included, but Excel calculations for such fields are not time values. For the integration, the following external Excel formats are supported:

"`yyyy-MM-dd`" - (year-month-day) simple date

"`yyyy-MM-dd hh:mm:ss a`" - date field with time (display only) value.

Note

Using a date format other than one of the supported formats causes Excel to convert date values to display strings. This makes further date calculations impossible for that value.

Example

The following provides an example of the XML mapping for date formats:

```
<!-- For a field that is a date-only field -->
<field
     external="New_Date"
     internal="New Date"
     data-type="date"
     field-type="date"
     external-date-format="yyyy-MM-dd"
     internal-date-format="MM/dd/yyyy"/>
<field
     external="Modified_Date"
     internal="Modified Date"
     direction="out"
     date-type="string"/>
```
The date-only format is supported in the integration with Excel; however, any date/time fields in Windchill RV&S do not appear in Excel. Ensure that the date format used in your data list matches the date format used by Microsoft Excel.

Note

If you want to use any other date formats, contact PTC-Windchill RV&S Support for assistance.

10

Configuring a Mapping Template

This appendix provides information on the XML mapping template file that is used to configure the integrations with Microsoft Excel, Project, and Word. The mapping template file defines the necessary two-way relationships between internal Windchill RV&S items and external items. The two-way mappings allow each set of items to remain synchronized such that a change made in one set of items is reflected in the other.

To assist you in editing a mapping template, this appendix includes the following topics:

📝 Note

The mapping templates included with Windchill RV&S are functioning examples and should always be edited with care. If you are not familiar with XML, contact PTC - Windchill RV&S Support for further assistance.

For information on replacing the Microsoft Word integration with Gateway, see the *PTC Integrity Gateway User Guide*.

Overview of Configuring a Mapping Template

While the configuration is an XML file like an IIF document or the Wizard Configuration file, it is more than a way of representing data. It is a small programming language that lets you define the process of importing and exporting items from an external data source and Windchill RV&S internal items.

The Gateway Configuration file processes items one at a time and determines the complete set of mapping rules to apply to the item before actually applying any of them. This allows later steps to change or negate previous mapping rules. It also means that regardless of what mappings are scheduled to be applied, it is always the original values of the internal and external fields.

There are two other important concepts for configuration files: conditional mappings and levels.

Conditional mappings are mapping instructions that only apply when they are activated by a <map-conditional> element (or the <map-translation> subelement). These conditional mappings are contained within <map> elements. Until mappings are activated, they are ignored. Once a <map> is activated, the mapping instructions within that element become active. This can include additional <map-conditional> elements and the corresponding <map> elements; although such <map> elements are also ignored until they are activated.

Levels are a related concept. The process begins with the main instructions at level 1. Each time a <map> element is activated, the process moves up a level and remains at that new level until the </map> tag is reached. At that point, the process moves back to the previous level.

The importance of levels is in the way they interact with the <map-conditional> and <map> elements. When a <map-conditional> element is attempting to find a matching <map>, only <map> elements at the current level of processing are examined. This means that if you have a <map-conditional> element within a <map> element, the corresponding <map> elements that are activated with <map-conditional> must also appear within the same <map> element. Additionally, once a <map-conditional> on a given level has activated a <map> element and its contents, all other <map-conditional> elements at the current level are ignored.

Mapping Template XML Elements

This section describes the various XML elements of the mapping template, and provides information on how to configure those elements.

\<mapping\>

The \<mapping\> element is the highest level XML element. As such, it contains all other elements. There is only one \<mapping\> element in the file.

Attributes:

name

The `name` attribute specifies the name of the particular Gateway conversion process defined in the file. This name is the identifier through which a Gateway configuration is selected for use by the Gateway Wizard. It is expected to be unique across all known Gateway configurations.

template-version

The `template-version` attribute specifies the version of the XML template used for creating the Gateway Configuration file. This documentation describes version 2.1. This value is required for the proper operations of Gateway.

Parent Element:

none (highest level XML element)

Sub-Elements:

`<description>, <set-property>, <link-field>, <field>, <map-conditional>, <map>`

\<description\>

The `<description>` element specifies a description of the particular conversion process defined in the file. The Gateway Wizard displays this description when prompting for the selection of the Gateway configuration to use. There is one `<description>` element in a configuration element.

Parent Element:

\<mapping\>

Sub-Elements:

\<set-property\>

The `<set-property>` element sets an item control property to a given value. For example:

```
<set-property name="owner" value="external"/>
```

When importing items into Windchill RV&S, there are a few common properties worth mentioning:

prototype

This property helps Windchill RV&S identify the type of item it is importing. Valid values include `DOCUMENT` and `CONTENT`. Commonly, this `prototype` property is provided directly within the definition of the item data being imported. The Gateway configuration may be used to override and set the item's `prototype` property.

owner

This property helps Windchill RV&S determine whether the item is externally or internally owned. Valid values are `""external"` and `"internal"`. If a document, for example, externally owned data would mean that Windchill RV&S should delete any content that is no longer present within the data being reimported.

prior-data-field

This property, in the case where a document is being reimported, identifies to the attachment field within which an IIF document representing the previously imported data would be found. This property is only relevant to document items.

prior-data-name

In the case where a document is being reimported, identifies to the name of the attachment file (an IIF document) that represents the previously imported data. Previously imported data is used to help identify the set the changes to be performed on the data.

Attributes:

name

The `name` attribute specifies the name of the property to set.

value

The `value` attribute specifies the value to which the property indicated that by the name attribute is to be set.

Parent Element

`<mapping>, <map>`

Sub-Element:

<link-field>

The `<link-field>` element automatically creates a link between a unique ID field in the external data source and the internal data. By creating such a link, it is much easier to update existing fields when reimporting previously

imported data. The `<link-field>` element has four basic forms. The first form is:

```
<link-field field-type="id">
```

When using this form, each item in the external data source has a unique identifier (similar to the primary key of a database) which is the Windchill RV&S identifier. The second form is:

```
<link-field external="REQID" field-type="id">
```

In this form, a field in the external data named REQID contains the Windchill RV&S identifier for the corresponding field in the internal data. The third form is:

```
<link-field internal="DATA_KEY">
```

As with the first form, the external data source has a unique identifier but instead of using it as the Windchill RV&S identifier, it is stored in the internal field named DATA_KEY. Finally, the fourth form is:

```
<link-field external="REQ_ID" internal="DATA_KEY">
```

With this form, the external data field named REQ_ID is linked with the internal data field named DATA_KEY.

Attributes:

external
The `external` attribute specifies the name of a field in the external data source.

internal
The `internal` attribute specifies the name of a field in the internal data.

field-type
The `field-type="id"` attribute specifies that a field is an `id` field.

hash-code
Some external data sources (for example, Oracle databases) do not allow database look-ups using text strings, and only allow look-ups using integers. To accommodate such sources, you can specify the hash-code attribute which specifies a field name in which a `hash code` is stored.

Parent Element:
`<mapping>`, `<map>`

Sub-Elements:

\<field\>

The `<field>` element defines the mapping between fields in the external data source and fields in the internal data. The simplest version of this tag names only the external and internal fields. For example:

```
<field external="Type" internal="RQ_Share Category"/>
```

Attributes:

external

The `external` attribute specifies the name of a field in the external data source.

internal

The `internal` attribute specifies the name of a field in the internal data.

direction

The `direction` attribute specifies the direction of the relationship between the external data field and the internal data field.

Direction	Description
in	The internal data field is updated from the external data field.
out	The external data field is updated from the internal data field.
both	The external and internal data field can both be updated from the other, depending on context.
none	This is a special value that indicates that all mappings which have been declared so far are to be ignored and not applied.

When the direction attribute is not specified, the behavior is as though `direction=both` was specified.

field-type

The `field-type` attribute identifies what type of content the field holds. Possible values include:

field-type	Description
type	Windchill RV&S item type
relationship	Windchill RV&S relationship field
attachment	An attachment
richcontent	Rich content (that is, formatted text) possibly with links and graphics

date	Date with no time
date-time	Date and time

data-type

The `data-type` attribute determines how the data in the field is interpreted. Possible values include:

data-type	Description
xhtml	Specifies that rich content in a field is in XHTML as opposed to an Windchill RV&S Rich Content format.

attachment

The `attachment` attribute is used when mapping fields containing rich content to identify the Windchill RV&S attachment field that is used to store images embedded.

external-date-format

The `external-date-format` attribute specifies the date format used in the external data source. For example, `EEE MM/dd/yy`. This attribute is only meaningful if `field-type="date"` or `field-type="date-time"` is also specified; otherwise, it is ignored.

clobber

The `clobber` attribute defines how existing attachments associated with the field are handled. The clobber attribute is only meaningful when `field-type="attachment"` is also specified; otherwise, it is ignored. The `clobber` attribute can be set to `true` or `false`.

clobber	Description
true	All attachments for the field are replaced with the associated version of the attachment regardless of whether the attachment has change.
false	Existing attachments for the field are not removed and only updated attachments are modified.

When no `clobber` attribute is specified, the behavior is as though `clobber=false` was specified.

on-create-only

The `on-create-only` attribute can be set to `true` or `false`.

on-create-only	Description
`true`	The field is only populated on its initial creation. If the field exists, nothing is done.
`false`	The field is populated whether it already

value-translation-type

In some cases, data in the corresponding external and internal fields are stored in two different ways. For example, the external field may contain a range of integer values, while the internal field simply contains string values of Low, Medium, and High. The `value-translation-type` attribute specifies the relationship in such cases.

value-translation-type	Description
`string-string`	A string value in the external field corresponds to a different string value in the internal field.
`intrange-string`	A range of integers in the external field corresponds to a string value in the field.
`integer-integer`	An integer value in the external field corresponds to a different integer value in the internal field.

When the `value-translation-type` attribute is specified, you must also specify a *value-translation* subelement which defines the exact method of translating from one to another.

comparable

The comparable attribute has no meaning to the mapping process itself. However, it is used by the Gateway Wizard to help determine the set of fields displayed in the differencing and changes preview before starting the import process. Valid values include:

Comparable	Description
`true`	The field is to be included in the differencing and changes preview.
`false`	The field is not to be included in the differencing and changes preview.

Parent Element:

`<mapping>, <map>`

Sub-Elements:
`<default>, <value-translation>`

\<default\>

The `<default>` element specifies a value that is assigned to a field when either only an external or internal field. This is named or the internal or external field from which it should be updated does not exist. The following example sets the `RQ_Categoryname` field in the internal data to a value of `Heading` when the internal data items are being first created.

```
<field internal="RQ_Category" direction="in" on-create-only="true">
     <default>Heading</default>
</field>
```

Attributes:
none

Parent Element:
`<field>`

Sub-Elements
none

\<value-translation\>

When a `<field>` element has a `value-translation-type` attribute attached, the `<value-translation>` element defines the external data source correspond to values in the internal data.

For example: define the correspondence between ranges of integers in the external field and a single string value in the internal field.

```
<field external="Priority" internal="RQ_Priority" direction="both"
value-translation-type="intrange-string">
     <value-translation external="0..250" internal="Low" />
     <value-translation external="251..500" internal="Medium" />
     <value-translation external="501..750" internal="High" />
     <value-translation external="751..1000" internal="Critical" />
</field>
```

Attributes:

external

The `external` attribute defines which value in the external field corresponds to the value in the internal field defined by the `internal` attribute. The type of value (or range) is specified by the `value-translation-type` attribute of the parent `<field>` element.

internal

    The `internal` attribute defines which value in the internal field corresponds to the value or (range) in the internal field as defined by the `external` attribute. The type of value (or range) is specified by the `value-translation-type` attribute of the parent `<field>` element.

Parent Element:

    `<field>`

Sub-Elements:

    none

\<map-conditional>

    The `<map-conditional>` element specifies that the mapping of a field is conditional on the value of a field or its properties. Based on the value of the field or property, a set of specialized mapping rules (defined by a `<map>` element) is activated. In its simplest form, the value of the specified field or property is used as the name of the `<map>` to be activated. For example:

```
<map-conditional property="prototype" />
```

examines the value of the `prototype` property and looks for a `<map>` element with a name that matches the value of prototype. If found, that `<map>` is activated and the specialized mapping rules defined within that `<map>` are applied. Using this example, if the value of the prototype property is CONTENT and a `<map name="CONTENT">` element exists, that `<map>` is activated. Once a `<map-conditional>` element has activated a `<map>`, all other `<map-conditional>` elements at that level are ignored. For example:

```
<map-conditional external="Description" />
<map-conditional property="prototype" />
```

first looks for a `<map>` that has a name that matches the value of the external field name `Description`. If such a `<map>` is found, it is activated and the second `<map-conditional>` is ignored. However, if no such `<map>` is found, the second `<map-conditional>` is examined. It is examined to see if the field `<map>` matches the name of the `prototype` property. If the field or property whose value is being compared to `<map>` names does not exist in the current item, the `<map-conditional>` is ignored.

Attributes:

    external

        The `external` attribute specifies the name of a field in the external data source whose value is tested to find a matching `<map>` element.

internal

The `internal` attribute specifies the name of a field in the internal data whose value is tested to find a matching <map> element.

property

The property attribute specifies an item control property whose value is tested to find a matching <map> element.

direction

The `direction` attribute specifies that a matching <map> is only to be activated for one reason. If the direction of the relationship between the external data source field and the internal data field matches the specified value. Possible values include:

Direction	Description
in	The internal data field is updated from the external data field.
out	The external data field is updated from the internal data field.
both	The external and internal data field can both be updated from the other, depending on context.

For example:

```
<map-conditional property="prototype" direction="in">
```
only activates a matching <map> for the `prototype` value if the internal field is being updated

from the external field. That is, it is only activated if the mapping is an import operation.

default-map

The `default-map` attribute specifies the name (as defined by a <map> element) of a set of specialized mapping rules that are to be applied when the value being matched to <map> names. If it matches no <map> elements and has no other recognized value (it is a null value or its value is not represented in any <map-translation> subelement.

Parent Element:

<mapping>, <map>

Sub-Elements:

<map-translation>

<map-translation>

The <map-translation> element is a subelement of the <map-conditional> element. It lets you specify a list of values for the field or

property being examined in the `<map-conditional>` and associate them with a `<map>` element. The specified `<map>` is activated if the examined field or property has the given value. For example:

```
<map-conditional external="Category">
    <map-translation external="Software" map-name="Application" />
    <map-translation external="Utility" map-name="Application" />
</map-conditional>
<map name="Application">
...
</map>
```

In this case, if the value of the external field named `Category` is `Application`, then `<map name="Application">` is activated. If the value is not `Application`, the `<map-translation>` subelements come into play if the `Category` field is either `Software` or `Utility`, then the `<map name="Application">` is also activated. When no `external` attribute is specified in a `<map-translation>` subelement, then any nonnull value for the field or property specified in the parent `<map-conditional>` element. Which has not already been matched activates the specified `<map>`. For example:

```
<map-conditional external="Category">
    <map-translation external="Software" map-name=
"Application" />
    <map-translation external="Utility" map-name="Application"
/>
    <map-translation map-name="Non-Application" />
</map-conditional>
<map name="Application">
...
</map>
<map name="Non-Application">
...
</map>
```

In this example, if the value of the `Category` field is either `Application` or `Non-Application`, the `<map>` element with that name is activated. If the field has another value, the `<map-translation>` subelements specify that a value of `Software` or `Utility` for that field activates `<map name="Application">` and any other non-null value activates `<map name="Non-Application">`. You can only specify one `<map-translation>` subelement without an external attribute per `<map-conditional>` element.

Attributes:

> **external**
>> In a `<map-translation>` element, the external attribute does not refer to the name of a field in the external data source. It specifies a possible value for the field or property in the parent `<map-`

conditional> element that is being matched to <map> names. In the example, the external attributes in the <map-translation> elements specify possible values for the external field named Category.

map-name

The <map-name> attribute specifies the name (as defined by a <map> element) of a set of specialized mapping rules that should be activated when the field or property being matched in the parent <map-conditional> has a value that matches the value specified by the external attribute.

When no external attribute is specified and the field or property is being matched has a nonnull value, the specified <map-name> is activated regardless of the value of that field or property. There can only be one such <map-translation> sub-element per <map-conditional>.

Parent Element:
<map-conditional>

Sub-Elements:
none

<map>

The <map> element defines a specialized set of mappings (using <field> elements) that are only performed when activated by a <map-conditional> element. When a <map> element is not activated. You can nest <map> elements, allowing you to specialize the mappings to be performed even further.

For example:
```
<map-conditional property="prototype"/>
...
<map name="CONTENT">
    <map-conditional external="Category"/>
    ...
    <map name="Software Requirements">
    ...
    </map>
    <map name="Hardware Requirements">
    ...
</map>
```

In this example, the prototype property of the item is examined and the main level of the Gateway Configuration file. The level where <map-conditional property="prototype"/> resides is searched looking for a <map> with a name that matches the value of the prototype property. Thus, if prototype has a value of CONTENT, the <map name=

`"CONTENT">` element is activated. Within that `<map>`, the `<map-conditional external="Category">` element examines the value of the external data source field named `Category`. Which in this example, identifies a category of requirement and looks to activate a `<map>` with a name matching the value of `Category`. Such a matching `<map>` must exist at the same level as that `<map-conditional>` within the `<map>` element. The `<map name="Software Requirements">` or `<map name= "Hardware Requirements">` is activated if the `Category` field has the value `"Software Requirements"` or `"Hardware Requirements"`, respectively.

By using nested `<map>` elements, you can create complex AND/OR structures for your conditionals. For example, the above example represents the following logic:

- If the `prototype` is `"CONTENT"` AND the `Category` field is `"Software Requirements"`, use the `Software Requirements` mappings.
- If the `prototype` is `"CONTENT"` AND the `Category` field is `"Hardware Requirements"`, use the `Hardware Requirements` mappings.

Attributes:

name

> The `name` attribute specifies a name for this particular set of mapping rules. This is the name specified with the `default-map` attribute of the `<map-conditional>` element or the `map-name` attribute of the `<map-translation>` element.

Parent Element:

> `<mapping>`, `<map>`

Sub-Elements:

> `<set-property>`, `<link-field>`, `<field>`, `<map-conditional>`, `<map>`

Mapping Template Examples

The following mapping templates shows how the various XML elements work together to configure the Microsoft Excel integration.

Mapping Template Example For ALM Solution

The sample template includes mapping components for Document and Content:

```
<?xml version="1.0" ?>
<mapping name="Microsoft Excel Requirements Document"
```

```xml
template-version="2.1">
   <!--
       Sample Mapping configuration for Requirement Documents.
       The ALM_ prefix on the internal field names will need to be
changed to
       match the prefix used in your configuration template.
   -->
   <map-conditional property="prototype" />
   <!-- Linkage field where Excel is storing the
   Windchill RV&S Item ID
   -->
   <link-field external="Item_ID" field-type="id"
   required="false" />
   <!-- Note the default value should be changed to reflect server
   and solution settings -->
   <field internal="Type"
       on-create-only="true"
       field-type="type">
   <default>ALM_Requirement</default>
   </field>
   <!-- Note that the Project field's external name should not be
   changed and the internal name should only be changed to reflect
server
   and solution settings ->
   <field external="Project"
       internal="Project"
       on-create-only="true">
       <default>/Projects/Release2</default>
   </field>
   <!-- Note that the Description field's external name should not
   be changed and the internal name should only be changed to
reflect
   server and solution settings -->
   <field external="Description"
       internal="ALM_Text"
       on-create-only="false" />
   <!-- Source Document / Segment Root -->
   <map name="DOCUMENT">
       <!-- Attribute is required so Excel will recognize this
mapping
       as a document mapping -->
       <set-attribute name="rmtype" value="segment"/>
       <!-- override the global Type field -->
       <field internal="Type"
          on-create-only="true"
          field-type="type">
       <default>ALM_Requirement Document</default>
       </field>
       <!-- Set the Shared Category value for a Document -->
       <field internal="Shared Category"
          on-create-only="false">
```

```
        <default>Document</default>
        </field>
        <!-- Set a default Document Title -->
        <field internal="ALM_Document Short Title"
           on-create-only="true">
        <default>Excel Created Document</default>
        </field>
        <!-- Note that the Description field's external name
        should not be changed and the internal name
         should only be changed to reflect server and
        solution settings -->
        <!-- override the global Description field -->
        <field external="Description"
           internal="ALM_Shared Text"
        on-create-only="false" />
    </map>
    <!-- Document Content -->
    <map name="CONTENT">
        <!-- Set a default Category value for document content. -->
        <field external="Category" internal="Category" on-create-
only="false">
            <default>Comment</default>
        </field>
    </map>
</mapping>
```

Mapping Template Example for Requirements and Validation Solution

The sample template includes mapping components for Requirements Document:

```
<?xml version="1.0" encoding="UTF-8"?>
<mapping name="Requirements and Validation Solution Requirements
Document"
template-version="3.0">
    <!--
        Sample Mapping configuration for
        Requirement and Validation Requirement Documents.
    -->
    <map-conditional property="prototype" />
    <!-- Linkage field where Excel is storing the
    Windchill RV&S Item ID
    -->
    <link-field external="Item_ID" field-type="id"
    required="false" />
    <!-- Note the default value should be changed to reflect server
    and solution settings -->
    <field internal="Type"
        on-create-only="true"
        field-type="type">
    <default>Requirement</default>
```

```
    </field>
    <!-- Note that the Project field's external name
    should not be changed and the internal name should
    only be changed to reflect server and solution settings ->
    <field external="Project"
        internal="Project"
        on-create-only="true">
        <default>/ROOT</default>
    </field>
    <!-- Note that the Summary field's external name
    should not be changed and the internal name should
    only be changed to reflect server and solution settings -->
    <field external="Text"
            internal="Text"
            on-create-only="false" />
    <field external="State"
            internal="State"
            data-type="string">
    <default>Proposed</default>
    </field>
    <field external="Revision"
            internal="Revision"
            data-type="string">
    </field>
<!-- Source Document / Segment Root -->
<map name="DOCUMENT">
    <!-- Attribute is required so Excel will recognize
    this mapping as a document mapping -->
    <set-attribute name="rmtype" value="segment"/>
    <!-- override the global Type field -->
    <field internal="Type"
            on-create-only="true"
            field-type="type">
      <default>Requirement Document</default>
    </field>
    <!-- Set the Shared Category value for a Document -->
    <field external="Category"
            internal="Shared Category"
            on-create-only="true">
      <default>Document</default>
    </field>
    <!-- Set a default Document Title  -->
    <field external="Summary"
            internal="Summary"
            on-create-only="true">
      <default>Excel Created Document</default>
    </field>
</map>
<!-- Document Content -->
<map name="CONTENT">
    <!-- Set a default Category value for document content.-->
```

```
    <field external="Category" internal="Category" on-create-only=
"false">
    <default>Comment</default>
    </field>
</map>
</mapping>
```