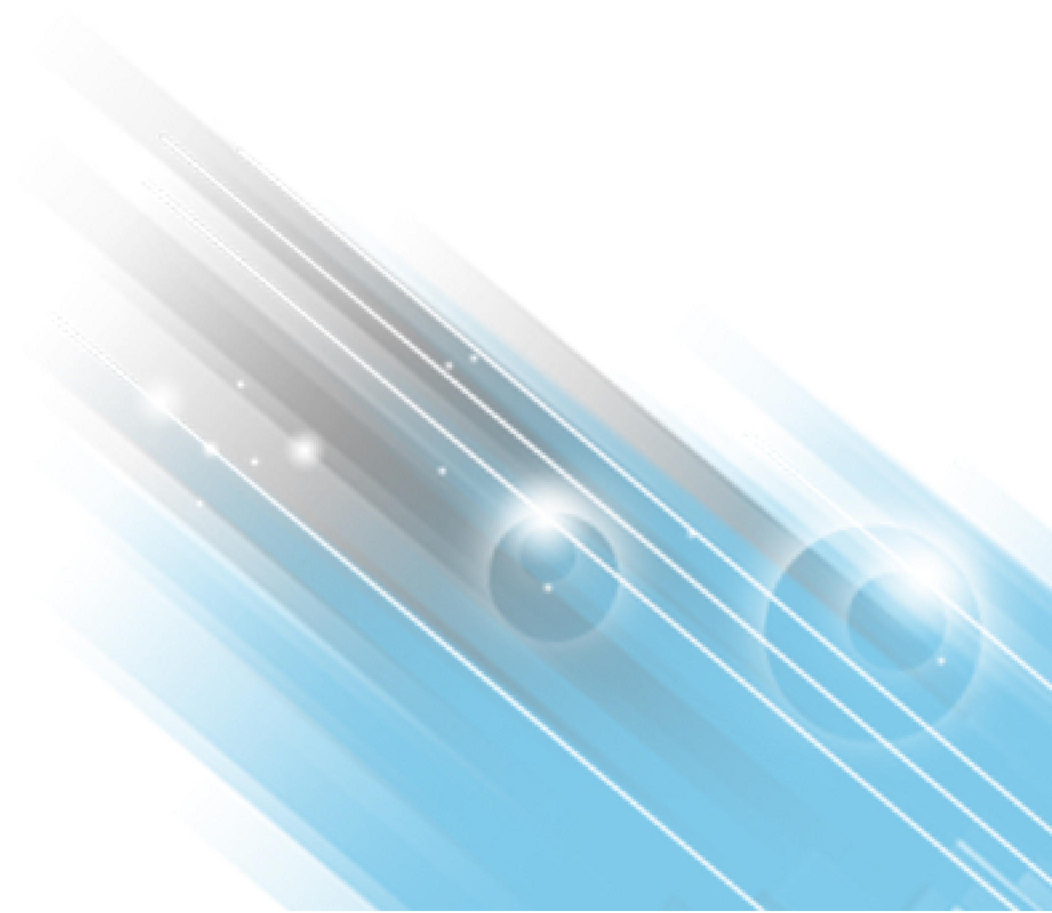
HP Agile Manager

Software Version: 2.50

Synchronization Guide



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Contents

Synchronization with ALM

Synchronize your Agile Manager workspaces with your ALM projects in order to view and/or update your releases, requirements, and defects in both endpoints. Agile Manager user stories, features, and themes, are all synchronized as requirements in ALM. **Workflow** procedures are ignored while creating and updating synchronized data.

Unless otherwise specified, references to **ALM** in this Help Center apply to all currently supported versions of ALM and Quality Center. Note that some features and options may not be supported in the specific edition of ALM or Quality Center that you are using.

This topic includes:

- "NextGen Synchronizer replacing ALM Synchronizer" below
- "Supported ALM versions" on the next page

NextGen Synchronizer replacing ALM Synchronizer

NextGen Synchronizer is a new robust solution for synchronizing Agile Manager with ALM. NextGen Synchronizer is embedded in Agile Manager's configuration area.

If you are still using ALM Synchronizer, we recommend that you migrate your synchronization links to NextGen Synchronizer. For details, see "Migrate to NextGen Synchronizer from ALM Synchronizer for Agile Manager" on page 101.

Existing ALM Synchronizer deployments will continue to be supported, but:

- ALM Synchronizer is no longer offered for installation
- Fields introduced or modified in Agile Manager 2.50 and later may not be synchronized. This includes the feature status field, workspace custom fields, theme story points, theme owner, and more.

The table below describes the differences between the synchronization methods:

NextGen Synchronizer	ALM Synchronizer for Agile Manager
• Supports synchronizing requirements, defects, and releases. • Supports synchronizing releases whose end date is in the past, but later than a specified date. • Does not support ALM / Quality Center versions earlier than 11.52 patch 5. (See list of supported versions below.) • Supports connecting to ALM 12.01 and later using LDAP or SiteMinder single sign-on (SSO). • Supports synchronization links from a single Agile Manager workspace to ALM projects stored in different ALM versions. • Embedded directly into Agile Manager's configuration area. • The Integration Bridge installed to support synchronization can be installed on a Windows or Linux computer. • When a new Agile Manager release requires an Integration Bridge update, the upgrade process will take place automatically. Existing integration bridges will be disabled for a short period of time, and appropriate notification will be provided. For details, see "NextGen Synchronizer" on page 13.	• Supports synchronizing requirements, defects, and releases. • Does not support synchronizing releases whose end date is in the past. • Supports ALM / Quality Center 11.00 and 11.50, in addition to later versions. (See list of supported versions below.) • Supports external authentication when working with ALM 12.20 (without synchronizing entity links). • Supports synchronization links from a single Agile Manager workspace to multiple ALM projects only if they are stored in ALM servers of the same version. • Requires administrators to install a separate client and server and manually upgrade for updates. • The Synchronizer server and client must be installed on a Windows computer. • Upgrading to the newest version of the Synchronizer is required to access new functionality, but existing functionality remains available regardless. For details, see "HP ALM Synchronizer for Agile Manager" on page 100.

Supported ALM versions

The following versions of ALM are supported for ALM Synchronizer for Agile Manager and NextGen Synchronizer.

Release #	NextGen Synchronizer	ALM Synchronizer for Agile Manager
ALM/Quality Center 11.00	x	√; all patches

Release #	**NextGen Synchronizer**	**ALM Synchronizer for Agile Manager**
ALM/Quality Center 11.50	x	√; all patches
ALM 11.50 with Integration Enablement Pack	x	√; all patches
ALM/Quality Center 11.52	√ patch 5 and higher	√; all patches
ALM/Quality Center 12.01	√ patch 1 and higher	√; all patches
ALM/Quality Center 12.20	√	√; all patches
ALM/Quality Center 12.21	√	√
ALM/Quality Center 12.50	√	x

When working in **ALM Synchronizer for Agile Manager**:

- You cannot configure multiple links on the same Synchronizer server that connect to ALM endpoints of different versions or patch levels.
- Connecting to ALM using external authentication is supported by ALM Synchronizer when working with ALM 12.20 (without synchronizing entity links).

Sample use cases

The following diagrams illustrate some sample use cases where Synchronizer is used to manage both ALM projects and Agile Manager workspaces.

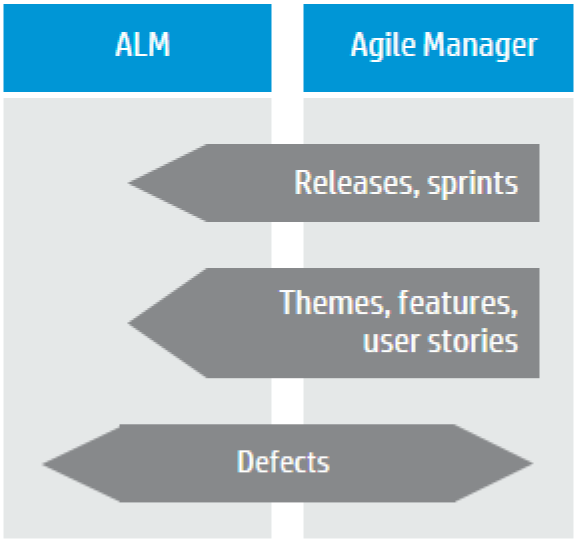
> **Note:** Releases, requirements, and defects are all synchronized in separate links.

"Develop and plan in Agile Manager; test in ALM" on the next page

"Develop in Agile Manager; test in ALM" on page 12

"Manage workload for both user stories and defects in Agile Manager" on page 12

Develop and plan in Agile Manager; test in ALM



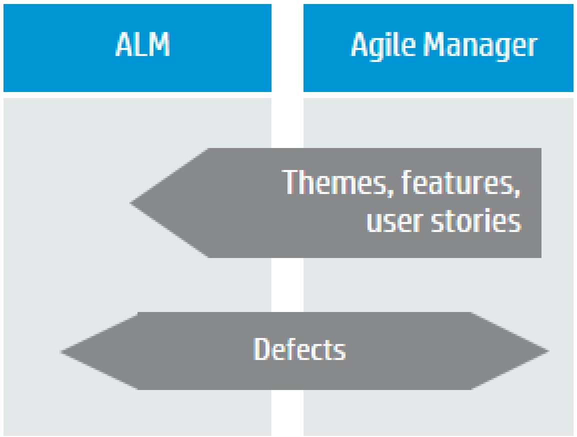
Releases and sprints are created and updated in Agile Manager, enabling teams to schedule work according to Agile methodologies.

Additionally, requirements are managed as user stories in Agile Manager, together with themes and features. Themes, features, and user stories are scheduled within releases and sprints.

All the entities created and managed in Agile Manager are synchronized to ALM, including releases and sprints, themes and features, and user stories. These entities are used in ALM to indicate test coverage.

Defects are created in ALM, where teams can utilize ALM's full testing features. To ensure that defects are included in team workloads, they are synchronized with Agile Manager, where they can be assigned to sprints. Developers can update the defect details in Agile Manager, and testers can see these updates in ALM.

Develop in Agile Manager; test in ALM



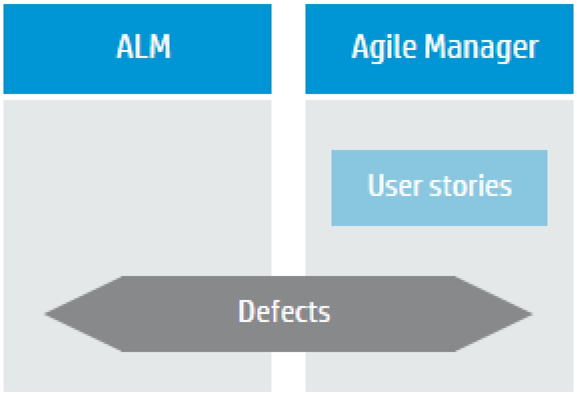
Requirements are managed as user stories in Agile Manager, together with themes and features, and are scheduled within releases and sprints.

User stories are synchronized with ALM, together with any relevant themes and features, where they can be used to indicate test coverage.

Defects are created in ALM, where teams can utilize ALM's full testing features.

To ensure that defects are included in team workloads, they are synchronized with Agile Manager, where they can be assigned to sprints. Developers can update the defect details in Agile Manager, and testers can see these updates in ALM.

Manage workload for both user stories and defects in Agile Manager



User stories are managed in Agile Manager, providing development teams with a robust Agile environment.

Defects are created in ALM, where teams can utilize ALM's full testing features.

To ensure that defects are included in team workloads, they are synchronized with Agile Manager, where they can be assigned to sprints. Developers can update the defect details in Agile Manager, and testers can see these updates in ALM.

NextGen Synchronizer

NextGen Synchronizer enables administrators to configure synchronization between ALM and Agile Manager directly in the Agile Manager configuration area.

Synchronizer checks ALM and Agile Manager for recent updates in the synchronized items, and updates the other endpoint accordingly. You can configure the direction in which changes are synchronized between the endpoints: from ALM to Agile Manager, from Agile Manager to ALM, or both ways.

Synchronization links and endpoints

Synchronization is defined by **links**, which you create and manage in the Agile Manager **Integrations > Synchronizer** configuration tab. This configuration tab is visible only to Integration Administrator users.

Links are created between a pair of **endpoints**, namely an ALM project and an Agile Manager workspace. You can set automatic synchronizations, or run manual synchronizations to synchronize records between the endpoints.

Each synchronization link defines the following:

- The **type of entities synchronized** (defects, user stories / requirements, or releases).
- The **directions** in which the endpoints are updated (ALM > Agile Manager, Agile Manager > ALM, or both).
- The **favorites** used to find records with new data in each endpoint.

Creating multiple links

Each link synchronizes a specific entity type between a single ALM project and a single Agile Manager workspace. Create separate links to synchronize defects, requirements, and releases between the same two endpoints.

You can create multiple links between a single Agile Manager workspace and multiple ALM projects, even if the ALM projects are stored in different versions of ALM. In such a case, use Agile Manager favorites to separate the synchronized data inside the workspace.

To prevent data leaks between workspaces, Synchronizer does *not* support multiple links between a single ALM project and multiple Agile Manager workspaces in the same site.

ALM Version Control

If you synchronize with an ALM project that uses version control, NextGen Synchronizer conforms to the versioning rules. Changes made by the synchronization process are checked in with a comment: `Modified by NextGen Synchronizer`.

During synchronization, Agile Manager connects to ALM using the credentials of an ALM user that you specify.

- When synchronizing an entity that is checked out by that user, the entity is updated and checked in.
- When synchronizing an entity that is checked out by a different user, the ALM entity is not modified.
  - If the synchronization is governed by the Agile Manager Manager side, a synchronization error occurs due to the locked entity on ALM.
  - If the synchronization is governed by the ALM side, the Agile Manager entity is updated based on the last checked-in version on ALM.

For system requirements, see "Integration Bridge system requirements" on page 25.

Synchronization steps

Working with Synchronizer involves the following steps.

Step	**Description**
"Create Agile Manager and ALM favorites" on page 16	Create favorites for Synchronizer to use when looking for new records in ALM or Agile Manager. If no favorite is configured, all records are considered for synchronization. You can perform this step before setting up Synchronizer, or come back and do it later. **Tip:** We recommend creating integration favorites before your first synchronization. Run a simulation using your favorite to verify that synchronization works as you expect.
"Adapt the data in your endpoints" on page 17	Make recommended modifications to your ALM project and Agile Manager workspace to ensure smooth synchronization.
"Define an Integration Administrator user" on page 24	Define an **Integration Administrator** user to manage the synchronization links.
Obtain API client details for the Integration Bridge	Add an Integration Bridge client on the **Integrations > API** configuration page. For details, see the *Agile Manager User Guide*. Agile Manager generates a client ID and secret for the Integration Bridge to use when connecting to Agile Manager.

Step	**Description**
"HP Integration Bridge overview" on page 24	The Integration Bridge connects between Agile Manager and ALM, and must be installed on a machine that has access to both systems. When configuring the Integration Bridge connection to Agile Manager, enter the client ID and secret obtained in the previous step.
"Create a synchronization link" on page 58 and then "View and edit link configuration" on page 64	Use the wizard to help you define your connection data to ALM, the favorites used to filter data, and the directions in which the endpoints are updated. Then, continue with mapping link fields and field values.
"Run synchronizations" on page 85	Run an integrity check to prevent errors during synchronization, and an optional simulation to understand details about the data that will be updated. Run manual synchronizations or enable synchronizations to run automatically.
"Review link summaries and error details" on page 89	Review the status of your links and investigate any errors that may have occurred during synchronization. You can view the run history for a specific link in the Run History tab.
"Configure Synchronizer notifications" on page 82	Configure Synchronizer to send notifications about issues occurring during synchronizations. Link notifications are configured for all links in a workspace. Bridge notifications are configured per bridge.

See also

- "Import a link from ALM Synchronizer" on page 83
- "Duplicate a link" on page 91
- "Edit a link's ALM endpoint" on page 92
- "Link status reference" on page 93
- "How can I improve synchronization performance?" on page 97
- "Integration Bridge troubleshooting" on page 55

Create Agile Manager and ALM favorites

Synchronizer looks for new records in ALM or Agile Manager based on the favorites configured for the link.

Items included in the selected favorite are synchronized with the other endpoint as newly created items. If no favorite is configured, all records are synchronized.

When synchronizing requirements or releases, you can also limit the synchronization to a subset of records by defining an alternate root folder for the link. The alternate root folder is considered before the favorites.

- In Agile Manager, create, modify, and delete your synchronization favorites in the **Product Backlog** > **Backlog** grid.

  Store synchronization favorites in the **Integration** favorites folder. This folder is visible only to **Integration Administrators**.
- In ALM, the selected favorite can be a private or public favorite, but it must be available to the user defined in the credentials used to connect to ALM. You can select from a maximum of 50 favorites for a specific ALM project.

It is *recommended* to use favorites, but not required.

> **Tip:** Favorites are specifically useful when first configuring your link. Start by using a favorite that contains only one record, and expand it slowly. Run simulation synchronizations to verify that the synchronization works as you expect.

> **Caution:**
>
> - Once a record in one endpoint is mapped to a record in the other endpoint, these records continue to be synchronized even if they no longer match the link's favorite. Be sure that you want to synchronize data in a specific record or type of record before including it in your favorite.
> - When a new requirement is created in the master endpoint, and the requirement is the child of requirements that were not previously synchronized, the parent requirements are also created in the other endpoint. If a favorite is defined, the parent requirements are synchronized even if they do not match the favorite.

You can select favorites to use for a synchronization when or the link. For details, see:

- "Optional: Define favorites (requirement and defect links)" on page 61
- "View or modify synchronization favorites (defect and requirement links)" on page 66

Adapt the data in your endpoints

Before synchronizing records between Agile Manager and ALM, adapt the data in either endpoint to match the fields supported in the other endpoint, as well as synchronization requirements.

For example, Agile Manager defects can also have a feature and theme defined. To synchronize these fields, you must create corresponding fields in ALM.

In Agile Manager, user stories are often arranged in a hierarchy, under features and themes. To synchronize these records with ALM, you must create a corresponding hierarchy of requirement types.

Modify in both ALM and Agile Manager

In both endpoints, create user-defined or custom fields to represent the record ID in the other endpoint. Define these fields as **Number** or **Numeric** fields.

- In ALM, create a field named **Agile Manager ID**.
- In Agile Manager, create a field named **ALM** or **QC ID**.

Later, map these corresponding fields in the link's **Field Mapping** tab. For details, see "Edit field mapping" on page 69.

> **Note:** Avoid special characters (~!@#$%( )^&) in attachment names, as these may cause unexpected behavior during synchronization.

Modify in ALM

- "Prepare requirement types to match Agile Manager's (requirement synchronization)" below
- "Optional: Create a subset of requirements or releases in the tree (requirement or release synchronization)" on the next page
- "Check for releases that already exist in both endpoints (Releases synchronization)" on page 20
- "Create or modify fields" on page 21

Prepare requirement types to match Agile Manager's (requirement synchronization)

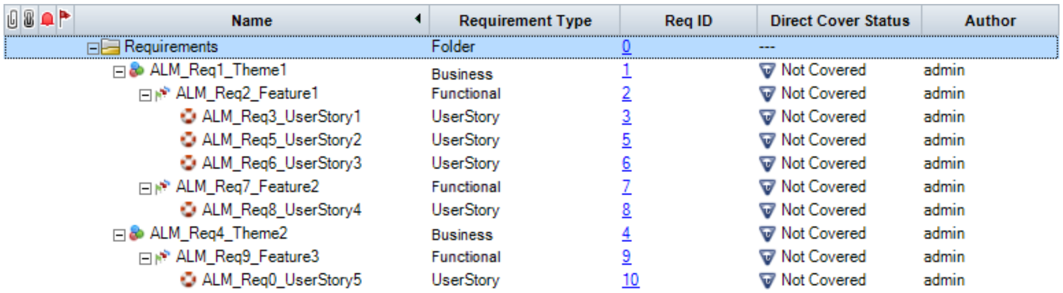
Decide on ALM requirement types that represent Agile Manager themes, features, and user stories, and arrange them in a hierarchy that matches the one in Agile Manager.

1. If needed, create new user-defined requirement types in ALM customization. Do not base new requirement types on the **Folder** type.

   We recommend the following:

   - Create a new **User Story** requirement type in ALM to represent user stories.
   - Use ALM's out-of-the-box **Functional** requirement type to represent **features**.
   - Use the ALM's out-of-the-box **Business** requirement type to represent **themes**.

2. Create or modify the requirement tree with a maximum of three levels (representing themes, features, and user stories).



Name	Requirement Type	Req ID	Direct Cover Status	Author
Requirements	Folder	0	---	
ALM_Req1_Theme1	Business	1	Not Covered	admin
ALM_Req2_Feature1	Functional	2	Not Covered	admin
ALM_Req3_UserStory1	UserStory	3	Not Covered	admin
ALM_Req5_UserStory2	UserStory	5	Not Covered	admin
ALM_Req6_UserStory3	UserStory	6	Not Covered	admin
ALM_Req7_Feature2	Functional	7	Not Covered	admin
ALM_Req8_UserStory4	UserStory	8	Not Covered	admin
ALM_Req4_Theme2	Business	4	Not Covered	admin
ALM_Req9_Feature3	Functional	9	Not Covered	admin
ALM_Req0_UserStory5	UserStory	10	Not Covered	admin

   NextGen Synchronizer retains the hierarchy during synchronization.

> **Note:**
>
> - You can map only one ALM requirement type to each of these Agile Manager entity types.
> - If you do not map a specific ALM requirement type, requirements of that type are not synchronized.
> - Synchronization may fail if:
>   - You do not map all requirement types, including Theme, Feature, and User Story.
>   - Synchronized requirements are not located in the correct location in the ALM root hierarchy.
>   - You change a requirement's type after it was synchronized.

Optional: Create a subset of requirements or releases in the tree (requirement or release synchronization)

By default, NextGen Synchronizer synchronizes:

- the entire ALM Requirements root folder, not including sub-folders.
- all current releases (with an end date that has not yet passed) in the ALM **Releases** root folder, including sub-folders.

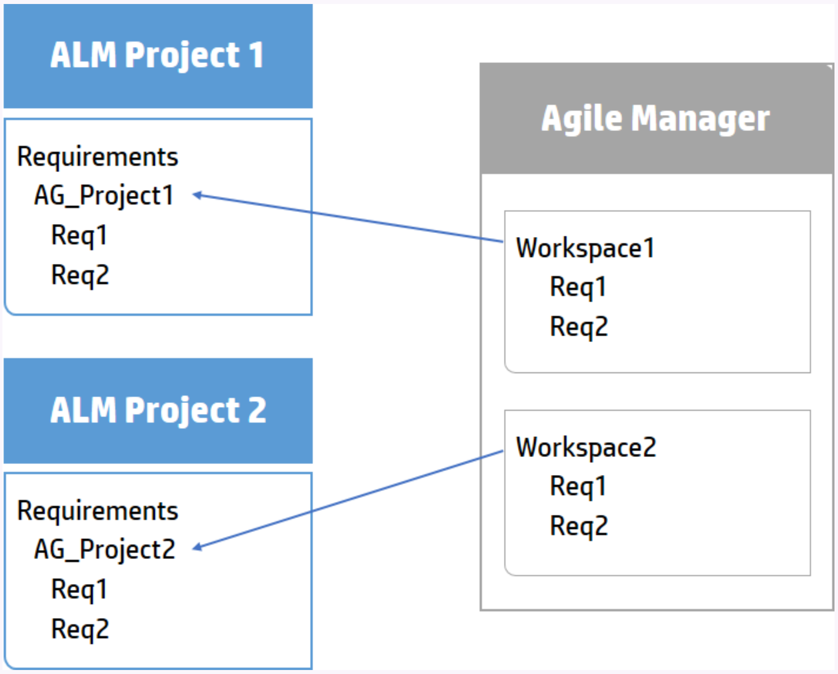
To synchronize only a subset of the requirements or releases in your ALM project, you can specify an alternate root folder in the synchronization link.

In the ALM project's tree, create a sub-folder that contains only the requirements or releases that you want to synchronize. (For requirements, this sub-folder should not contain any sub-folders).

> **Note:** If you also define favorites in ALM or Agile Manager to filter the synchronized records, the alternate root folder is considered first.

In the example below:

- The user stories in Agile Manager **Workspace1** are synchronized with the requirements in the ALM **AG_Project1** folder instead of the **Requirements** folder.
- The user stories in Agile Manager **Workspace2** are synchronized with the requirements in the ALM **AG_Project2** folder instead of the **Requirements** folder.
- In both ALM projects, other sub-folders are ignored by Synchronizer.
- You could similarly set up an alternate root folder for releases. In that case, sub-folders would be included in the synchronization.



For details on defining the alternate root folder in your synchronization link, see "Optional: Define an alternate root folder (requirement and release links)" on page 62.

Check for releases that already exist in both endpoints (Releases synchronization)

- If you want to synchronize past releases, determine the end date of the oldest release you want to synchronize. You specify this date on the Rules tab, when selecting the **Synchronize past releases...** option.
- If you have releases or sprints/cycles with the same names defined in both ALM and Agile Manager, select the **Map pairs of new releases and sprints/cycles with identical names** option.

  The data from the dominant endpoint is used for all release entities, overriding any data in the other endpoint.

  Why select this option?

  If identically named releases or sprints are found and are not mapped, these releases or sprints are not synchronized at all and a "duplicate entities" error is generated in the Run Report.

  This is because Synchronizer tries to handle the release as a new record, creating it in the destination endpoint.

  The synchronization fails because the destination endpoint already has a release or sprint/cycle with the same name.

  If you later change the name of one of the releases or sprints, so that the duplication does not occur, the Synchronizer re-creates it in the destination endpoint.

Note: When mapping, NextGen Synchronizer checks only the releases that are included in the synchronized time frame. Releases or sprints/cycles with identical names are not mapped if they are in a past release (or a release whose end date is older than the one you specified for synchronization).

For example:

If...	Then...
- You have a current ALM release named `Release_1.3`, as well as a current Agile Manager release named `Release_1.3` - You define Agile Manager as the dominant endpoint for the release link fields (in the Field Mapping tab) - You select the **Map pairs of new releases or sprints found with identical names** option in the Rules tab	- The two releases are mapped. - All data in the ALM release `Release_1.3` is overwritten by the data in the Agile Manager release `Release_1.3`.

If...	Then...
- You have: - An ALM release named `Release_1.3`, whose end date is July 20, 2015. - An Agile Manager release named `Release_1.3`. whose end date is July 30, 2015. - You define Agile Manager as the dominant endpoint for the release link fields (in the Field Mapping tab) - You select **Synchronize past releases. End date can be this date or later:** `July 25, 2015`. - You select the **Map pairs of new releases or sprints found with identical names** option in the Rules tab.	The ALM release is not relevant for mapping, because it is too far in the past. However, synchronizing `Release_1.3` to ALM fails because it tries to create a release on ALM with a name that already exists.

Create or modify fields

In ALM, modify the fields listed in the following table. If a field does not already exist in ALM, create a user-defined field to correspond to this data in Agile Manager. For details about mapping fields after setting up your link, see "Edit field mapping" on page 69.

Defining fields as **Lookup List** fields enables you to have empty lists, but still use this field for grouping in ALM.

Field name	Description	For Defects	For Requirements
Application	Define as a **Lookup List** field. Configure ALM *not* to verify this value. **Tip:** Alternately, when editing your link, map the Agile Manager **Application** field to the ALM **Product** field. If you do this, any new applications added to Agile Manager are not automatically created in ALM. To synchronize these new applications, you must first add the new Product value in ALM.	√	√
Assigned to	Define as a **User List** field.	x	√
Blocked	Define as a **String** field.	√	x
Bucket	Define as a **Lookup List** field. Configure ALM *not* to verify this value.	√	x
Feature	Define as a **Lookup List** field. Configure ALM *not* to verify this value. **Note:** This field is required if you use features and themes.	√	x
Feature Status	Define as a **Lookup List** field. Configure ALM *not* to verify this value.	x	√
Invested (Hours)	Define as a **Number** field.	√	x
Kanban Status	Define as a **String** field.	√	x
Rank	Define as a **Number** field.	√	√
Remaining (Hours)	Define as a **Number** field.	√	x
Story Points	Define as a **Number** field.	√	√

Field name	Description	For Defects	For Requirements
Story Status	Define as a **Lookup List** field. Configure ALM *not* to verify this value.	x	√
Team	Define as a **Lookup List** field. Configure ALM *not* to verify this value.	√	√
Theme	Define as a **Lookup List** field. Configure ALM *not* to verify this value. **Note:** This field is required if you use features or themes.	√	x

Tip: You may want to create an additional user-defined field to distinguish between entities created directly in ALM and those synchronized from Agile Manager.

To do so, create a field in ALM named **Creation Method**. Later, when you are mapping fields, assign a constant value of **created by Synchronizer**. For details about assigning constant values, see "Edit field mapping" on page 69.

Notes for themes, features, and teams

Themes and feature names must be unique in both ALM and Agile Manager, and team names must be unique in ALM. If duplicate values are found during synchronization, the related record is not synchronized.

- In Agile Manager, a workspace team and a feature team can technically have the same name. However, this is not recommended within the same release to prevent confusion or errors when synchronizing. For details, see "Notes for synchronizing team fields" on page 77.
- In Agile Manager, records assigned to a specific feature must also have a theme defined. If you synchronize features, you must also synchronize themes. Therefore, if you map theme and feature fields, we recommend making them required fields in ALM to avoid synchronization errors.

Notes about maximum record sizes

NextGen Synchronizer supports a maximum record size of 12 MB. This means that synchronizing records larger than 12 MB will cause errors.

If you have records that are larger than 12 MB, move some of the data from the **Description**, **Comment**, or any other custom free text field, to a separate file. Then, add the file to the record as an attachment. Attachment sizes are not included in the maximum record size, though they are synchronized between the endpoints.

Define an Integration Administrator user

Before using NextGen Synchronizer, assign a user to the Integration Administrator role in Agile Manager.

For details about assigning Agile Manager roles, see "Define site users" and "Define workspace users" in the *Agile Manager User Guide*.

Integration Administrator user

Integration Administrator users are responsible for the following:

- Creating and managing links
- Scheduling and running tasks
- Monitoring and troubleshooting errors

The **Integrations** configuration area, where you create and manage synchronization links, is only visible to **Integration Administrator** users.

Assign one or more users to the **Integration Administrator** role, from either the **Site** > **Users** or **Workspace** > **Users** configuration page.

> **Note:** If you work with multiple workspaces, make sure that you assign a user to the Integration Administrator role for each workspace you want to synchronize.
>
> If you want the same user to be able to configure links from multiple workspaces, make sure that this user is assigned to the Integration Administrator role in all relevant workspaces.
>
> In the **Assign to Roles** dialog box, be sure to select the workspace in which you want to assign the role.

HP Integration Bridge overview

The HP Integration Bridge is a software component installed on the customer system to mediate between Agile Manager and on-premise applications located behind firewalls, such as HP ALM, enabling two-way communication between the two.

When you install the Integration Bridge, you install both an Integration Bridge application, and a service that manages the application. The service makes sure that the Integration Bridge is automatically started when your system starts.

Integration Bridge system requirements

Verify that your system has the following minimum system requirements to install the Integration Bridge:

Operating system	One of the following: • Windows Server 2008 R2 SP1 64-bit • Windows Server 2012 R2 SP1 64-bit • Red Hat Enterprise Linux 6.2, 6.3, 6.4, or 6.5 (64 Bit) • SUSE Linux Enterprise 11 Service Pack 3
Memory	8 GB
Free disk space	80 GB

Note:

- The Integration Bridge must be installed to a path named only with ASCII characters.
- We recommend not installing the Integration Bridge on the same Linux server as Agile Manager or ALM. Installing the Integration Bridge on the same server as one of these would cause severe competition for the same resources, impacting stability and performance.
- On Windows, the installation includes both the Integration Bridge application, and the corresponding service.
  On Linux, if you install the Integration Bridge as a root user, the installation includes the service as well.
  If you install the bridge using a non-root user, you will need to manually install the service as a root user.

Integration Bridge tasks

To start using NextGen Synchronizer, download and install the Integration Bridge, and then define credentials for connecting to ALM.
For details, see:

- "Download and install the bridge" on the next page
- "Manage connection setup" on page 34

Continue by creating synchronization links in Agile Manager. For details, see the Agile Manager Help Center (**Help** > **Help on This Page**).

See the following maintenance topics as needed.

- "Integration Bridge security" on page 31
- "Start and stop the Integration Bridge" on page 48
- "Uninstall/Remove the Integration Bridge" on page 50
- "Integration Bridge troubleshooting" on page 55

Download and install the bridge

Download the Integration Bridge from Agile Manager and install it on a computer that can access both Agile Manager and ALM. The bridge communicates with both applications, enabling data synchronization between the two.

See also "Installing multiple bridges" on page 31.

If you are installing **on a Windows operating system**, install the bridge as a Windows administrator user. You can run the bridge as a non-administrator user with the relevant permissions.

On a Linux computer, any user can install the bridge.

For more detail, see "Security recommendations" on page 33.

Prerequisites

- Make sure that you are assigned to the **Integration Administrator** role (**Site** > **Users** or **Workspace** > **Users** configuration page).
- Obtain a client ID and secret to enter during the Integration Bridge installation. The bridge uses these credentials to access Agile Manager.

  On the **Integrations > API** configuration page, add an Integration Bridge client. For details, see the *Agile Manager User Guide*.

  > **Note:** This step must be performed by a Site Administrator.

  Agile Manager generates a **client ID** and **secret** for the bridge.

Download the bridge from Agile Manager

Click **Configuration** ⚙ on the top right of the page, and select **Integrations** from the navigation menu on the left.

Tab: Integrations > Synchronizer. This tab is visible to **Integration Administrators** only.

> **Tip:** If you have just assigned yourself to the Integration Administrator role, you do not need to log out and log in again. Simply refresh your browser window to access the **Integrations** configuration area.

On the **Integrations** > **Synchronizer** configuration page, do one of the following:

Installation	Instruction
If this is the first time you are installing the bridge	In the checklist, click the link in the second step to download the bridge, according to your operating system.
If you are installing an additional bridge or performing an upgrade	Select **More Actions** > **Download Integration Bridge**, and select the relevant download according to your operating system.

Install the Integration Bridge

1. On the computer where you want to install the bridge, extract the downloaded zip file (**hp-integration-bridge-windows.zip** or **hp-integration-bridge-linux.zip**). You must extract this zip file to a path named only with English characters.

   The zip file contains the following:

   - The installation executable file.
   - A configuration file (**server-connection.conf**) containing the URL and site ID that the bridge will use to connect to Agile Manager.
   - The HP Integration Bridge Installation Guide, in which you can find installation instructions and more.
   - For Linux: An integrity verifier (**.bin.sig** file), used by HP for signature verification when packaging the installation files.
2. On Linux: In the folder containing the extracted files, run **chmod +x hp-integration-bridge.bin** to obtain execution permissions on the installation file.
3. Run the following file to begin the installation:

   On Windows: **hp-integration-bridge.exe** (Runs a GUI Wizard)

   On Linux: **hp-integration-bridge.bin** (CLI only)
4. Follow the instructions in the installation process to complete the installation.

   When provided, accept the default values, which are configured to connect to your workspace.

> **Note:**
>
> - The Integration Bridge must be installed to a path named only with ASCII characters, and must not contain consecutive spaces.
> - If you select the **Modify an Existing Instance** option, the bridge you select is uninstalled. After uninstalling, run the installation again to install a new instance.

Tip: On Linux:

- You can cancel the installation at any step by typing `quit`.
- You can return to a previous step in the installation process by typing `back`.

- In the step for configuring the connection to Agile Manager:

Settings	Description
Bridge name	Define a name for the bridge.
URL	The URL of your Agile Manager site. **Format:** `http(s)://<hostname or IP address>:<port number>/agm` This URL will be used in email notifications, such as to Integration Administrators and when creating URL attachments in ALM. **Tip:** We recommend ensuring that this URL is accessible to email recipients and from the ALM client. By default, this URL is provided for you, from the downloaded **server-connection.conf** file. **Caution:** If you modify this URL, make sure not to end it with a slash ('/'). It is stored in the **<HP Integration Bridge installation folder>\product\conf** folder (on Linux, reverse the slashes).
Site ID (Read only)	The site ID of the Agile Manager site. You can find the site ID in your Agile Manager's URL, in the tenant ID attribute. For example: **TENANTID=123456789**. This is also stored in the **server-connection.conf** file.
Client ID and Client Secret fields	The client ID and secret that Agile Manager generated on the **Integration > API** page. If you need to modify these credentials later on, see "Set Agile Manager credentials" on page 45.
Proxy server	If you will be using a proxy server to access Agile Manager, select **Use proxy server**. Enter details for the proxy server and the user who will be logging into the proxy server: ○ **Host**. A valid address for the proxy server. ○ **Port**. A valid port number (integer, between 1-65535) For details about modifying the proxy credentials later, see "Configure a proxy for Agile Manager connections" on page 46.

> **Tip:** On Windows:
>
> You can click **Test Connection** to verify that the bridge can connect to Agile Manager.

After you enter this information, the connection to Agile Manager is tested. If the test fails, you can reenter the connection settings or continue the bridge installation and modify the credentials later.

- In the step for configuring the HP Integration Bridge service, accept the default service name and port number, or modify as needed.

> **Tip:** If you install multiple bridges, use a name that will help you associate the service with the corresponding bridge.

In Linux: The service name must contain only ASCII characters, and must not contain square brackets (**[ ]**).

5. When the installation is finished, the **Installation complete** message is displayed. Press **ENTER** to quit the installer.
6. If you performed the installation on Linux as a non-root user, you must manually install the Integration Bridge service as a root user:

```
<Bridge_installation_directory>/product/bin/HPIntegrationBridge.sh
install
```

7. On Windows or on a Linux computer that supports GUI, the Endpoint Credentials Manager application opens automatically. Define credentials for connecting to ALM, as described in "Manage connection setup" on page 34.

> **Note:** You must configure ALM credentials before you configure your links.
>
> If the credentials manager does not open automatically, you can open it manually or configure the credentials using the CLI. For details, see "Manage connection setup" on page 34.

In Agile Manager, the new bridge is identified within a few moments. If you do not see your new bridge, refresh the page. From there, click **Create synchronization links** to start creating your links.

Installing multiple bridges

Installing multiple bridges is necessary only in certain cases. For example:

- If you need to synchronize Agile Manager with ALM projects that reside on different networks.
- If you define a large number of synchronization links and you want to distribute the load between multiple bridges.
- If you install bridges for multiple Agile Manager sites. Each bridge communicates with one site.

  In this case, you must download each bridge separately, from the site with which it will communicate. The downloaded files contain the configuration necessary for the bridge to connect to the relevant site.

Recommendations if you install multiple bridges:

- Use a separate set of Agile Manager credentials (client ID and secret) for each bridge.
- Instead of using the default installation folder, provide a name that helps identify the bridge. For example, if you install multiple bridges to communicate with multiple Agile Manager sites, include the site name in the installation folder name.

Integration Bridge security

The Integration Bridge does not expose any internal information. Additionally, HP application JAR files are signed by HP, helping to validate the code's origin.

This topic includes:

- "Communication with Agile Manager using OAuth authentication" below
- "Communication via SSL" on the next page
- "Connections using a certificate that is not signed by a well-known Certificate Authority" on the next page
- "Password encryption" on the next page
- "Security recommendations" on page 33
- "Integration Bridge automatic upgrades" on page 34

Communication with Agile Manager using OAuth authentication

The Integration Bridge can use OAuth authentication when connecting to Agile Manager, instead of using the credentials of an Agile Manager user.

All new Integration Bridge installations use OAuth authentication.

Existing bridges upgraded to version 1.03 or later continue to use Agile Manager user credentials until the password expires or until you manually update the bridge to use OAuth.

For details, see "Synchronizer Integration Bridge: New way to connect to Agile Manager", in the What's New section of the *Agile Manager User Guide*.

Communication via SSL

Communication between the Integration Bridge and Agile Manager is secured by SSL.

The bridge logs in to Agile Manager using the Agile Manager user credentials or client ID and secret provided during installation, or later as described in "Set Agile Manager credentials" on page 45.

Connections using a certificate that is not signed by a well-known Certificate Authority

If you connect to a secured Agile Manager or ALM server using a certificate that is not signed by a well-known Certificate Authority, you must establish trust for the certificate.

To establish this trust, import the issuer's certificate to the JRE's truststore in the following directory:

<Integration Bridge installation directory>\product\util\3rd-party\jre1.7.0_51\jre\lib\security\ (On Linux, reverse the slashes in this path and the ones below)

Do the following:

1. With Agile Manager or ALM open in your browser window, export the certificate from the browser, and save it to a file named **server.cer**.
2. On the Integration Bridge machine, place the **server.cer** file in the **<Integration Bridge installation\product\util\3rd-party\jre1.7.0_51\jre\bin** directory.
3. Use the keytool command from the **<Integration Bridge installation>\product\util\3rd-party\jre1.7.0_51\jre\bin** directory to import the **server.cer** file to the **<Integration Bridge installation>\product\util\3rd-party\jre1.7.0_51\jre\lib\security\cacerts** directory.

   For example:

   ```
   (Windows) keytool.exe -import -v -trustcacerts -alias <alias>
   -file server.cer -storepass <password> -keystore <Integration Bridge
   installation>\product\util\3rd-party\jre1.7.0_51\jre\lib\security\cacerts
   ```

   > **Note:** You may need to repeat this command for the rest of the certificate chain, using a different alias each time.

4. Restart the Integration Bridge.

Password encryption

Passwords for connecting to endpoints are encrypted and saved on the customer's machine, preventing credentials from being transferred to another machine.

The encryption method uses keys that are randomly generated during installation. The bridge uses AES 128 as the main encryption method.

Security recommendations

Security recommendations	
Download sources	Do not download the Integration Bridge installation file or updates from unknown sources.
Integration Bridge machine	Install the Integration Bridge on a dedicated, hardened machine.
Integration Bridge network	Deploy the Integration Bridge in an isolated network, with a firewall between the bridge and the target on-premise application. • Port 443 must be open for communication with Agile Manager. • Additional ports may be required to be opened for internal communications with other on-premise applications.
Integration Bridge permissions Windows only	By default, the Integration Bridge service runs using the Windows Local System service user. To increase system security, assign a simple Windows user to run the Integration Bridge. • Install the Integration Bridge in a folder **other than** the **Program Files** folder. This will enable you to grant the simple user permissions on the Integration Bridge installation folder. • Grant the user full permissions (Read/Write/Execute) on the installation folder. • Grant the user permissions to manage the Integration Bridge Windows service. • Open the Windows Service Manager, modify the HP Integration Bridge service to run using the simple user's account and then restart the service. **Tip:** You can protect the Integration Bridge installation folder by granting permissions to that folder only to administrators, the Local System service user, and the dedicated user you created.

Security recommendations	
Integration Bridge permissions Linux only	The Integration Bridge runs using the permissions of the Linux user that installed it, and this user will have full read, write, and execute permissions on all of the folders and files installed with the bridge. Therefore, you may want to consider installing the Integration Bridge as a non-root user. If you do: 1. We recommend creating a dedicated user for managing the Integration Bridge. Use this user to install the bridge, and to manage the bridge activation manually when necessary. 2. Protect the following files by changing their owner to **root**: • **<Integration Bridge installation>/product/bin/HPIntegrationBridge.sh** • **<Integration Bridge installation>/product/conf/wrapper.properties**
Installing multiple Integration Bridges	If you install multiple bridges, we recommend that you use a separate set of Agile Manager credentials (client ID and secret) for each bridge.
Integration Bridge user	The Agile Manager user with the Integration Bridge role should not have any other additional roles.
On-premise application users	When defining permissions for users of on-premise applications that communicate with Agile Manager, such as ALM users, limit permissions to specifically required operations only.

Integration Bridge automatic upgrades

When a new version of the Integration Bridge is available, it is automatically downloaded from Agile Manager. The HP signature on the downloaded file is verified before the new version is installed.

If your corporate rules prohibit automatic downloads, the system administrator can disable the automatic upgrades. For details, see Configure advanced parameters in the *Agile Manager Installation and Administration Guide*.

In this case, whenever a new Agile Manager version includes an upgrade to the Integration Bridge, any existing synchronization bridges will stop running until they are manually upgraded.

Manage connection setup

Credentials are used to provide secure, two-way communication between the Integration Bridge and Agile Manager or ALM.

Endpoint Credentials Manager

On Windows, or on a Linux computer that supports GUI, the Endpoint Credentials Manager application opens automatically after installing the Integration Bridge. This application is used to manage ALM credentials.

> **Note:**
>
> You must set ALM credentials before synchronizing entities between Agile Manager and ALM, and modify them later on if these credentials change.

If the Endpoint Credentials Manager application does not open automatically, or if you need to modify credentials again later:

On Windows: The Endpoint Credentials Manager application is installed together with the Integration Bridge. Locate the application in Windows and run it manually.

On Linux: Navigate to the **<*Bridge_installation_directory*>/product/util/opb** directory.

- If your system supports GUI, run the following script to open the application manually: `credentials_mng_ui.sh`
- Otherwise, run the following script to modify the credentials using the console: `credentials_mng_console.sh`

This section includes the following:

Set ALM credentials (Endpoint Credentials Manager)

On Windows:	Perform this procedure as a user with permissions to run the Integration Bridge.
On Linux:	Perform this procedure as a root user, or as the user who installed the Integration Bridge.

If you are working on a Linux machine that does not support GUI, set the ALM credentials using the Command Line Interface (CLI).

1. On the Integration Bridge machine, open the Endpoint Credentials Manager application as described above.
2. Click ✱ **New** to create a set of credentials.
3. Enter the credentials on the right, and then click 🖫 **Save** .

Field	Description
Display name	The name used to identify this particular credentials record when configuring a link in Agile Manager.
User	The name of the user connecting to ALM.
Password	The password used to connect to ALM.
Confirm password	Enter the password a second time to confirm it.

Credentials are encrypted and stored on your system in the **credentialsStore.xml** and **bridgeCredentialStore.xml** files, located in the **<*Bridge_installation_directory*>\product\conf** folder. (On a Linux system, reverse the slashes in the path.)

- To update a credential record, select it and make your changes on the right. Then click 🖫 **Save**.
- To delete a credential record, select it, and click ✕ **Delete**.

Connecting to ALM using SiteMinder single sign-on (SSO)

If the Integration Bridge needs to connect to ALM using SiteMinder single sign-on (SSO):

- Configure SiteMinder to support basic authentication.
- You may need to change the CSSChecking parameter in the SiteMinder settings to allow the characters **>**, **<**, and **'** in URLs. Otherwise, SiteMinder may reject communication messages sent by NextGen Synchronizer and synchronizations may fail.

See also: "Integration Bridge security" on page 31.

Set ALM credentials (CLI)

Use the **credentials_mng_console** command line tool to set the credentials used to connect to ALM.

You must set ALM credentials before synchronizing entities between Agile Manager and ALM, and later on if these credentials change.

> **Note:** Alternatively, set ALM credentials using the Endpoint Credentials Manager. For details, see "Manage connection setup" on page 34.

To open the **credentials_mng_console** command line tool:

On Windows
As an administrator, or as a user with permissions to run the Integration Bridge:

1. Open the ***<Bridge_installation_directory>*\product\util\opb** directory.
2. Run the **credentials_mng_console.bat** file.

On Linux
As a root user, or as the user who installed the Integration Bridge:

1. Navigate to the ***<Bridge_installation_directory>*/product/util/opb** directory.
2. Run the **credentials_mng_console.sh** file.

The **credentials_mng_console** tool supports the following commands:

"list"
"listEndpointTypeParams"
"delete"
"listEndpointTypes"
"create"
"help"
"listCredentialIds"
"update"

list

Lists available credential records for connecting to ALM from the Integration Bridge.

Usage

```
credentials_mng_console list -endpoint <ENDPOINT TYPE>
```

Parameters

-endpoint <ENDPOINT TYPE>	Endpoint type name, such as an ALM version (optional). This type name must be a value available in the "listEndpointTypes" command.

Sample Results

```
======================

Endpoint type : sample-endpoint-type-11.5

ID : 9460b7

Name : sample credentials record

User : sample username

Password : ******

Parameters :

Key | Value

-----------
```

```
sample.secret.property | ******

sample.url.property | 123
```

listEndpointTypes

Lists available ALM endpoint types accessible to the Integration Bridge, such as ALM versions. You can filter the endpoints by type name.

Usage

```
credentials_mng_console listEndpointTypes -endpoint <ENDPOINT TYPE>
```

Parameters

-endpoint <ENDPOINT TYPE>	Endpoint type name (optional)

Sample Results

```
Endpoint types  :

1. alm
```

listCredentialIds

Lists all ALM credential record IDs and the ALM endpoint type related to each credential ID.

Usage

```
credentials_mng_console listCredentialIds -endpoint <ENDPOINT TYPE>
```

Parameters

-endpoint <ENDPOINT TYPE>	Endpoint type name, such as the ALM version (optional). This type name must be a value available in the "listEndpointTypes" command.

Sample Results

```
Endpoint type : alm-11.5

Name | ID :

1. sample credentials record name | 11e7

====================

Endpoint type : sample-endpoint-type-11.5
```

```
Name | ID :

1. sample credentials record name | 21e0

2. sample credentials record #2 name | 7e0

Endpoint type : alm-11.5

Name | ID :

1. sample credentials record name | 11e7

====================

Endpoint type : sample-endpoint-type-11.5

Name | ID :

1. sample credentials record name | 21e0

2. sample credentials record #2 name | 7e0
```

listEndpointTypeParams

Lists the specific parameters required for saving credentials for each ALM endpoint type.

Usage

```
credentials_mng_console listEndpointTypeParams –endpoint <ENDPOINT TYPE>
```

Parameters

-endpoint <ENDPOINT TYPE>	Endpoint type name, such as an ALM version (optional). This type name must be a value available in the "listEndpointTypes" command.

Sample Results

```
======================

Endpoint type   : sample-endpoint-type-11.5

Output format:

Parameter:

Label:

Description:

Mandatory:

--------------------------------------------
```

```
Endpoint type specific parameters:

Parameter: sample.url.property

Label: Server URL

Description: URL address for sample server

Mandatory: true

Parameter: sample.secret.property

Label: Secret key

Description: Secret key for sample server

Mandatory: false
```

create

Creates a credentials record for accessing ALM from the Integration Bridge.

Usage

```
credentials_mng_console create –file <path to data file> –user <USER> –pass
<PASSWORD> -endpoint <ENDPOINT TYPE> -name <CREDENTIALS RECORD NAME> -param
<KEY> <VALUE> –param <KEY> <VALUE>
```

Usage example - generic

```
credentials_mng_console create -user <USER> -pass <PASSWORD> -endpoint
sample-endpoint-type-11.5 -name <CREDENTIALS NAME> -param sample.url.property
<PARAMETER_VALUE> -param sample.url.property <PARAMETER_VALUE>
```

Usage example - ALM specific

```
credentials_mng_console create -user <USER> -pass <PASSWORD> -endpoint alm-
11.5 -name <CREDENTIALS NAME>
```

Parameters

`-file <FILE>`	Read parameters from the property file (optional). Parameters will be overwritten if they are specified in the console.

`-user <USER>`	User name **Tip:** On Linux: Use an escape character (' or \) before any non-ASCII characters in the name.
`-pass <PASSWORD>`	Password
`-endpoint <ENDPOINT TYPE>`	Endpoint type name, such as an ALM version. This type name must be a value available in the "listEndpointTypes" command.
`-name <CREDENTIALS NAME>`	Credentials record name
`-param <KEY> <VALUE>`	Custom parameters (optional)
`-replace`	Replace all existing parameters with input parameters (optional)

The property file is a text file that describes the credential's properties. The file format is:

```
endpoint=<ENDPOINT TYPE>

name=<NAME>

user=<USER>

pass=<PASSWORD>

customParam1=value1

customParam2=value2
```

Sample Results

```
endpoint=<ENDPOINT TYPE>

name=<NAME>

customParam1=value1

customParam2=value2
```

update

Updates an existing credentials record for accessing ALM from the Integration Bridge.

Usage

```
credentials_mng_console update -user <USER> -pass <PASSWORD> -credentialsId
<CREDENTIALS ID> -endpoint <ENDPOINT TYPE> -param <KEY> <VALUE> –param <KEY>
<VALUE> -replace
```

Usage example

```
credentials_mng_console update -user <USER> -pass <PASSWORD> -credentialsId
<CREDENTIALS ID> -endpoint alm-11.5 -replace
```

Parameters

`-file <FILE>`	Reads parameters from the property file (optional). Parameters will be overwritten if they are specified in the console.
`-user <USER>`	New user name **Tip:** On Linux: Use an escape character (' or \) before any non-ASCII characters in the name.
`-pass <PASSWORD>`	New password
`-credentialsId <CREDENTIALS ID>`	The credentials record ID you want to update
`-endpoint <ENDPOINT TYPE>`	New endpoint name, such as an ALM version. This type name must be a value available in the "listEndpointTypes" command.
`-param <KEY> <VALUE>`	Custom parameters (optional)
`-replace`	Replace all existing parameters with input parameters (optional)

delete

Deletes an ALM credential record.

> **Note:** You cannot delete a single parameter from a credential record. You can only delete an entire credential record.

Usage

```
credentials_mng_console delete –endpoint <ENDPOINT TYPE> -credentialsId
<CREDENTIALS ID>
```

Parameters

-endpoint <ENDPOINT TYPE>	Endpoint type name, such as the ALM version. This type name must be a value available in the "listEndpointTypes" command.
-credentialId <CREDENTIALS ID>	The credentials record ID

help

Provides help for the current command when configuring ALM credentials for the Integration Bridge.

Usage

```
credentials_mng_console help
```

Configure a proxy for ALM connections

By default, the connection between the Integration Bridge and ALM is not authenticated by proxy. To configure a proxy, do the following:

> **Note:**
>
> | | |
> |---|---|
> | **On Windows:** | Perform this procedure as a user with permissions to run the Integration Bridge. |
> | **On Linux:** | Perform this procedure as a root user, or as the user who installed the Integration Bridge. |

1. In the **<Integration Bridge installation directory>\product\domain\alm\conf** folder, open the **proxy.properties** file. (In Linux, reverse the slashes in the path.)
2. To use a proxy, change the **setProxy** value to **true**.

   If this value is **false**, proxy settings are ignored and no proxy is used.
3. Set the proxy host and port values:
   a. Change the **proxyHost** value to the proxy IP address or server name.
   b. Change the **proxyPort** value to the relevant port for the proxy.

      When **proxyHost** has a value, **proxyPort** is mandatory.

> **Example**
>
> ```
> setProxy=true
>
> proxyHost=123.45.6.7
>
> proxyPort=1234
>
> proxyUser=
>
> proxyPass=
> ```

4. If the proxy requires authentication:
   a. Change the **proxyUser** value to the proxy user name.
   b. Change the **proxyPass** value to the proxy password.

      When **proxyUser** has a value, **proxyPass** is mandatory.

> **Example**
>
> ```
> setProxy=true
>
> proxyHost=123.45.6.7
>
> proxyPort=1234
>
> proxyUser=MyUserName
>
> proxyPass=MyPassword
> ```

5. Save the **proxy.properties** file.
6. Restart the Integration Bridge. For details, see "Start and stop the Integration Bridge" on page 48.

> **Tip:** If authentication fails, verify that the contents of the **proxy.properties** file are syntactically correct and contain valid values.

Set Agile Manager credentials

Use the **bridgeAuthentication** command line tool to set the credentials used to connect to Agile Manager.

The credentials consist of a client ID and secret generated by Agile Manager. To obtain a client ID and secret, add an Integration Bridge client on the **Integrations > API** configuration page.

> **Note:** If you are not a Site Administrator on your Agile Manager system, have your administrator add the Integration Bridge client and provide you with the generated client ID and secret .

Use this tool in the following cases:

- You want to use credentials other than the ones you entered when you first installed the Integration Bridge.
- You need to update your bridge so that it connects to Agile Manager using OAuth authentication. The Integration Bridge bridge now uses a client ID and secret to connect to Agile Manager instead of Agile Manager user credentials.

Run the **bridgeAuthentication** command line tool

On Windows

As an administrator, or as a user with permissions to run the Integration Bridge:

1. Open the **<*Bridge_installation_directory*>\product\util\opb** directory.
2. Run the **bridgeAuthentication.bat** file.

On Linux

As a root user, or as the user who installed the Integration Bridge:

1. Navigate to the **<*Bridge_installation_directory*>/product/util/opb** directory.
2. Run the **bridgeAuthentication.sh** file.

The **bridgeAuthentication** tool supports the following commands:

"setAuth" below

"help" on the next page

setAuth

Sets credentials for connecting to Agile Manager from the Integration Bridge.

Usage

```
bridgeAuthentication setAuth -clientId <CLIENT_ID> -secret <SECRET>
```

Parameters

`-clientId <CLIENT_ID>`	The client ID to use when connecting to Agile Manager.

`-secret <SECRET>`	The secret for the client that is connecting to Agile Manager.

help

Provides help for the current command when configuring Agile Manager credentials for the Integration Bridge.

Usage

```
bridgeAuthentication help
```

Configure a proxy for Agile Manager connections

Use the **proxyConfiguration** command line tool to set credentials for accessing Agile Manager through a proxy server.

On Windows

As an administrator, or as a user with permissions to run the Integration Bridge:

1. Open the **<*Bridge_installation_directory*>\product\util\opb** directory.
2. Run the **proxyConfiguration.bat** file.

On Linux

As a root user, or as the user who installed the Integration Bridge:

1. Navigate to the **<*Bridge_installation_directory*>/product/util/opb** directory.
2. Run the **proxyConfiguration.sh** file.

> **Note:**
>
> - Set proxy server credentials only if the credentials change from when you first installed the Integration Bridge.
> - After making any changes, restart the Integration Bridge. For details, see "Start and stop the Integration Bridge" on page 48.

The **proxyConfiguration** tool supports the following commands:

"setAddress"

"setAuth"

"help" on page 48

"removeProxyConfiguration "

"removeAuth"

setAddress

Sets a host and port for accessing Agile Manager through a proxy server.

Usage

```
proxyConfiguration setAddress -host <PROXY HOST> -port <PROXY PORT>
```

Parameters

`-host <PROXY HOST>`	The address of the proxy server host.
`-port <PROXY PORT>`	The port number of the proxy server.

removeProxyConfiguration

Configures the Integration Bridge to access Agile Manager without a proxy server.

Usage

```
proxyConfiguration removeProxyConfiguration
```

setAuth

Saves credentials for connecting to a proxy server, when accessing Agile Manager through a proxy server.

Usage

```
proxyConfiguration setAuth -user <USER> -pass <PASSWORD>
```

Parameters

`-user <USER NAME>`	The name of the user connecting to the proxy server.
`-pass <PASSWORD>`	The password of the user connecting the proxy server.

removeAuth

Deletes a set of credentials previously used to connect to Agile Manager through a proxy server.

Usage

```
proxyConfiguration removeAuth
```

help

Provides help for the current command when configuring access to Agile Manager through a proxy server.

Usage

```
proxyConfiguration help
```

NextGen Synchronizer proxy support

NextGen Synchronizer supports the following types of proxy authentication:

Between the Integration Bridge and...		Agile Manager	ALM
Forward	**No authentication**	√	√
	Basic authentication	√	√
Reverse	**No authentication**	√	√
	Basic authentication	x	x

> **Note:** NTLM authentication is not supported for any types of proxy.

Start and stop the Integration Bridge

If the Integration Bridge service is installed, the Integration Bridge is automatically started when your system starts.

This topic describes how to manage the bridge activation manually.

On Windows:	Perform this procedure as a user with permissions to run the Integration Bridge.
On Linux:	Perform this procedure as a root user, or as the user who installed the Integration Bridge.

Note:

- The Integration Bridge service is installed as part of the Integration Bridge installation, unless you performed the installation on Linux as a non-root user. In this case you must manually install the Integration Bridge service as a root user:

  ```
  <Bridge_installation_directory>/product/bin/HPIntegrationBridge.sh
  install
  ```

- The bridge must be running for Agile Manager to communicate with on-premise applications such as ALM.
- If you have upgraded your ALM projects, you’ll need to restart the bridge manually after upgrade to continue synchronizing data between ALM and Agile Manager.

Commands relevant only on Windows

Start the bridge	Search or browse for, and select the **StartHPIntegration Bridge** application.
Stop the bridge	Search or browse for, and select the **StopHPIntegration Bridge** application.
Manage the bridge using Windows Services	1. Run the **services.msc** command. 2. Select the **HPIntegration Bridge** service. 3. Stop or start the service as required. This starts and stops the bridge application as well.

Manage the bridge from the command line

Use the **HPIntegrationBridge** command line tool:

On Windows	**On Linux**
1. Open the **<Bridge_installation_directory>\product\bin** directory. 2. Run the **HPIntegrationBridge.bat** file.	1. Navigate to the **<Bridge_installation_directory>/product/bin** directory. 2. Run the **HPIntegrationBridge.sh** file.

Use the following commands:

Task	**Command**
Start the bridge	`HPIntegrationBridge start`
Stop the bridge	`HPIntegrationBridge stop`

Task	Command
Restart the bridge	`HPIntegrationBridge restart`
Install the Integration Bridge service	`HPIntegrationBridge install`
Remove the Integration Bridge service	`HPIntegrationBridge remove`

Uninstall/Remove the Integration Bridge

Uninstall a bridge if you no longer need it, or before upgrading.

Remove a bridge from the Link Configuration navigation tree if you no longer need it, or are no longer using it.

To uninstall a bridge permanently

1. In the Agile Manager **Integrations** > **Link Configuration** page, expand the navigation tree on the left.

   Verify that no synchronizations are currently running on the bridge's links.

   Right-click on any links that are in automatic mode and select **Stop Automatic Mode**. Wait for the completion of any current synchronization runs before uninstalling the bridge.
2. Close all tools, folders, and files related to the Integration Bridge, such as the Endpoint Credentials

Manager.

3. Do the following:

Task	Description
Uninstall the bridge	**On Windows:** As a Windows administrator user, uninstall the Integration Bridge using the **Start** menu option or the Windows Control Panel. **On Linux:** As a root user, navigate to the **<Integration Bridge installation directory>/install** directory and run the **hp-integration-bridge-uninstall** script. **Note:** Uninstalling as a root user ensures a clean removal of both the Integration Bridge application and the Integration Bridge service. During the uninstall process, select **Remove credentials** if you also want to remove any associated credentials. By default, credentials are kept, and you can use them in a subsequent installation.
Remove the bridge from the Agile Manager user interface (optional)	In Agile Manager: a. Verify that the bridge has no links configured. If there are any existing links, remove them: Select the link in the tree and then select **More Actions** > **Remove**. **Caution:** You cannot recover a link removed from the NextGen Synchronizer. Only remove a link if you no longer need to synchronize its data between the endpoints. b. Select the bridge name and either select **Remove Bridge** from the context menu, or select **More Actions** > **Remove**. **Caution:** Only remove the bridge from the user interface if you have no intention of recovering it. You cannot recover a bridge removed from the NextGen Synchronizer, even if you have not yet uninstalled it.

When you uninstall the Integration Bridge, properties customized in the **server-connection.conf** file are deleted. The information in the **server-connection.conf** file is backed up in the **server-connection.bak** file.

To uninstall a bridge in order to upgrade or move it

1. In the Agile Manager**Integrations** > **Link Configuration** page, expand the navigation tree on the left.

   Verify that no synchronizations are currently running on the bridge's links.

   Right-click on any links that are in automatic mode and select **Stop Automatic Mode**. Wait for the completion of any current synchronization runs before uninstalling the bridge.
2. Close all tools, folders, and files related to the Integration Bridge, such as the Endpoint Credentials Manager.
3. **On Windows:** As a Windows administrator user, uninstall the Integration Bridge using the **Start** menu option or the Windows Control Panel.

   On Linux: As a root user, navigate to the **<Integration Bridge installation directory>/install** directory and run the **hp-integration-bridge-uninstall** script.

   > **Note:** Uninstalling as a root user ensures a clean removal of both the Integration Bridge application and the Integration Bridge service.

   During the uninstall process, do not select **Remove credentials**. When you install the upgraded version, you can use the existing credentials.

Properties customized in the **server-connection.conf** file are deleted. The information in the **server-connection.conf** file is backed up in the **server-connection.bak** file. Use this file when you install the upgraded version.

For more details, see "Upgrade the Integration Bridge" below.

Upgrade the Integration Bridge

When a new Agile Manager version includes a new version of the Integration Bridge, any existing bridges automatically detect the need for upgrade.

The following process takes place without user intervention:

- The existing bridge is disabled.
- The new version of the Integration Bridge is downloaded and verified.
- The new bridge is installed in place of the existing one and then enabled. Any previous configuration settings and security certificates are retained.

Email notifications are sent at the beginning and end of the upgrade. Upgrade notifications are sent to the Integration Administrator users that you specify on the bridge's Notification tab (**Integrations > Synchronizer** configuration page). For details, see the *Agile Manager Synchronization User Guide*.

If, for some reason, you need to manually upgrade the Integration Bridge, use one of the following methods:

- "Upgrade an existing bridge on the same server as the previous bridge" below
- "Upgrade the Integration Bridge, and install it in new location" on the next page

Both upgrade methods retain the configured endpoint credentials.

When performing a manual upgrade, if your Integration Bridge communicates with Agile Manager or ALM using a certificate that is not signed by a well-known Certificate Authority, you need to reinstall the certificate after upgrading the bridge. For details, see "Connections using a certificate that is not signed by a well-known Certificate Authority" on page 32.

Upgrade an existing bridge on the same server as the previous bridge

This procedure registers the upgraded bridge as an existing bridge.

1. Uninstall the Integration Bridge, as described in "Uninstall/Remove the Integration Bridge" on page 50. During the uninstall process, do *not* select **Remove credentials**.
2. Download the new version of the Integration Bridge from the **Integrations** > **Link Configuration** page.

   Select **More Actions** > **Download Integration Bridge**, and select the relevant download according to your operating system.
3. Extract the downloaded zip file (**hp-integration-bridge-windows.zip** or **hp-integration-bridge-linux.zip**) to a new folder.
4. Copy values from the previous installation to the new installation. Do the following:
   a. In the installation directory of the previous version, access the **\product\conf\server-connection.bak** file. (On a Linux system, reverse the slashes in the path.)

      > **Tip:** By default, the installation directory is **C:\Program Files\HP\HP Integration Bridge** (Windows) or **/root/HP/HP Integration Bridge** (Linux).

   b. In a parallel window, browse to the **server-connection.conf** file downloaded with the new version of the Integration Bridge, and open it for editing.
   c. Copy the **agent.guid** property and its value from the previous installation file, and append it to the new file. Save the new file.
5. Run the newly downloaded **hp-integration-bridge.exe** (Windows) or **hp-integration-bridge.bin** (Linux) to begin the installation.

   During the installation, select the installation folder that was used for the previous version.

   For more details, see "Download and install the bridge" on page 26.

Upgrade the Integration Bridge, and install it in new location

This procedure installs the upgraded Integration Bridge in a new directory on the same server as the previous version, or on an entirely new machine.

1. Uninstall the Integration Bridge, as described in "Uninstall/Remove the Integration Bridge" on page 50. During the uninstall process, do *not* select **Remove credentials**.
2. Download the new version of the Integration Bridge from the **Integrations** > **Link Configuration** page.

   Select **More Actions** > **Download Integration Bridge**, and select the relevant download according to your operating system.
3. Extract the downloaded zip file (**hp-integration-bridge-windows.zip** or **hp-integration-bridge-linux.zip**) to a new folder.
4. Copy files and values from the previous installation to the new installation. Do the following:
   a. In the directory where you want to install the new version, create the following folder structure:**product\conf**
   b. Copy the following files from the installation directory of the previous version to the **conf** directory you created in the previous step.
      - **credentialsStore.xml**
      - **key.bin**
   c. In the installation directory of the previous version, access the **\product\conf\server-connection.bak** file. (On a Linux system, reverse the slashes in the path.)

      > **Tip:** By default, the installation directory is **C:\Program Files\HP\HP Integration Bridge** (Windows) or **/root/HP/HP Integration Bridge** (Linux).

   d. In a parallel window, browse to the **server-connection.conf** file downloaded with the new version of the Integration Bridge, and open it for editing.
   e. Copy the **agent.guid** property and its value from the previous installation file, and append it to the new file. Save the new file.
5. Run the **hp-integration-bridge.exe** (Windows) or **hp-integration-bridge.bin** (Linux) to begin the installation.

   During the installation, select the directory where you want to install the new version.

   For more details, see "Download and install the bridge" on page 26.

Integration Bridge troubleshooting

This topic covers the following scenarios:

- "Bridge is not identified after installation" below
- "Bridge name is displayed in red in Agile Manager" below
- "Integration Bridge remains Offline even after stopping and starting the bridge" below
- "Bridge connection status displayed as Unknown in Agile Manager" on the next page
- "Bridge cannot log in to Agile Manager or ALM" on the next page
- "A '403' or 'Authorization Exception' error occurs" on the next page
- "(Linux) Integration Bridge installation process implies an old one exists" on page 57
- "Errors during synchronization: "Missing required field"" on page 57
- "How do I modify the URL that the Integration Bridge uses to connect to Agile Manager?" on page 57

Bridge is not identified after installation

If the bridge does not appear on the **Integrations** > **Synchronizer** or **Link Configuration** page in Agile Manager after installation is complete, click **Refresh**, or refresh the browser page.

- If the bridge still does not appear, make sure the bridge is running. For details, see "Start and stop the Integration Bridge" on page 48.

  The Integration Bridge service attempts to start the bridge several times. If it is not successful, the application shuts down and the service stops.
- If the bridge does not start, make sure the value of the **Drmi.server.port** in the **<installation folder>\product\log\controller\wrapper.log** file is set to an available port.
- If the defined port is in use by another application when the Integration Bridge service attempts to start the bridge, the following errors are printed to log files:

In the **wrapper** log file	`java.rmi.server.ExportException: Port already in use: <port>`
In the **controller** log file	`java.rmi.NotBoundException: ControllerAPI`

Bridge name is displayed in red in Agile Manager

The Integration Bridge is down. In Agile Manager, click the bridge name to view the last time the bridge accessed the server.

Integration Bridge remains Offline even after stopping and starting the bridge

If the connection status of your bridge is displayed as **Offline** in Agile Manager, try restarting the bridge.

For details, see "Start and stop the Integration Bridge" on page 48.

If the bridge remains offline, the Integration Bridge user's Agile Manager password may have expired.

Modify your bridge to connect to Agile Manager using OAuth and no longer depend on user credentials:

1. On the , add an Integration Bridge client. Agile Manager generates a client ID and secret for the bridge. For details, see the *Agile Manager User Guide*.

   > **Note:** If you are not a Site Administrator on your Agile Manager system, have your administrator add the Integration Bridge API client and provide you with the generated client ID and secret.

2. Use the generated client ID and secret for the credentials that the bridge uses to connect to Agile Manager. For details, see "Manage connection setup" on page 34.

Bridge connection status displayed as Unknown in Agile Manager

Check the following log files in the Integration Bridge log folder (**<Bridge_installation_directory>\product\log\controller**):

- **controller.log**
- **wrapper.log**

Additionally, check the **<Endpoint type name>.log** file located in the **<Bridge_installation_directory>\product\log\<Endpoint type name>** directory.

Bridge cannot log in to Agile Manager or ALM

Check the connection setup defined for the endpoint:

- Check the credentials defined for the endpoint.
- Check proxy configuration if relevant.
- If ALM is configured to require HTTPS for logging in, configure the bridge to connect to ALM using HTTPS.

For details, see "Manage connection setup" on page 34 and "Integration Bridge security" on page 31.

A '403' or 'Authorization Exception' error occurs

The user accessing Agile Manager from the Integration Bridge is not defined with the **Integration Bridge** role.

Modify this user's role in the Agile Manager configuration area (**Site** > **Users**).

> **Note:** For security purposes, the **Integration Bridge** user should not have any additional roles.

(Linux) Integration Bridge installation process implies an old one exists

Issue: You uninstalled the Integration Bridge, but the next time you install a bridge, the suggested default name implies that a bridge already exists.

Cause: You might have performed the uninstall using a non-root user.

Solution:

- You can ignore the listed existing bridge, and install a new one.
- Locate and remove the init scripts that were left over from the Integration Bridge service installation.

Errors during synchronization: "Missing required field"

Issue: During a synchronization run, some entities fail to synchronize. The errors indicate that a required field is missing. However, in the Link Configuration page, I do not see any mandatory fields that are not mapped.

Cause:

A field that is currently mandatory in ALM is not mapped, or it is mapped to an Agile Manager field that does not contain a value.

- The field in question may have been marked as mandatory in ALM after the link or entity itself was created.
- The field might be mandatory in ALM only when other fields contain certain values.

Solution:

Map the field to an Agile Manager field that contains a value, or manually enter a value in Agile Manager for the relevant field.

How do I modify the URL that the Integration Bridge uses to connect to Agile Manager?

The URL that the Integration Bridge uses to connect to Agile Manager is downloaded from Agile Manager with the Integration Bridge. In most cases, you should not need to modify this URL.

If the URL for your Agile Manager changed, or if your system administrator designated a different Agile Manager node to handle synchronization, do the following:

1. Navigate to the **<HP Integration Bridge installation folder>\product\conf** folder (on Linux, reverse the slashes).
2. Open the **server-connection.conf** file for editing.
3. Update the **agm.base.url** property with the new URL.

   Format: `http(s)://<server hostname or IP address>:<port number>/agm`

> **Tip:** If you can login to the Agile Manager that you want the Integration Bridge to use, login and then use the URL from your address bar. Take the URL from the beginning up to **/agm**. Ignore the rest.

4. Restart the bridge.

Create a synchronization link

After Agile Manager identifies the bridge you installed on the **Integrations** > **Synchronizer** configuration page, click **Configure synchronization links**.

The **Add Link** wizard opens automatically for you to add your first link. You can also access this wizard later on to add additional links. Select a bridge on the left, and click **Add Link**.

Use the wizard to configure your link. The order of the steps may vary, depending on the type of entity synchronized over this link (defects, requirements, or releases).

- "Define connection settings" below
- "Map requirement types (requirement links)" on the next page
- "Set the rules that define which endpoint controls the synchronized entities" on the next page
- "Optional: Define favorites (requirement and defect links)" on page 61
- "Optional: Define an alternate root folder (requirement and release links)" on page 62
- "Optional: Specify how to handle existing or past releases (release links)" on page 63

Define connection settings

1. Define a name for your link, and an optional description.
2. Select the type of entity synchronized over this link (defects, requirements, or releases).
3. If you work with multiple workspaces, select the workspace you want to synchronize with ALM.

   If you do not see your workspace in the drop-down list, make sure you are defined as an Integration Administrator in this workspace. For details, see "Integration Administrator user" on page 24.

4. Select **Existing ALM/QC Connection** and select a previously defined endpoint, or select **New ALM/QC Connection**, and populate the following fields:

Field	Description
ALM/QC Server URL	URL to the ALM deployment that hosts the project you want to synchronize with. Use the following syntax: `http(s)://<hostname>:<port>/qcbin`
Endpoint Display Name	Identifies this connection to ALM. **Tip:** Assign this name when creating a new link. If you later select **Existing ALM Connection** to create additional links to this ALM project, you can select this display name from the list.
Credentials Display Name	Select a predefined credentials record from the dropdown list. These records are defined in the Endpoint Credentials Manager. For details, see the *Integration Bridge Installation Guide*. You must define ALM credentials before creating a synchronization link.
ALM/QC Domain **ALM/QC Project**	The ALM domain and project you want to synchronize with. a. Click **Authenticate** next to the **User Credentials Name** field to retrieve values for these fields. b. Select the ALM domain and project names from the listed items.

5. Click **Check Connectivity and Continue**.

Map requirement types (requirement links)

Specify the ALM/QC requirement types that match user stories, features, and themes, according to the hierarchy that you defined in advance in ALM. For details on setting up this hierarchy, see "Modify in ALM" on page 17.

Only mapped requirement types are synchronized.

Set the rules that define which endpoint controls the synchronized entities

Select where you plan to manage your releases, defects, and different types of requirements. For examples on when you might select the different options, see "Sample use cases" on page 10.

Caution: Agile Manager does not support custom release fields.

For releases, Synchronized data includes:

- **Releases:** Names, start and end dates, descriptions, and attachments.
- **Sprints/cycles:** Names, start and end dates.

If you have custom release fields that are mandatory in ALM, synchronize release data only from ALM to Agile Manager, and not from Agile Manager to ALM.

- Select one of the following:

Option	Description
Agile Manager	Select this option to create defects, requirements, or releases in Agile Manager only. During synchronization, corresponding entities are created automatically on ALM. Updates made to existing entities in either endpoint are synchronized with the other endpoint. **For requirement links:** This option means that you manage the entity's hierarchy (theme > feature > user story) in Agile Manager. Changes that you make to the structure of your requirements tree in ALM will be reverted by the synchronization.
ALM	Select this option to create defects, requirements, or releases in ALM only. During synchronization, corresponding entities are created automatically on Agile Manager. Updates made to existing entities in either endpoint are synchronized with the other endpoint. **For requirement links:** This option means that you manage the structure of your requirements tree in ALM. Changes that you make to the entity's hierarchy (theme > feature > user story) in Agile Manager will be reverted by the synchronization.
Both Agile Manager and ALM (Defect and release links)	Select this option to create and update defects or releases in both Agile Manager and ALM, for a full range of planning and testing functionality. Changes made in either endpoint are synchronized with the other endpoint. **Note:** If you select **Both..**, you also need to select a dominant side, in case of conflicts.

- When you synchronize a release, all related Agile Manager sprints are synchronized with cycles in ALM.

  For a release link, select the endpoint to use as the dominant side for sprint and cycle synchronization, in case of conflicts.

You can view the rules in more detail after you create the synchronization link, and adjust them if necessary, in the **Rules** tab, as described in "Edit synchronization rules" on page 68.

Optional: Define favorites (requirement and defect links)

You can limit the synchronization to a subset of your ALM or Agile Manager database by using Agile Manager and ALM favorites.

> **Tip:** For requirement links, you can also use an alternate root folder for a similar purpose. If you

> define both favorites and an alternate root folder, the alternate root folder is considered first.

Define favorites to use as filters for new items when synchronizing between endpoints. For details, see "Create Agile Manager and ALM favorites" on page 16.

No favorites are defined by default. This means that all records in the Agile Manager workspace or ALM project are synchronized.

> **Tip:** Favorites are specifically useful when first configuring your link. Start by using a favorite that contains only one record, and expand it slowly. Run simulation synchronizations to verify that the synchronization works as you expect.
>
> Remember to schedule a full synchronization each time you modify a favorite in order synchronize the newly included records. For details, see "Full synchronizations" on page 88.

> **Caution:**
>
> - Once a record in one endpoint is mapped to a record in the other endpoint, these records continue to be synchronized even if they no longer match the link's favorite. Be sure that you want to synchronize data in a specific record or type of record before including it in your favorite.
> - When a new requirement is created in the master endpoint, and the requirement is the child of requirements that were not previously synchronized, the parent requirements are also created in the other endpoint. If a favorite is defined, the parent requirements are synchronized even if they do not match the favorite.

Optional: Define an alternate root folder (requirement and release links)

You can limit the synchronization to a subset of your ALM database by selecting an alternate ALM root folder.

Select **Use an alternate root folder** and enter the path to a sub folder in your ALM project's **Requirements** or **Releases** folder.

The path must replicate the exact hierarchy in ALM starting with the Requirements or Releases folder, according to the ALM locale. For example: **Requirements\MyProject**.

> **Note:** For a requirement link, if you define both favorites and an alternate root folder, the alternate root folder is considered first.

Caution:

- Make sure the folder that you enter already exists in your ALM folder structure.
- Specifying an alternate root folder for synchronization can cause unexpected behavior.
  If you reorganize the Requirements or Releases module in ALM after having run a synchronization task, carefully **move** the records while retaining the same hierarchy to retain the synchronization. Do *not* delete records and create new ones in the new location, as Synchronizer recognizes records according to their ALM ID.
  When you move records, make sure to retain the same hierarchy as is defined for the link in Synchronizer.
- If you move a record out of the alternate root folder in ALM, this record is no longer synchronized with Agile Manager.
  However, if you move a release out of the alternate root folder, the release is no longer synchronized, but its cycles are still synchronized.
- You can change the path to the alternate root folder before you run the first successful synchronization for the link. Afterward, edit this path **only** if the folder in ALM was renamed. Do not enter a different alternate root folder.

Optional: Specify how to handle existing or past releases (release links)

- Select **Synchronize past releases...** if you want to synchronize releases whose end date is in the past. By default, NextGen Synchronizer synchronizes only current releases.

  If you select this option, enter a date to prevent synchronizing old releases that you do not need. This date cannot be in the future.

  Agile Manager or ALM releases with an earlier end date are not synchronized.

- Select **Map pairs of new releases and sprints/cycles with identical names** if you want to use data from the dominant endpoint for all fields of the identically named release or sprint/cycle in the other endpoint.

  If you do not select this option, the pairs of identically named release or sprints/cycles is not synchronized at all. A "duplicate entities" error is generated in the run report.

  > **Note:** When mapping, NextGen Synchronizer checks only the releases that are included in the synchronized time frame. Releases or sprints/cycles with identical names are not mapped if they are in a past release (or a release whose end date is older than the one you specified for synchronization).

Click **Next** to complete the wizard, and then **Finish** to create the link.

The new link appears in the navigation tree on the left of the **Link Configuration** page.

If you created a requirement synchronization link, the tree includes one node for the general link settings, and additional sub-nodes for each mapped requirement type.

Next steps

When you are finished creating your link, do the following:

- "View and edit link configuration" below
- "Configure Synchronizer notifications" on page 82
- "Run synchronizations" on page 85
- "Review link summaries and error details" on page 89

For details about the **Run History** tab, see "View the run history for a specific link" on page 90.

> ### See also
>
> - "Import a link from ALM Synchronizer" on page 83
> - "Duplicate a link" on page 91
> - "Edit a link's ALM endpoint" on page 92
> - "Link status reference" on page 93
> - "How can I improve synchronization performance?" on page 97

View and edit link configuration

After you create a synchronization link, the new link appears in the navigation tree on the left of the **Link Configuration** page.

For requirement links, the tree includes one node for the general link settings, and additional sub nodes for each mapped requirement type. Select each of these nodes and view its detailed settings.

> **Tip:** Use the search box above the tree to filter by link name. The search box is disabled while you are in edit mode.

Page through the link tabs to view and update current settings. Click **Save Link** to save your changes, **Cancel Edit** to leave edit mode, or **Edit Link** to return to edit mode.

For details, see:

- "Edit general link settings" on the next page
- "Edit requirement type mapping" on page 67
- "Edit synchronization rules" on page 68
- "Edit field mapping" on page 69
- "Map user list fields" on page 79

Next steps

When you are finished modifying your link, do the following:

- "Configure Synchronizer notifications" on page 82
- "Run synchronizations" on page 85
- "Review link summaries and error details" on page 89

For details about the **Run History** tab, see "View the run history for a specific link" on page 90.

Edit general link settings

On the link configuration **General** tab, modify settings and view general details about the link. Click ✎ **Edit Link** to modify settings, and 💾 **Save Link** to save your changes.

Modify settings and view link statuses as follows:

- "View or edit basic link details" below
- "View link status" on the next page
- "Check ALM connectivity" on the next page
- "View or modify synchronization favorites (defect and requirement links)" on the next page
- "View or modify the alternate root folder (release and requirement links)" on page 67

View or edit basic link details

Entity Type	Defines the type of entity being synchronized (defect, requirement, or release). Read-only.
Link Name	The name of the link. Used, for example, in the navigation tree on the left.
Description	A free-text description field for the link.
Synchronization mode	Defines whether automatic synchronizations are running for this link. Change this mode by right-clicking the link name in the tree on the left, and selecting one of the following: • **Start Automatic Mode** • **Stop Automatic Mode** **Note:** You cannot start automatic mode until you have run a successful integrity check, and saved your changes.

View link status

The link status is indicated by an icon in the navigation tree. Additionally, see the following details on the General tab:

Last Sync.	Provides details about the most recent synchronization run, including the date, as well as if the run finished with errors or passed. Click **View report** to view a summary of events that occurred during the run.
Link Status	Displays the link's current status, as well as a summary of any issues remaining from previous runs. Link statuses reflect whether integrity checks have passed or not, and whether recent synchronizations have generated errors or warnings. • Hover over the **Link Status** details for information about the last integrity check and synchronization. From the tooltip, click **View report** for details about each item. • Click **View in Dashboard** for more details about issues remaining from previous runs. For details and action items required for each status, see "Link status reference" on page 93.

Check ALM connectivity

View the connection details for the configured endpoint. Click **Check Connectivity** to validate these details.

If changes are required, click **Edit Endpoint**. For more details, see "Edit a link's ALM endpoint" on page 92.

> **Note:** You can only switch the endpoint to another ALM project *before* running a successful synchronization. Afterward, you can modify details if needed, but the project must remain the same.

View or modify synchronization favorites (defect and requirement links)

View the favorites defined for detecting new records to create in the opposite endpoint, and switch the favorites as needed.

If you modify favorites after having run a successful synchronization, you will need to schedule a full synchronization for the next run. For details, see "Full synchronizations" on page 88.

> **Note:** If you want to add, change, or delete favorites from the list of available favorites, go to the **Product Backlog**. For details, see "Create Agile Manager and ALM favorites" on page 16.

For more details, see "Optional: Define favorites (requirement and defect links)" on page 61.

View or modify the alternate root folder (release and requirement links)

For requirement synchronization links, view the alternate root folder selected to limit the synchronization to a subset of the **Requirements** folder.

You can change the path to the alternate root folder before you run the first successful synchronization for the link. Afterward, edit this path **only** if the folder in ALM was renamed. Do not enter a different alternate root folder.

For more details, see "Optional: Define an alternate root folder (requirement and release links)" on page 62.

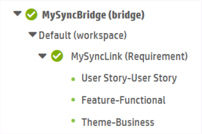
> **Note:** You must always run an integrity check after modifying a link's configuration. We also recommend running a simulation to prevent errors occurring in the actual synchronization.
>
> For details, see "Run synchronizations" on page 85.

Edit requirement type mapping

When you create a link, you can map an ALM requirement type to each of the Agile Manager types: user story, feature, and theme.

In the navigation tree, requirement link nodes contain sub nodes for each mapped requirement type. Each sub node displays the names of the mapped Agile Manager - ALM requirement types. (Expand the pane to view the full names.)

For example:



MySyncBridge (bridge)
  Default (workspace)
    MySyncLink (Requirement)
      - User Story-User Story
      - Feature-Functional
      - Theme-Business

Click **Edit Link** to enable changes, and **Save Link** to save your changes.

- The hierarchy of the mapped types in the ALM requirement tree must match the **Theme > Feature > User Story** hierarchy in Agile Manager. For details, see "Modify in ALM" on page 17.
- You must always run an integrity check after modifying a link's configuration. We also recommend running a simulation to prevent errors occurring in the actual synchronization. For details, see "Run synchronizations" on page 85.

What do you want to do?

Remove a mapped requirement type	Right-click the sub node for the requirement type and select **Remove Requirement Type**. Available only before you run the first successful synchronization for the link.
Map an additional requirement type	Right-click the node for the requirement link and select **Add Requirement Type**. You can map requirement types to user stories, features, or themes, if they are not already mapped.

Edit synchronization rules

View the current settings on the link configuration **Rules** tab, and modify as needed.
For requirement links, select the sub node for each requirement type in the tree to view its rules.

Read each option carefully before selecting.

The rules describe how the synchronization process handles creation, modification, and deletion of entities in each endpoint.

For requirement links, the endpoint selected as the master also controls the requirement hierarchy.

Click **Edit Link** to modify settings, and **Save Link** to save your changes.

- For a requirement type, specify which endpoint serves as a master and controls the synchronized entities.
- In the **Agile Manager** column, select the action that you want to occur in ALM for changes made in Agile Manager.

  In the **ALM/QC** column, select the action that you want to occur in Agile Manager for changes made in ALM.

  The direction arrows between the two columns change to reflect your selections. Selecting specific rules affect your ability to select other rules.

  For example, if you select **When a record is created in Agile Manager** > **Create a corresponding record in ALM/QC**, the same rule is automatically selected for updated records below, and you cannot change this selection.
- For a release link, specify which endpoints serves as the dominant side for synchronizing sprints and cycles, in case of conflicts.
- For a release link, you can also specify how to handle existing or past releases. For details, see "Optional: Specify how to handle existing or past releases (release links)" on page 63.

Caution: Modifying rules may also affect your field mapping. After making changes on this tab, be sure to verify the mappings defined on the **Field Mapping** tab. For details, see "Edit field mapping" below.

Additionally, if you modify rules after having run a successful synchronization, you will need to schedule a full synchronization for the next run. For details, see "Full synchronizations" on page 88.

Note: You must always run an integrity check after modifying a link's configuration. We also recommend running a simulation to prevent errors occurring in the actual synchronization. For details, see "Run synchronizations" on page 85.

Edit field mapping

Agile Manager and ALM fields are mapped to specify pairs of fields with synchronized data. Field mapping includes specific field value mapping (for list fields), as well as the direction in which the data is synchronized.

For details about mapping user list field values, see "Map user list fields" on page 79.

When you first create a link, some system fields and field values are mapped automatically, as long as the field or field values have not been modified. To view an example, see "Examples of automatically mapped fields" on page 77.

Use the link configuration **Field Mapping** tab to view the automatic mapping and modify it if necessary, and to map user defined and other optional fields. Mandatory fields *must* be mapped to synchronize records correctly.

For requirement links, select the sub node for each requirement type in the tree to view its field mapping.

Caution: Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.

Therefore, before you start synchronizing, it is highly recommended that you read "Field mapping guidelines" on page 73. For additional recommendations before synchronizing, see "Adapt the data in your endpoints" on page 17.

Map a pair of fields or define constant values

Click **Edit Link** to modify settings, and **Save Link** to save your changes.

1. Above the grid, toggle between showing **Agile Manager Fields** and **ALM/QC Fields** to determine how the fields are listed in the grid.
2. Select the row for the field you want to map, and define the following:
   a. In the **Direction** column , select whether you want to map the field from Agile Manager to ALM, vice versa, or as bi-directional.

      If the field has no corresponding field in the other endpoint, select **Constant**.

   b. In the mapped field column (**Agile Manager Field** or **ALM Field**, depending on how you are viewing the fields) select a field from the dropdown list. Use the search box to filter the fields displayed.

      The **Type**, **Attributes**, and **Required** columns are populated automatically.

      If you are mapping a constant value, enter the value in the corresponding column cell. The constant value is assigned to the field when Synchronizer creates new entities, and is not updated in subsequent synchronizations.

> For example, if you created a **Creation Method** user-defined field in ALM to distinguish between entities created directly in ALM and those synchronized from Agile Manager, enter **created by Synchronizer** as the mapped constant value. For details, see "Adapt the data in your endpoints" on page 17.

If you need to map multiple fields in the opposite endpoint, click + in the **Multi-Mapping** column. When you do this, your direction options are limited to prevent conflicts.

Field Mapping tab grid actions

The Field Mapping grid supports the following actions:

Action	Description
Select columns to view	Use the column selector ▥ above the grid to select the columns displayed.
Refresh grid	Above the grid, click ⟳ to refresh the grid after making changes to the list of fields in either endpoint. For example, refresh the grid after adding new values to a list field.

Action	**Description**
Sort or group by column	Hover over a column heading and click the arrow ▼ to sort or group the grid by the selected column. This menu also enables you to hide this column from the grid.
Show only specific fields	The grid footer enables you to filter the grid by fields that are mapped or unmapped, or are causing errors or warnings in integrity checks. You can also select to show all fields. At the bottom of the grid, select: • **Mapped** to view only mapped fields • **Unmapped** to view only unmapped fields • **Errors** to view only fields with mappings that will cause errors, and will also prevent synchronizations from running • **Warnings** to view only fields with mappings that may cause errors but will not prevent synchronization from running • **Total Items** to view all fields, regardless of mapping status

Additional field mapping tasks:

- "Define a dominant endpoint" below
- "Map specific field values" below
- "View other field properties" on the next page
- "Remove a field mapping" on the next page

Define a dominant endpoint

Define a **Dominant Endpoint** to determine the source of the synchronized value in case of conflicts.

1. On the **Field Mapping** tab, select a pair of mapped fields to view additional properties on the right.
2. On the right, expand the **Mapping Properties** section.
3. Select the endpoint you want to define as the dominant endpoint.

Map specific field values

Mapping specific field values is relevant only for mapped list fields. Select and map values and mapping directions for each field in the endpoints.

> **Caution:** If you have different numbers of values in the field for each endpoint (such as 5 values in Agile Manager and 6 values in ALM), bi-directional value mapping may result in some data loss when records are synchronized back and forth. For details and recommendations, see

"Guidelines for mapping specific field values" on the next page.

1. On the **Field Mapping** tab, select a pair of mapped fields to view additional properties on the right.
2. On the right, expand the **Values** section.
3. Map specific values in the each field to corresponding values in the opposite field, as well as their directions. If relevant, you can map one of the values to an empty string.
4. Define a **Default** value to use when the field value is empty in the source endpoint, but mandatory in the destination endpoint.

   Default values replace the empty values, and help to avoid synchronization errors. Leave this field empty if you do not want to use a default value.

   > **Note:** Synchronizer uses the default value only when creating a new entity, not when updating.

   The **Default value** field is displayed only:

   - in the field mapping properties for the endpoint where the field is mandatory.
   - if the field is mandatory in the destination endpoint.

   Possible warnings on this field:

   If the **Default value** field is highlighted in red, run an integrity check and review the warnings it provides. As long as the integrity check does not contain errors, you may be able to ignore some of these warnings. They warn of *potential* issues that could arise during synchronization.

   For example:

   - The length of the field in Agile Manager is shorter than the length of the mapped ALM field.
   - In Agile Manager, the list has fixed set of possible values, but in ALM the list is not set to verify values, and will accept any value.

"Example of mapping field values" on page 78

View other field properties

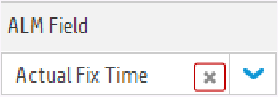
1. On the **Field Mapping tab**, select a pair of mapped fields to view additional properties on the right.
2. Expand the **Field Properties** section to view the available properties, such as the field schema names in either endpoint, or whether the field is read-only.

   The displayed properties differ, depending on the type of field you select.

Remove a field mapping

To unmap a pair of ALM and Agile Manager fields, when there are multiple fields mapped in one endpoint to a single field in the opposite endpoint, click ☒ in the **Multi-Mapping** column.

To remove a single field mapping (a pair of ALM and Agile Manager fields that have one field in each endpoint), click × in the mapped field.

> For example, when viewing fields sorted by Agile Manager field, click the × in the mapped ALM field:
>
> 
>
>

> **Note:** You must always run an integrity check after modifying a link's configuration. We also recommend running a simulation to prevent errors occurring in the actual synchronization.
>
> For details, see "Run synchronizations" on page 85.

Field mapping guidelines

Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.

Therefore, before you start synchronizing, it is highly recommended that you read the following guidelines for specific types of synchronizations.

For further recommendations before synchronizing, see "Adapt the data in your endpoints" on page 17.

Guidelines for mapping specific field values

Mapping field values when the number of values differ in each endpoint

If you have a different number of values for the field in each endpoint, select uni-directional mapping for the specific value mapping. Only one value can be synchronized back to the original endpoint (*synchronize back on create*), and if this field has a bi-directional mapping, Synchronizer may select the incorrect value in the original endpoint.

In uni-directional mapping, occurrences of the value in the source endpoint are mapped to the value in the destination endpoint. Occurrences of the value in the destination endpoint are *not* mapped to the value in the source endpoint.

"Example of mapping field values" on page 78.

New field values created during synchronization (Synchronize back on create)

NextGen Synchronizer always sends any new field values created in a destination endpoint (during synchronization) back to the source endpoint. This is not configurable.

Guidelines for mapping attachments

When synchronizing files attached to records, Synchronizer generates a URL for the file, and passes that URL to the destination record. Users in the destination endpoint access the file via the URL, which essentially remains in the source endpoint.

If a URL attachment is added to the record in the source endpoint, Synchronizer simply passes the attached URL to the destination.

For this reason, if you map attachment fields, users must have appropriate permissions in both endpoints to open the synchronized attachment. For example, if a file was originally attached to a record in ALM, Agile Manager users must have access to the ALM project in order to open the attachment.

Attachment file names	Attachments to the same record must have unique names. Attaching a file or URL to a record in opposite endpoints, with the same file name, will cause errors.
File encoding	Supported file encoding when synchronizing attachments: **UTF-8**, **UTF-16LE**, or **UTF-16BE**
Attachment updates	Synchronizer updates an attachment only if *both* of the following have changed: • The record to which the file is attached • The attachment name, size, or last modified property The attachment description is synchronized only during the initial attachment synchronization, and is never updated.
Deleted attachments	• If an attachment is deleted from the record in the *source* endpoint, Synchronizer also deletes it from the corresponding record in the destination endpoint. • If an attachment is deleted from a *destination* endpoint, and changes are simultaneously made to the attachment in the *source* endpoint, the attachment is recreated in the destination endpoint. Otherwise, the attachment remains in the source endpoint only.

Note: ALM System Info attachments (.tsi files) are opened from ALM in a built-in ALM viewer. They are opened from Agile Manager as XML files.

Guidelines for mapping fields with string, float, and numeric values

If...	Then...
If you map a *string* field that has a maximum length in the destination endpoint, and a synchronized value exceeds this maximum	The string value will be truncated as necessary in the source endpoint during synchronization.
If you have user defined *float* fields in ALM	You must map them to *numeric* fields in Agile Manager to avoid inaccuracies. **Note:** By default, Synchronizer recognizes *float* fields as *strings*. This is relevant for projects stored in ALM version 11.52 only.
If you map a *string* field in the source endpoint with a *numeric* field in the destination endpoint	For the synchronization to succeed, the string field value must be an integer.
If you map a *numeric* field in the source endpoint with a *list* field in the destination endpoint	For the synchronization to succeed, the numeric field value must be one of the values in the list. **Note:** In ALM, a list field can be defined no to verify values. In this case, a numeric field mapped to the list can contain values that are not in the list.
If you map a *date* field with a *string* field	For the synchronization to succeed, the date format must be **yyyy-mm-dd** (for example: `2015-11-20`).

Guidelines for mapping links between entities

> **Note:** It is important to distinguish between Synchronizer *endpoint* links (such as those between ALM and Agile Manager) and *entity* links between entities, such as defects and requirements.

Map links between entities, such as links between defects and requirements, the same way you map other fields.

Once you've mapped link fields, entity links between two synchronized entities are synchronized together with the rest of the record. However, if one of the linked entities is not synchronized, the link between them is not synchronized either.

When synchronizing entity links between defects and requirements:

- When running a requirement synchronization, only entity links between two user stories are synchronized.
- When running a defect synchronization, links between two defects and links between a defect and a user story are all synchronized.
- Entity links to/from features or themes are not synchronized.

When synchronizing deleted records with links to other entities:

Synchronization of entity links when one record has been deleted conforms to the same rules as the records themselves. This ensures that no links to non-existent entities remain, and that links are retained or recreated if their records are retained or recreated.

When synchronizing deleted entity links:

- Deleting an entity link is an update to the related entity. Therefore, when entity links are deleted, they are handled according to the update rules in the synchronization link, and not the deletion rules.

  For example, if the link is set to synchronize all updates between two endpoints, then when entity links are deleted at one endpoint, they are always deleted in the other endpoint during synchronization, regardless of the deletion rules defined in the synchronization link.
- When entity links are deleted after exporting a synchronization link from ALM Synchronizer and before importing the link to NextGen Synchronizer, the entity links are recreated when the synchronization runs.

Guidelines for mapping Release and/or Cycle fields in defect and requirement links

If you map ALM **Target Cycle** or **Detected in Cycle** fields, you must also map the corresponding release fields.

Additionally:

- Release and cycle or sprint names must be identical in both endpoints. These names are case-sensitive.
- Release names must be unique in both endpoints.
- Requirements must have a single target release in ALM. Synchronizing requirements from ALM with multiple target releases will fail.

> **Tip:** If you cannot modify these release names but you want to map these fields:
>
> Map specific field values to define the full path of the release. For example, you can map each value of the **Target Release** field to a value in a corresponding field in the other endpoint.

> Define the full path of the ALM release in the format `\<Release_Folder_Name>\<Release_Name>`. For example, `\Flight Application\Release_2`.
>
> You do not need to include the root **Releases** folder in the path.
>
> For details about mapping specific field values, see "View other field properties" on page 72.

Notes for synchronizing team fields

Agile Manager supports both **workspace** teams, which are available for all releases in a workspace, as well as **feature** teams, which are available for a specific release only. Although it is not recommended to have a workspace team and feature team with the same name in the same release to prevent confusion and errors, separate teams of different types with the same name are supported.

Such teams are synchronized as follows:

Agile Manager > ALM	A workspace team or a feature team defined for a record are synchronized to the same ALM team value.
ALM > Agile Manager	Synchronizer first checks for a release team with the name in the record's defined release. If a feature team is found with the configured name, the record is synchronized with the feature team. If there is no release defined for the record, or if there is no feature team found in the defined release with the configured name, Synchronizer searches for a workspace team with that name. If the workspace team is found, the record is synchronized with that team value. If no team is found with the configured name, an error occurs. If there is no team defined for the record, no team value is assigned during synchronization.

Examples of automatically mapped fields

The following table lists some of the fields that are automatically mapped for new defect synchronization links. You can modify the mapping, but keep in mind that mandatory fields *must* be mapped to prevent errors.

> **Note:** Fields that have been customized with modified list values in either endpoint are not automatically mapped.

Agile Manager field	Direction	ALM field
Actual (Hours)	▸ Unidirectional ▸ Agile Manager > ALM only	Actual Fix Time
Assigned To	◂ Bidirectional ▸	Assigned To
Attachments	◂ Bidirectional ▸	Attachments
Closed on Date	◂ Bidirectional ▸	Closing Date
Release	◂ Bidirectional ▸	Target Release
Sprint	◂ Bidirectional ▸	Target Cycle
Story Points	◂ Bidirectional ▸	Estimated Fix Time

Example of mapping field values

Synchronizer enables you to map specific field values in one endpoint to specific values for the corresponding field in the other endpoint. A good example of when you might need to do this is when mapping defect statuses.

Agile Manager and ALM each have different lists of defect statuses, and even different numbers of available statuses.

- The Agile Manager **Defect Status** field has the following values: `New`, `Open`, `Fixed`, `Propose Close`, `Closed`, `Deferred`, `Duplicate`, `Rejected`
- By default, the ALM **Status** field has the following values for defects: `New`, `Open`, `Fixed`, `Closed`, `Rejected`, `Reopen`

Because these are standard fields, Synchronizer provides a default mapping for these values, shown in the table below.

You can modify the mapping as needed for your link.

Dominant Endpoint: Agile Manager		
Values		
Agile Manager	**Direction**	**ALM**
New	◂ Bidirectional ▸	New
Open	◂ Unidirectional ◂	Reopen
Fixed	◂ Bidirectional ▸	Fixed
Propose Close	◂ Bidirectional ▸	Rejected

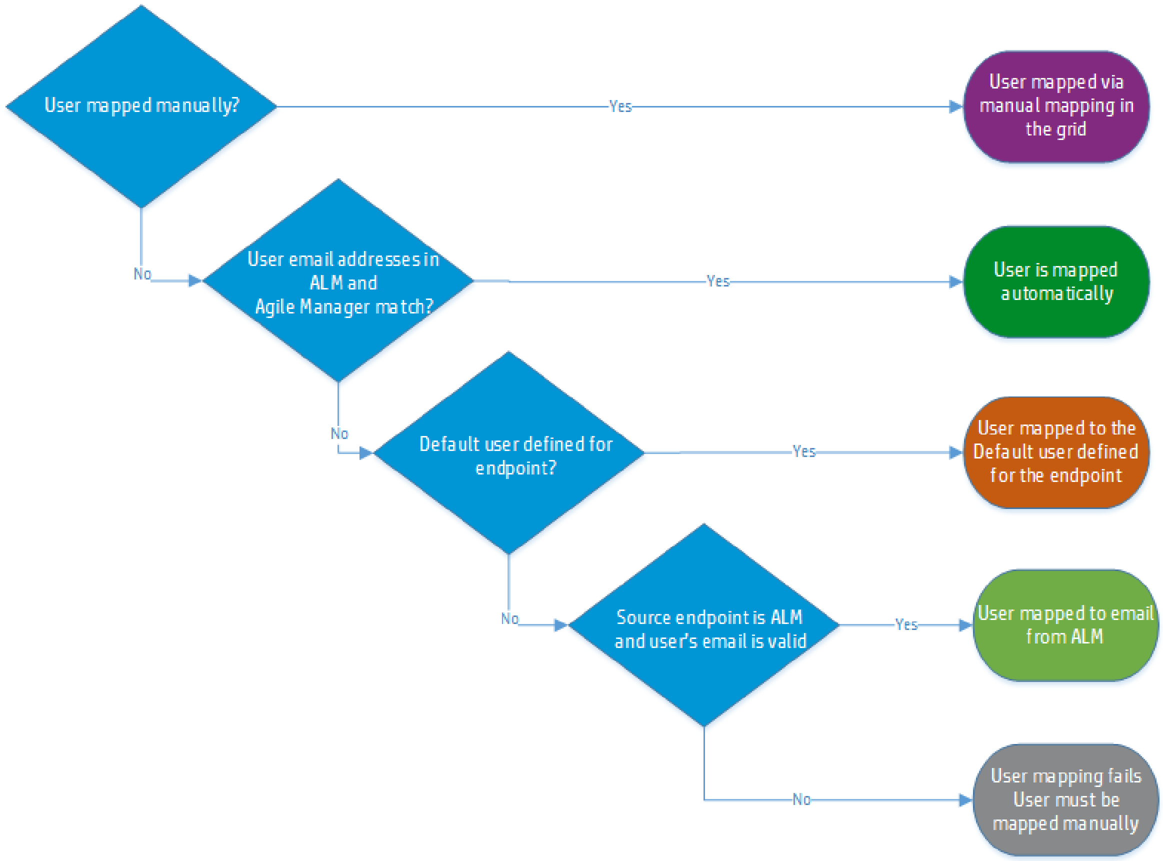
Closed	← Bidirectional →	Closed
Deferred	→ Unidirectional →	New
Duplicate	→ Unidirectional →	Rejected
Rejected	← Bidirectional →	Rejected
Open	← Bidirectional →	Open

Map user list fields

Agile Manager and ALM maintain separate lists of user list fields, such as for the **Assigned To** field.

Users in these lists are mapped once for each pair of endpoints. This means that if you mapped the users between an Agile Manager workspace and an ALM project when creating a requirement link, the same mapping is used when you create a defect link between the same two endpoints.

The following chart describes how Synchronizer recognizes mapped users, using manual or automatic mapping methods.


User mapped manually?
Yes
User mapped via manual mapping in the grid
No
User email addresses in ALM and Agile Manager match?
Yes
User is mapped automatically
No
Default user defined for endpoint?
Yes
User mapped to the Default user defined for the endpoint
No
Source endpoint is ALM and user's email is valid
Yes
User mapped to email from ALM
No
User mapping fails User must be mapped manually

Automatic user mapping

ALM users defined with an email address that is identical to the one used to log in to Agile Manager are automatically mapped for all user list fields.

If a user has multiple email addresses defined in ALM, only the first email address is synchronized with Agile Manager.

When the Agile Manager user list does not contain a user that matches the ALM user, then:

1. If you defined a **Default user** for the Agile Manager endpoint, this user is mapped to the ALM user. For details, see "Define default users for when there is no matching user in the destination endpoint." on the next page
2. If no default is defined, and the ALM user has a valid email address, Synchronizer uses this email address in the relevant Agile Manager user field. The user is not added to the Agile Manager user list.
3. If no default is defined, and the ALM user does not have a valid email address, then the automatic mapping fails. Manually map this ALM user to an existing Agile Manager user.

Manual user mapping

Map ALM and Agile Manager users manually if the email addresses are not identical, or if the ALM user is not defined with an email address.

1. Access the User Mapping dialog box.

Select a link to edit its user mapping.

From the More Actions menu	Select **More Actions** > **Edit User Mapping**.
From a user list field	On the **Field Mapping** tab, select a user list field, such as **Assigned To**. The selected field must be mapped to a user list field in the other endpoint. On the right, expand the **User Mapping** node, and click **edit**.

The **User Mapping** dialog box displays only users mapped manually. Users mapped automatically are not listed.

Tip:

- Periodically, use the **Refresh** button at the top of this dialog box to make sure you are working with the most up-to-date Agile Manager and ALM user lists.
- If you migrated the link from ALM Synchronizer for Agile Manager together with users mapped in a CSV file, or imported user mapping using a CSV file, those users are now mapped manually and are also listed in the table.

For details, see "Import a link from ALM Synchronizer" on page 83.

2. Define default users for when there is no matching user in the destination endpoint.

This may happen, for example, if a user once existed in an endpoint's user list, and is therefore listed as a user list value, but has since been deleted from the other endpoint's user list.

Expand the **Default user** area, and define default users for destination endpoints in both Agile Manager and ALM.

Caution: If you map a user field bi-directionally, the default value will overwrite the value that no longer exists in the user list.

For example:

peter@domain.com is listed as the owner of a defect in Agile Manager, but does not appear in the user list in ALM.

When synchronizing the defect, **peter@domain.com** from Agile Manager is mapped to **default@alm.com** in ALM.

After bi-directional synchronization, the defect in Agile Manager lists **defualt@alm.com** as the defect owner.

See step #4 below for another solution for this situation.

3. Map users manually

Select corresponding users from the dropdown menus for each endpoint, set the direction, and then click **Add Mapping**.

Tip:

- Select **Show unmapped only** to display only users who are not yet mapped in the dropdown lists.
- To import user mapping from a link created in ALM Synchronizer for Agile Manager, click **Import import user mapping file** at the top of the dialog box, and select a CSV file to import.
  Imported mapping files must be prepared ahead of time. For details, see "User mapping file (.csv)" on page 84.

4. Map an Agile Manager user to a user that is not included in the ALM user list

a. In the **Manual Mapping** area, select an Agile Manager user name.

b. In the **ALM/QC Users** box, type a name of a user that does not exist in the ALM user list, and select the **map to non-existing user** entry.

During synchronization, the user name that you mapped is entered in the relevant user fields, without adding it to the ALM user list.

Caution: In ALM, user fields can be set to **Verify value**. This means that in this field, ALM only allows users who exist in the user list. If you bi-directionally synchronize such user fields, using a non-existent ALM user could fail the synchronization.

Configure Synchronizer notifications

Synchronizer sends cumulative notifications for issues that occur during synchronizations, as well as digests summarizing all links in a specific workspace.

When a new version of the Synchronizer Integration Bridge is available, the bridge is automatically updated to the new version. A notification is sent at the beginning and end of this process.

Link Notifications

Link notifications are configured for all links in a workspace. On the **Link Configuration** page, click the workspace's name in the navigation tree, and then click the **Notifications** tab.

Issue notifications

Configure cumulative notifications sent for issues occurring during synchronizations. You can configure notifications for only new issues, or both new and known, still unfixed issues.

- Select how often you want the system to send notifications, summarizing:
  - **New** issues that have occurred since the last notification
  - **Known** issues that have been reported in previous notifications, and are still unfixed.
- Determine who receives issue notifications. Click the **Select from workspace users** drop-down, and select one or more recipients.

> **Note:** To send notifications for known issues, you must also configure notifications for new issues.

Link summary digests

Configure how often you want to receive digests, summarizing the status of all links in the current workspace.

Link summary digests are only sent to Integration Administrators. If you want additional users to receive digest notifications, assign them to the Integration Administrator role for the specific workspace.

Bridge upgrade notifications

Upgrade notifications are configured for each bridge, and sent only to selected Integration Administrators. On the **Link Configuration** page, click the bridge's name in the navigation tree, and then click the **Notifications** tab.

Determine who receives upgrade notifications. Click the **Select from integration administrators** drop-down, and select one or more recipients.

> **Note:** You can select or deselect only Integration Administrators that belong to the same workspace as you.

Import a link from ALM Synchronizer

If you previously used ALM Synchronizer for Agile Manager to synchronize records between ALM and Agile Manager, you can import synchronization links into NextGen Synchronizer.

> **Caution:** To prevent errors or data loss, import your link as soon as possible after the most recent synchronization in ALM Synchronizer.
>
> After importing your link, do not run the synchronization from both ALM Synchronizer and NextGen Synchronizer. Running both links in parallel may lead to errors.

1. Access your link in ALM Synchronizer for Agile Manager. If synchronizations are currently scheduled, disable scheduling, and then disable the link. For details, see:
    - "Run link tasks automatically" on page 162
    - "Enable or disable a link" on page 161
2. Export the following files from ALM Synchronizer:

File	Description
Link backup file (.zip)	For details, see "Export links" on page 155.
User mapping file (.csv)	Optional, only if you want to import user mapping data. For details, see: • "Map user list fields using a .csv file" on page 150 • "Modify .csv map files in a text editor" on page 151

3. Import the link to NextGen Synchronizer.

    > **Note:** If you use Internet Explorer to import a synchronization link, use version 10 or later.

    On the **Integrations** > **Synchronizer** > **Link Configuration** page, do one of the following:

    - Right-click the name of the bridge or workspace to which you want to import the link, and select **Import Link**.
    - Select **Add Link** > **Import Link**.
4. Select the files you exported from ALM Synchronizer, and click **Next**.
5. Continue through the wizard as if you were creating a new link. For details, see "Create a synchronization link" on page 58.

    > **Note:** Some fields shown in the wizard are automatically populated, as their values are taken from the imported files. You can modify these values as needed.
    >
    > Other values, including requirement type mapping and synchronization rules are taken directly from the import files and cannot be modified in the wizard. You can make changes in these values later on.

> For details, see "Edit requirement type mapping" on page 67 and "Edit synchronization rules" on page 68.

6. Verify and modify the link configuration if necessary, and then run an integrity check before you start synchronizing.

> **Caution:** If the imported link includes mappings that are not supported by NextGen Synchronizer, these mappings are not imported with the link.
>
> NextGen Synchronizer supports:
>
> - **Mapping field values** for list fields only.
> - **Entity links** to or from user stories or defects only, and not to or from features or themes.

See also

- "Edit general link settings" on page 65
- "Edit synchronization rules" on page 68
- "Edit field mapping" on page 69
- "Map user list fields" on page 79

Run synchronizations

After your link is created and configured, run an integrity check to verify that records will be synchronized correctly.

If the integrity check passes, run a simulation to verify how much data will change.

Then run manual tasks, or start automatic synchronizations.

If you make certain changes to a link's configuration after having already synchronized, such as updated rules or field mapping, you'll need to run a full synchronization to ensure that all records are aligned with those changes. Agile Manager will notify you when a full synchronization is required.

> **Caution:** Once records have been synchronized, they cannot be removed from the synchronization. When first setting up a link's configuration, use a favorite defined with one record only. Widen the favorite slowly, as you go ensuring that the synchronizations run as you expect.

However, if you use an alternate root folder to limit the synchronized requirements or releases:

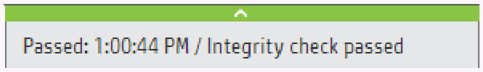
- Requirements removed from the alternate root folder in ALM will no longer be synchronized.
- Releases removed from the alternate root folder in ALM will no longer be synchronized, but their cycles will still be synchronized.

Integrity checks

You must run an integrity check before running a synchronization task to verify that the task will run smoothly. Use the integrity check to debug any errors before actually synchronizing the records.

1. Right-click the link in the navigation tree on the left and select **Run Integrity Check**, or while viewing the link details, select **Run** > **Run Integrity Check** from the toolbar.

   The integrity check status is displayed at the bottom of the screen.

   > For example:
   >
   > 
   >
   > Passed: 1:00:44 PM / Integrity check passed

2. Click the expand arrow ⌃ at the top of the status to display all log messages. From there, click **View Report** or **View Log** for more details.

   - If your integrity check passes, you can run a simulation to verify how many records will be added or updated in the next synchronization, or you can start synchronizing, by running a manual task or starting automatic synchronizations.
   - If your integrity check fails, fix the errors in your link configuration, and try again.

Simulation runs

Run a simulation after your integrity check passes, and before you actually synchronize your data, to verify the number of that will be added or updated in the next synchronization.

> **Note:** For various reasons, the simulation results may include more items than the actual synchronization run. For example, the simulation run may include items that encounter errors and fail to update, or items whose changes were in fields that are not mapped for synchronization.

1. Right-click the link in the navigation tree on the left and select **Run Simulation**, or while viewing the link details, select **Run** > **Run Simulation** from the toolbar.

   The run status is displayed at the bottom of the screen.

2. Click the expand bars ⌃ at the top of the status to display all log messages. From there, click **View Report** or **View Log** for more details.

   The following data is included in the simulation report:

   - The number of items to be created, or re-created, in each endpoint
   - The number of items to be updated in each endpoint
   - The number of items to be deleted in each endpoint
   - Connection data for each endpoint

Manual synchronizations

Run tasks manually when you want to test a link, such as when configuring or debugging the link settings. If there were errors in the last synchronization run, a manual synchronization will automatically re-synchronize those records.

1. If you are currently in Automatic Mode, stop automatic synchronizations. For details, see "Stop automatic synchronizations" on the next page.
2. Right-click the link in the navigation tree on the left and select **Run Manual Sync.**, or while viewing the link details, select **Run** > **Run Manual Sync.** from the toolbar.

   The run status is displayed at the bottom of the screen.

3. Click the expand bars ⌃ at the top of the status to display all log messages. From there, click **View Report** or **View Log** for more details.

Automatic synchronizations

Automatic synchronizations are scheduled to run every 30 seconds, around the clock.

> **Note:** If a single run task takes longer than 30 seconds, the automatic runs are performed farther apart as needed.

Start automatic synchronizations	Right-click the link in the navigation tree on the left and select **Start Automatic Mode**, or while viewing the link details, select **Run** > **Start Automatic Mode** from the toolbar. • The current run status is displayed at the bottom of the screen. • Click the expand bars ⌃ at the top of the status to display all log messages. From there, click **View Report** or **View Log** for more details.

Stop automatic synchronizations	Right-click the link in the navigation tree on the left and select **Stop Automatic Mode**, or while viewing the link details, select **Run** > **Stop Automatic Mode** from the toolbar. If you stop automatic synchronizations, you will need to run a manual synchronization task or start automatic synchronizations again to update your records.

Full synchronizations

Certain types of changes detected in your link, such as updated favorites, rules, or field mapping, require you to synchronize all records in your link. Agile Manager will notify you when a full synchronization is required.

Synchronizing all records ensures that all records are aligned with the changes in the link configuration or fields.

> **Note:** Performing a full synchronization may take some time. We recommend doing this when the system is not otherwise busy.

To run a full synchronization, in the navigation tree, right-click the link name, or select the link. Then, select **More Actions** > **Schedule Full Sync. in Next Run**.

The next synchronization that starts will synchronize all records in the link.

Re-synchronizing records with fixed errors (automatic mode only)

If your link is in automatic mode, and a synchronization ran with errors, the records with errors are not necessarily fixed in subsequent runs.

This may happen if the errors occurred because of changes outside of the link configuration, such as if the schema changed, but the field mapping was not updated. If you fix the cause of the error (such as refreshing the **Field Mapping** tab and map the new fields), Synchronizer will re-synchronize those records if changes in the actual record are detected.

Synchronizer also periodically re-synchronizes all records, including those that had run with errors, but have had no subsequent changes.

To ensure that records that ran with errors are indeed re-synchronized in the next upcoming run, manually set the link to re-synchronize those records.

Do one of the following:

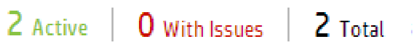
On the **Link Configuration** page	Right-click the link name, or select the link and then select **More Actions** > **Retry Errors in Next Run**.
On the **Dashboard**	In the **Link Summary** area, expand the workspace and link nodes until you see the specific issues that occurred in recent synchronizations. Find the link for which you want to retry records with issues, and click **Retry next run** next to the link.

The next automatic synchronization that starts will synchronize all records in the link, regardless of whether changes were detected. For details, see "Automatic synchronizations" on page 87.

Review link summaries and error details

You can review the state of your links in widgets displayed on both the **Link Configuration** and **Dashboard** pages. Toggle between the two buttons in the upper-right corner to switch between the pages.

For example:



2 Active | 0 With Issues | 2 Total

These widgets display the numbers of links for each type. Links with issues are links that generated errors or warnings during the last integrity check or synchronization.

Additionally, you can view configuration details and statuses for all links in a specific bridge or workspace by clicking on the relevant node in the tree on the **Link Configuration** page.

Data is displayed in a grid, with a row for each link in the selected section. In the grid, click the links in the **Last Run** and **Last Integrity Run** columns to access the logs for a specific run.

View data for:

- **All links configured for a specific bridge.** Click the bridge name in the navigation tree.
- **All links configured for a specific workspace, on a specific bridge.** Expand the bridge node, and then click the workspace name.

The **Dashboard** displays basic synchronization statistics and trends, as well as detailed reports for each synchronization.

To view data for a specific link, or to investigate specific errors, do the following:

- "View the run history for a specific link" below
- "Drill down to specific errors on the Dashboard" below
- "Analyze link trends on the Dashboard" below

View the run history for a specific link

1. Click the **Link Configuration** button in the upper right-hand corner.
2. In the navigation tree, browse to and click the link name. Then, click the **Run History** tab.
3. Select how far back you want to show the run history.
4. If you want to filter out any runs that finished successfully (without errors), select **Show finished with errors only**.

The grid is populated with the relevant data for the selected link.

Drill down to specific errors on the Dashboard

1. Click the **Dashboard** button in the upper right-hand corner.
2. If issues are listed, expand issue types and click specific issues to drill down for more details.
3. Read the issue description and suggested solution. If necessary, modify your link configuration and field mapping to fix the errors. Run an integrity check after making any changes.

By default, records with errors are only periodically synchronized again in the next automatic run if there are no changes to the record.

To ensure that all records with errors synchronized again in the next run, do one of the following:

- Run a **manual** synchronization. Manual synchronizations always synchronize all records.
- If your link is in **automatic** mode, click **Retry next run** for the relevant link.

  All records in the link with issues will be synchronized again in the next successful run, regardless of whether there are changes.

> **Note:** The **Retry next run** button is shown only if there has been an unsuccessful run.

You can view details about fixed issues in the **Fixed errors** area. Expand each workspace node to view details about individual issues.

Analyze link trends on the Dashboard

Click the **Dashboard** button in the upper right-hand corner.

The **Link Trends** area displays data about the number of items deleted, updated, and created over time.

If you have multiple links configured, select the one for which you want to display data. Click items in the legend to display or hide specific data.

Duplicate a link

Duplicate a link when you want to make a copy of the link, retaining the same field mapping and rules, but connecting to a different ALM project.

1. In the navigation tree on the left, right-click the link you want to duplicate, and select **Duplicate link**.

   > **Tip:** You cannot duplicate a link while it is in edit mode. Save any changes or click **Cancel Edit** if **Duplicate link** is disabled.

2. Navigate through the wizard as you would if you were creating a new link. For details, see "Create a synchronization link" on page 58.

   If you want to also duplicate mappings for user-defined fields and for user-defined requirement types (if you are duplicating a requirement link), select the **Copy all ...** or **Copy user-defined field mapping** option on the **Rules** or **Favorites** wizard page.

   > **Caution:** We recommend duplicating mappings for user-defined fields and requirement types only if your ALM projects share the same linked template project, and therefore share user-defined fields and requirement types.
   >
   > If your ALM projects are not linked to the same template, selecting this option may cause mapping errors. For details about ALM shared fields and linked templates, see the *ALM Help Center*.
   >
   > If you do *not* copy user-defined field and requirement type mappings:
   >
   > - You will need to map these from scratch in the new link.
   > - Mappings for system fields, and mappings to requirement types that are available out-of-the box in ALM , are automatically copied.

3. Click **Finish** to create the link.

See also

- "Edit general link settings" on page 65
- "Edit synchronization rules" on page 68
- "Edit field mapping" on page 69
- "Map user list fields" on page 79

Edit a link's ALM endpoint

You can only switch the endpoint to another ALM project *before* running a successful synchronization. Afterward, you can change details as needed, as long as the project remains the same.

Do one of the following:

- To edit a specific link's endpoint: Select a link from the left-hand navigation pane or from the link summary table. In the **Endpoint Settings and Favorites** area, click **Edit Endpoint**.
- To edit multiple endpoints: Select a non-link node in the tree, such as a workspace or bridge node. In the toolbar, select **More Actions > Edit Endpoints**.

In the Edit Endpoint dialog box, update the following, as needed:

Field	Description
Endpoint	The name of the endpoint you want to edit. **Note:** If you selected a specific link before opening the Edit Endpoint dialog box, you can edit only that link's endpoint.
Endpoint Display Name	Identifies this connection to ALM. **Tip:** If you change the name of the endpoint, or any other endpoint properties, these changes affect all the links that use the same endpoint.
ALM/QC Server URL	URL to the ALM deployment that hosts the project you want to synchronize with. Use the following syntax: `http(s)://<hostname>:<port>/qcbin`
Credentials Display Name	Select a predefined credentials record from the dropdown list. These records are defined in the Endpoint Credentials Manager. For details, see the *Integration Bridge Installation Guide*. You must define ALM credentials before creating a synchronization link.
ALM/QC Domain **ALM/QC Project**	The ALM domain and project you want to synchronize with. 1. Click **Authenticate** next to the **User Credentials Name** field to retrieve values for these fields. 2. Select the ALM domain and project names from the listed items.

When you are finished making changes, click **Check Connection & Save**. If the connection fails, you are prompted to modify the settings.

Link status reference

Link status is displayed across the NextGen Synchronizer interface, such as in the link summary table, the link's General tab, and as an icon next to the link name in the left-hand navigation tree.

- "/ Status: OK " below
- " Status: Integrity check required " below
- " Status: Integrity failed" below
- "/ Status: Sync. Warning" on the next page
- " / Status: Sync. Error" on the next page
- " Status: Integration bridge is offline " on the next page
- " Status: Integration bridge is being upgraded automatically" on page 95
- " Status: Integration bridge needs upgrade " on page 95

✓ / ✓ Status: OK

Icons	✓ **Automatic** / ✓**Manual**
Description	Integrity checks passed without errors. Link tasks are running as configured, without errors or warnings.
Action required	No action required. Links in automatic mode will run synchronization tasks. Links in manual mode are ready to run manual synchronization tasks.

✖ Status: Integrity check required

Description	The link's filter, rules, or field mapping was modified, and an integrity check has not been run.
Action required	Run an integrity check before running a manual synchronization task, or before starting automatic synchronizations.

✖ Status: Integrity failed

Description	Integrity check failed.
Action required	Modify the link and run an integrity check again.

⚠ / ⚠ Status: Sync. Warning

Icons	⚠ **Automatic** / ⚠ **Manual**
Description	A recent synchronization task ran with some warnings. If the link is in automatic mode, synchronizations continue to run. If the link is in manual mode, you can run a manual task.
Action required	• On the Synchronizer Dashboard page (**Integrations** > **Dashboard**), view issues for the link, and make changes to prevent them from reoccurring. Changes might be required in the link field mapping, rules or filter. Changes might also be required outside of Synchronizer, such as in the ALM schema or field values. If you made changes in the link configuration, run an integrity check after you save your changes to verify that the warnings are fixed. • To run the records with warnings in the next synchronization even if they were not modified, on the Dashboard, click **Retry next run**.

✖ / ✖ Status: Sync. Error

Icons	✖ **Automatic** / ✖ **Manual**
Description	Errors were found in the most recent synchronization task (automatic or manual), and synchronization cannot run.
Action required	Modify the link to fix the errors, and then run an integrity check.

✖ Status: Integration bridge is offline

Description	The integration bridge is offline.
Action required	Start the integration bridge. For details, see "Start and stop the Integration Bridge" on page 48. Make sure that the credentials the bridge is using to connect to Agile Manager are still valid. For more details, see Integration Bridge troubleshooting.

Status: Integration bridge is being upgraded automatically

Description	The integration bridge is offline because an automatic upgrade is in progress. An upgrading ⟳ icon is displayed next to the bridge name in the left-hand navigation tree.
Action required	No action required. When the automatic upgrade process is completed, the bridge will be automatically enabled.

Status: Integration bridge needs upgrade

Description	The integration bridge is out of date.
Action required	Download and install the new version of the Integration Bridge. For details, see "Download and install the bridge" on page 26.

NextGen Synchronizer FAQs and troubleshooting

See the following common questions about NextGen Synchronizer below.

Why does my run history show updated records when I did not update any records, but only created records?

New field values created in a destination endpoint during synchronization are automatically sent back the record in the source endpoint.

So, for example, when you create a record in ALM and synchronize it to Agile Manager, that new record is created in Agile Manager, and assigned an Agile Manager ID.

NextGen Synchronizer recognizes this new ID field value, and sends it back to ALM, adding it to the source record.

This last step is the update you see in your run history.

Automatic synchronizations are scheduled to run every 30 seconds. Why don't I see all of these synchronization runs in my run history?

The following types of synchronization runs are removed from the run history after subsequent synchronizations are run:

Run description	Details
Runs that: • Do not synchronize any data and ... • Are more than 10 days old.	An *empty run* is only displayed in the run history when it is the latest run, and was run in the last 10 days.
Runs that: • Finished with errors, and ... • Are more than 10 days old, unless ... • The errors have not yet been resolved.	Runs with errors that have not yet been resolved are displayed in the run history until the related records are synchronized successfully. Previous runs that contain errors, which also appeared in later runs, are deleted when they are more than 10 days old.
Fatal runs that are more than 10 days old	For synchronizations run in the last 10 days, only the last 20 runs are displayed.

I modified my link to fix errors that occurred in previous synchronizations. Why do I see these same errors occurring again?

If your link is in automatic mode, and a synchronization ran with errors, the records with errors are not necessarily fixed in subsequent runs.

This may happen if the errors occurred because of changes outside of the link configuration, such as if the schema changed, but the field mapping was not updated. If you fix the cause of the error (such as refreshing the **Field Mapping** tab and map the new fields), Synchronizer will re-synchronize those records if changes in the actual record are detected.

Synchronizer also periodically re-synchronizes all records, including those that had run with errors, but have had no subsequent changes.

To ensure that records that ran with errors are indeed re-synchronized in the next upcoming run, manually set the link to re-synchronize those records.

For details, see "Re-synchronizing records with fixed errors (automatic mode only)" on page 88.

How can I improve synchronization performance?

To improve synchronization performance between Agile Manager and ALM, add indices to your ALM project schema as follows, depending on the type of database you use:

Microsoft SQL

```
CREATE INDEX BG_VTS_IDX ON [td].[BUG] (BG_VTS, BG_BUG_ID);

CREATE INDEX RQ_VTS_IDX ON [td].[REQ] (RQ_VTS);

CREATE INDEX RT_VTS_IDX ON [td].[REQ_TRACE] (RT_VTS);

CREATE INDEX RT_CREATION_DATE_IDX ON [td].[REQ_TRACE] (RT_CREATION_DATE);

CREATE INDEX LN_CREATION_DATE_IDX ON [td].[LINK] (LN_CREATION_DATE);
```

Oracle

```
CREATE INDEX BG_VTS_IDX ON BUG (BG_VTS, BG_BUG_ID);

CREATE INDEX RQ_VTS_IDX ON REQ (RQ_VTS);

CREATE INDEX RT_VTS_IDX ON REQ_TRACE (RT_VTS);

CREATE INDEX RT_CREATION_DATE_IDX ON REQ_TRACE (RT_CREATION_DATE);

CREATE INDEX LN_CREATION_DATE_IDX ON LINK (LN_CREATION_DATE);
```

How can I minimize the synchronization's effect on Agile Manager performance?

On a clustered system, the system administrator can divide the server load by designating nodes for Agile Manager user activity and nodes for synchronization processes.

For details, see Balance synchronization load in the *Agile Manager Installation and Administration Guide*.

How does NextGen Synchronizer handle Agile Manager Group Stories?

Group stories are not reflected in the ALM requirements tree. Therefore, Synchronizer does not automatically recognize Agile Manager Group Stories, and does not synchronize any group (parent/child) relationship between stories.

If Agile Manager is the master of the synchronization link, and a user story that was synchronized with ALM is broken into a group story in Agile Manager, Synchronizer considers the user story to have been deleted.

If ALM is the master of the synchronization link, breaking a synchronized user story into a group story in Agile Manager causes no changes on ALM.

> **Tip:** Synchronize the group story by creating a user defined field in ALM and mapping it to the

> Agile Manager **Story Group** field. The name of the group (parent) story is synchronized to the mapped ALM user defined field.
>
> This synchronization is always unidirectional, from Agile Manager to ALM.

Why is the Search Links box in the link tree disabled?

You cannot search in the link tree when a link is in edit mode. Save any changes or click **Cancel Edit** to enable the search box.

Why can't I edit mapped requirement types in my synchronization link?

- After a link is synchronized, you can no longer remove mapped requirement types. You can still add types that are not yet mapped.
- To edit requirement type mapping you must be in edit mode. For details see "Edit requirement type mapping" on page 67.

Why are many random errors occurring during synchronization?

If inexplicable errors occur, such as an inability to read run reports, constant synchronization failures, errors while creating links, verify that you are synchronizing with a supported version of ALM. For details, see "HP Integration Bridge overview" on page 24.

If your version of ALM is supported, contact an Agile Manager system administrator. There may be too many files concurrently open on the Agile Manager server.

If this is the case:

- The following error will appear in the Agile Manager log files: `java.net.SocketException: Too many open files`
- The maximum number of open files allowed by the operating system is too low, and must be increased.

When and how should I use the Download logs menu option in the Run History tab?

Use this option **only** when requested to so by Agile Manager support personnel.

Prerequisites:

- You must be an integration administrator to access this command.
- In your Agile Manager site schema, locate the DATACONST table and add a LOG_COLLECTION constant. Set the constant's value to 1.

Perform the following steps:

1. Select a synchronization link, select the **Run History** tab, and in the **More actions** menu, select **Download logs**.
2. Select the type of logs you want to download and click **OK**.
3. A warning opens, reminding you that log files may contain sensitive data. When you click **OK** on this dialog, the log files are downloaded.
4. Specify a location to save the downloaded zip file.

Why is Synchronizer failing to find a custom field that was OK in the past?

Check the list of custom fields defined in Agile Manager (**Site/Workspace > Fields** configuration page). Make sure that the field in question still defined for the workspace you are synchronizing.

- The custom field may have been previously defined as a site-level field, and then moved to other workspaces.
- The custom field may have been removed from the system.

Why is the synchronization adding attachments named attachment.url to the Agile Manager entities?

This may happen if an ALM entity has an attachment whose name contains special characters (~!@#$%()^&).

Workaround: On Agile Manager, remove the added attachment. On ALM, rename the attachment so that it does not contain special characters.

HP ALM Synchronizer for Agile Manager

HP ALM Synchronizer enables you to link ALM projects and Agile Manager workspaces, and synchronize their releases, requirements/user stories, and defects.

Synchronizer checks ALM and Agile Manager for recent updates in the synchronized items, and updates the other endpoint accordingly. You can configure the direction in which changes are synchronized between the endpoints: from ALM to Agile Manager, from Agile Manager to ALM, or in some cases, both ways.

Synchronization links and endpoints

Synchronization is defined by **links**, which you create and manage in the HP ALM Synchronizer Client.

Links are created between a pair of **endpoints**, namely an instance of ALM and an instance of Agile Manager. Links run **tasks** to synchronize records between the endpoints.

Each link defines the types of records that are synchronized, how often, and under what circumstances. Create a link for each type of entity (**releases**, **requirements/user stories**, or **defects**), for each pair of endpoints. The entity type being synchronized in a specific link determines the fields that you can map from each endpoint.

Synchronization tasks

The records in each endpoint are synchronized each time Synchronizer runs a synchronization task. You can schedule or manually run the following types of tasks:

- **Incremental synchronization tasks.** Synchronize records that were created or modified since the last synchronization task.
- **Full synchronization tasks.** Perform a full comparison of the records in each endpoint. This is useful for handling deleted records.

> **Note:** Synchronizer does not use an ALM license when connecting to an ALM endpoint.

Synchronization steps

> **Note:** If you are setting up a synchronization link for the first time on your system, first contact customer support to enable your system for synchronization.

Working with Synchronizer involves the following steps:

Step	**Details**
"Maintain your Synchronizer system" on the next page	Install the Synchronizer server and client.
"Plan before you begin" on page 106	Begin by mapping your ALM and Agile Manager processes, looking for similar types of information. Plan the types of items that you want to synchronize, and in which directions.
"Set up Synchronizer" on page 125	Modify your ALM project for synchronization, add Synchronizer users, and configure server options, such as a proxy for authentication.
"Configure links" on page 137	Create and configure links, map specific fields and field values.
"Maintain links" on page 156	After configuring your links, run them manually or schedule automatic tasks. To troubleshoot, check the run history, report, or log files, reset links, or restore link data if you need to.
"Synchronizer Q&A" on page 168	Look for answers to some common questions and problems.

Migrate to NextGen Synchronizer from ALM Synchronizer for Agile Manager

If you are using ALM Synchronizer to synchronize ALM and Agile Manager, we recommend migrating to NextGen Synchronizer.

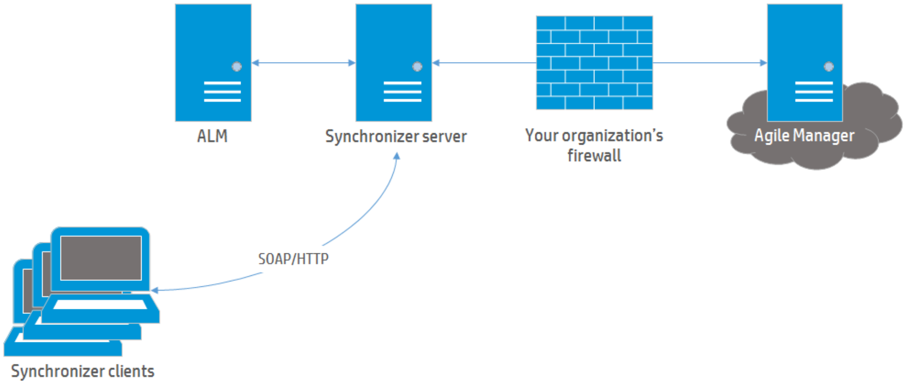
To migrate your ALM Synchronizer links, follow these steps:

1. Learn about "NextGen Synchronizer" on page 13.
2. Export your ALM Synchronizer links to zip files (see "Export and import link configuration and data" on page 154)
3. Download and install the Integration Bridge (see "Download and install the bridge" on page 26)
4. Import the ALM Synchronizer links into NextGen Synchronizer (see "Import a link from ALM Synchronizer" on page 83)

Maintain your Synchronizer system

This section describes how the Synchronizer system is structured, how synchronization link data is stored, and how to install or upgrade a Synchronizer server and client.

The following diagram illustrates the Synchronizer network configuration:



Synchronizer contains the following components, which can either reside on the same or separate machines:

- **Synchronizer Client.** Displays current links and provides a user interface for creating and managing links, and running link tasks. Sends user requests to the Synchronizer server using SOAP/HTTP.
- **Synchronizer Server.** Synchronizes data between ALM and Agile Manager. Manages synchronization and communication between endpoints, and retrieves and stores information in an integrated database.

  The server connects to link endpoints using the endpoints' API, which must be installed on the server machine.

> **Note:** Installing the Synchronizer server also installs the PostgreSQL 8.3 database management system. A database is created to store link data, such as a table of record IDs for mapped records.

See also

- "Uninstall Synchronizer" on page 104
- "System requirements" on the next page

Troubleshooting

- "Synchronizer service and installation" on page 171
- "Synchronizer server configuration errors" on page 173

System requirements

This topic describes system requirements for ALM Synchronizer installations, as well as supported versions of HP ALM.

"Synchronizer server system configurations " below

"Synchronizer client system configurations" on the next page

Synchronizer server system configurations

Following are the minimum server system configurations for the Synchronizer server.

Component	Requirement
CPU	Quad-Core x86 compatible processor minimum
Memory (RAM)	4 GB minimum
Free disk space	500 MB minimum
Operating system	• Windows Vista 32 bit • Microsoft Windows Server 2008 32 bit • Microsoft Windows Server 2008 R2 64 bit (Not supported with ALM 11.50) • Microsoft Windows 2003 Server with Service Pack 2 • Microsoft Windows XP with Service Pack 2 **Note:** In Windows 2003, the Synchronizer client cannot connect to the Synchronizer server if the Windows Firewall is switched on. **Workaround**: Add **HP-ALM-SyncService.exe** manually to the Windows Firewall Exceptions list.

The Synchronizer server installation also installs an instance of PostgreSQL, and Synchronizer works only with this instance.

You must install the Synchronizer on a machine that does not already have a separate PostgreSQL installation.

Synchronizer client system configurations

Following are the system requirements for the Synchronizer client.

Component	**Requirement**
CPU	Dual-Core x86 compatible processor minimum
Memory (RAM)	512 MB minimum
Free disk space	5 MB minimum
Operating system	• Microsoft Windows 7 64 bit • Microsoft Windows Server 2008 R2 64 bit • Microsoft Windows Server 2008 • Microsoft Windows Vista 32 bit • Microsoft Windows 2003 Server with Service Pack 2 • Microsoft Windows XP with Service Pack 2 • Microsoft Windows 2000 with Service Pack 4
Client software	Microsoft .NET Framework 2.0 or later

Uninstall Synchronizer

Uninstall the Synchronizer server and client before upgrading. The Synchronizer server and client versions must match.

Caution:

- Do not uninstall PostgreSQL if you are uninstalling the Synchronizer server as part of an upgrade process. During the server installation you can choose to upgrade the existing database or delete it and create a new database.
- Uninstalling the PostgreSQL database deletes all Synchronizer link data.
- You should only uninstall PostgreSQL if there are no other applications that are dependent on it.

Uninstall the Synchronizer server

Step	Details
Stop the Synchronizer service	See "Stop the Synchronizer service" on page 132.
Uninstall ALM Synchronizer	On the Synchronizer server machine, navigate to **Add or Remove Programs**. Remove **ALM Synchronizer**, and follow the instructions on your screen.
Uninstall PostgreSQL	If you have no other applications that use PostgreSQL, uninstall PostgreSQL. For details, see "Uninstall PostgreSQL" below.

Uninstall the Synchronizer client

On the Synchronizer client machine, uninstall the **ALM Synchronizer Client**.

Uninstall PostgreSQL

Step	Details
Uninstall PostgreSQL	On the Synchronizer server machine, uninstall the relevant **PostgreSQL** version.
Delete the PostgreSQL installation directory	Delete this directory in Windows Explorer. By default, this is **C:\postgres**.
Delete the PostgreSQL user	1. On the Synchronizerserver machine, right-click **My Computer** and select **Manage**. 2. In the Computer Management utility, browse to **System Tools** > **Local Users and Groups** > **Users**. 3. Select the **postgres** user. 4. Select **Action** > **Delete**. Click **Yes** to confirm.

Plan before you begin

Begin by planning your synchronization, and mapping your ALM and Agile Manager processes.

Define where each type of entity should be managed, and what types of information should be synchronized. This may depend on how ALM and Agile Manager are used by different members of your group, such as developers, product owners, Scrum Masters, and so on.

Synchronizer does not support workflow procedures while creating and updating synchronized data.

> **Caution:** Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.
>
> Therefore, before you start synchronizing, it is highly recommended that you read the topics that describe the various types of configurations available and the guidelines for specific types of synchronizations.

Sample synchronization plan

Many teams will use ALM to manage defects and Agile Manager to manage user stories. If you do this, you can set up defects to synchronize from ALM to Agile Manager, and user stories to update from Agile Manager to requirements in ALM.

The following table shows a basic and simple synchronization plan using this model.

Assumptions	Agile Manager is used to manage backlog items and defects. Tests are defined in ALM and are developed using the backlog context in ALM. Defects are created in Agile Manager, but can also be created during a test execution in ALM. All defects should be visible in Agile Manager for a complete view of the product backlog. Before moving to Agile Manager, all backlog items and defects were fully managed in ALM. Relevant product backlog items and defects must be migrated from ALM to Agile Manager, including: • Defects that do not have **Closed** status • Requirements that do not have **Done** status, and any related themes and features
Synchronization includes	An initial migration of all relevant items from ALM to Agile Manager. Ongoing user story synchronization from Agile Manager to requirements in ALM. Ongoing bi-directional synchronization of relevant defects between Agile Manager and ALM.

Read through the following guidelines for the specific types of synchronizations you need.

Note: Perform the procedures described in "Set up Synchronizer" on page 125 to prepare your ALM project and Synchronizer server and client for synchronization.

Synchronization links

Each synchronization link defines the following:

- The **entities synchronized** (defects, user stories/requirements, or releases). Each link can synchronize only one type of entity.
- The **directions** in which the endpoints are updated (ALM > Agile Manager, Agile Manager > ALM, or both).
- The **filters** used to find records with new data.

This topic includes:

- "Multiple links" below
- "Link filters" below
- "Link mapping data" on the next page

Multiple links

Each link synchronizes a specific entity type between a single ALM project and a single Agile Manager workspace. Create separate links to synchronize defects, requirements, and releases between the same two endpoints.

You can create multiple links between a single Agile Manager workspace and multiple ALM projects. In such a case, use Agile Manager favorites to separate the synchronized data inside the workspace.

To prevent data leaks between workspaces, Synchronizer does *not* support multiple links between a single ALM project and multiple Agile Manager workspaces in the same site.

Link filters

Synchronizer looks for new records in ALM or Agile Manager based on the filter defined for the link task. If no filter is defined, all records are considered for synchronization.

Filters are based on ALM or Agile Manager favorites, and must be available in the endpoint to the user defined for the current link. You can select from a maximum of 50 filters for a specific endpoint.

> **Tip:** When first setting up Synchronizer, synchronize a filter that contains only one defect or requirement to verify that the synchronization works as you expect. Enlarge the filter slowly, verifying that the synchronization continues to update information as you expect, until you've covered the variety of scenarios in which you need to synchronize data.

> Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter. Be sure that you want to synchronize data in a specific record or type of record before including it in your filter.

In the Agile Manager endpoint...	In the ALM endpoint...
Filters must be defined as favorites in the **Product Backlog** > **Backlog** page.	Filters must be defined in the ALM Requirements Tree view, and not the Requirements Grid view.

For more details, see "View or update link filters (defects or requirements)" on page 142.

Link mapping data

Each synchronization link includes definitions for field mapping, which specifies the pairs of mapped fields and the direction in which each pair of fields is mapped. You can also map specific values for a field in one endpoint to specific values of a field in the other endpoint.

> **Example**
>
> You might map a field named `Priority` in one endpoint to a field named `Criticality` in the other endpoint. You might also have `Priority` values of `1`, `2`, and `3` in one endpoint mapped to `Criticality` values of `Low`, `Medium`, and `High` in the other endpoint.

For task details, see "Map endpoint fields" on page 145.

Synchronization task types

The following table describes details about the types of synchronization tasks available: **Incremental**, and **Full**.

For details about how to schedule or manually run specific types of tasks, see "Run synchronization tasks" on page 161.

	Incremental synchronizations*	**Full synchronizations**
General description	Finds records in each endpoint that were created or modified since the previous synchronization task. Synchronizes data between the two endpoints according to the mapping and settings you defined for the link.	Performs a full comparison of the records in each endpoint. This is useful if you want to handle records that were deleted from one of the endpoints, or if you want to synchronize records that were not synchronized in an incremental synchronization.
List of relevant records	Each endpoint supplies a list of records that were *created* or *modified* since the last synchronization task was run. The list is compiled by comparing the synchronization task time stamp (the time the last synchronization task was started) to the last time that each record was modified. Records that were modified after the last synchronization task are included in the list.	Each endpoint supplies a list of *all* records in that endpoint, and compares the list to the list of records included in the identity mapping table, which lists the records that are already synchronized.
Updated records	If a record in the list has already been synchronized (is listed in the identity mapping table), and the version of the record in the source endpoint is different than the version of the record in the destination endpoint, Synchronizer considers the record to have been *updated* since the last synchronization. Synchronizer performs a cycle redundancy check to determine if the changes include mapped fields, and therefore require synchronization. If the changes appear in mapped fields, Synchronizer updates the corresponding record in the destination endpoint, depending on the settings defined for the link.	If a record appears in both an endpoint and the identity mapping table for the link, Synchronizer synchronizes the record as it would in an incremental synchronization, based on the link's time stamp, the record version, and cycle redundancy checks. Some records may be synchronized in a full synchronization that would not be synchronized in an incremental synchronization. This is because all records are requested from each endpoint, and not just those modified since the previous synchronization task.

	Incremental synchronizations*	Full synchronizations
Deleted records	Incremental synchronizations do not handle deleted records. To handle deleted records, run a full synchronization.	Records that appear in the identity mapping table but no longer appear in an endpoint are considered to have been deleted in that endpoint, and are handled according to the settings defined for the link, for deleted records.
New records	Records that had not been previously synchronized are considered to be newly created records. If you enabled Synchronizer to create records in the destination endpoint based on new records in the source endpoint, Synchronizer creates a new corresponding record in the destination endpoint, and updates the identity map to pair these records. New records are handled in the same way in both incremental and full synchronizations.	

Note: * Incremental synchronizations can sometimes cause data consistency issues. For example, if Synchronizer tries to update a record but is unable to do so, such as if the record was locked in the destination endpoint, the time stamp is updated for the link, although the records have not been synchronized. (Time stamps are updated only when a synchronization task begins.)

Because the time stamp is updated, future incremental synchronizations will not detect that the records in the filter still need to be synchronized.

To handle any data consistency issues, run a full synchronization.

Guidelines for specific types of fields

Read through the following sections for guidelines on Synchronizer treats specific types of fields, and tips for mapping them.

Note: Record history data is not synchronized.

For task details, see "Map endpoint fields" on page 145.

Guidelines for mapping user list fields

Agile Manager and ALM maintain separate lists of user fields, such as the **Assigned To** field.

If you have users that exist in one endpoint but not in the other, you must map them to a **Default** user in the opposite endpoint. This may happen, for example, if a user once existed in an endpoint's user list, and is therefore listed as a value, but has since been deleted from the other endpoint's user list.

> **Note:** When you map the Default user, the direction must be unidirectional. Otherwise, using the Default user can potentially cause data loss in the same way that mapping any specific value in one endpoint to multiple values in the other endpoint can.
>
> Additionally, the default users works for ALM users who are not defined with any email address only. If an ALM user is indeed defined with an email address, you must map that user manually, in bulk, or ensure that the user can be mapped automatically.

The following table describes user mapping methods in detail:

Mapping type	Details
Automatic mapping	ALM users defined with an email address that is identical to the one used to log in to Agile Manager are automatically mapped for all user list fields. If a user has multiple email addresses defined in ALM, only the first email address is synchronized with Agile Manager.
Manual mapping	Map ALM and Agile Manager users manually if the email addresses are not identical, or if the ALM user is not defined with an email address. Do this using the same process you use to map other specific field values in the Value Mapping tab. For details, see "Map specific field values" on page 149.
Bulk mapping	Map ALM and Agile Manager users in bulk if you have *many* users whose email addresses do not match in ALM and Agile Manager, and therefore are not mapped automatically. Use a .csv file, which you can create and edit directly in the Synchronizer client or any text editor. For details, see "Map user list fields using a .csv file" on page 150.

Guidelines for mapping attachments

If you map attachment fields for a specific link, when a file is attached to the record in the source endpoint, Synchronizer generates a URL for that file, and passes it to the corresponding record in the destination endpoint. If a URL is attached to the record in the source endpoint, Synchronizer simply passes it to the destination.

From then on:

Attachment type	Details
Updated attachments	Synchronizer updates an attachment if *both* of the following have changed: • The record to which the file is attached • The attachment name, size, or last modified property The attachment description is synchronized only during the initial attachment synchronization, and is never updated.
Deleted attachments in the source endpoint	If an attachment is deleted from the record in the source endpoint, Synchronizer also deletes it from the corresponding record in the destination endpoint.
Deleted attachments in the destination endpoint	If an attachment is deleted from a destination endpoint, and changes are later made to the attachment in the source endpoint, the attachment is recreated in the destination endpoint. You can modify this behavior in the **server.properties** file.

Notes for new attachments

New attachment...	Details
Separate attachments in opposite endpoints with the identical file names	You cannot synchronize attachments for the same entity that have identical file names. If this happens, the task report may display a failed status, depending on the configuration set in the **server.properties** file.
File encoding	URL attachments created in ALM use the file encoding configured in the **server.properties** file. If Synchronizer cannot determine the encoding, it cannot synchronize the URL attachments to Agile Manager.

Opening attachments

When opening...	Details
Permissions	Users must have appropriate permissions in both endpoints to open the synchronized attachment.
ALM System Info attachments	ALM System Info attachments (.tsi files) are opened from ALM in a built-in ALM viewer. They are opened from Agile Manager as XML files.

Guidelines for mapping string, float, and numeric values

- If you map a *string* field that has a maximum length in the destination endpoint, and a synchronized value exceeds this maximum, the string value will be truncated as necessary in the source endpoint during synchronization.
- If you have user defined *float* fields in ALM, map them to *numeric* fields in Agile Manager to avoid inaccuracies.

  By default, Synchronizer recognizes *float* fields as *strings*.

  This is relevant for projects stored in ALM versions 11.5x only.

Guidelines for mapping links between entities

> **Note:**
>
> - It is important to distinguish between Synchronizer *endpoint* links (such as those between ALM and Agile Manager) and *entity* links between entities, such as defects and requirements.
> - Synchronization of entity links is not supported when connecting to ALM using external authentication. For details, see "Connect to ALM using external authentication" on page 129.
> - Synchronization of entity links is supported for ALM versions 11.50 and later.

Map links between entities, such as links between defects and requirements, the same way you map other fields.

Once you've mapped link fields, entity links between two synchronized entities are synchronized together with the rest of the record. However, if one of the linked entities is not synchronized, the link between them is not synchronized either.

When mapping entity links between defects and requirements:

- You must be synchronizing both defects and requirements by the same Synchronizer server.
- The link fields are mapped using the same direction as is used by the link synchronizing defects on that Synchronizer server.
- When synchronizing requirements, only entity links between two user stories are synchronized.
- When synchronizing defects, all entity links are synchronized, including links between two defects and links between a defect and a user story.

When synchronizing deleted records with links to other entities:

Synchronization of entity links when one record has been deleted conforms to the same rules for deletion as the records themselves.

Links to other records are affected as follows, depending on the rule selected:

Rule	Action
Do nothing	The links between the records are not deleted in the other endpoint.
Delete its corresponding record in the other endpoint	The links to other records are deleted together with the deleted record itself, in the other endpoint.
Recreate based on its corresponding record in the other endpoint	The links to other records are recreated together with the record itself, in the original endpoint.

For details, see "Configure link properties" on page 141.

Notes for synchronizing Product and Application fields

When synchronizing from Agile Manager to ALM, map the ALM Product field to the Agile Manager Application field.

If a new Application is added to a user story or defect in Agile Manager, the new Product value is not automatically created in ALM. To synchronize these new Product and Application values, add the new Product value in ALM.

Guidelines for mapping Feature and Theme fields

- Themes and feature names must be unique in both ALM and Agile Manager, and team names must be unique in ALM. If duplicate values are found during synchronization, that defect or requirement is not synchronized.

  > **Caution:** In Agile Manager, a workspace team and a feature team can technically have the same name. However, this is not recommended within the same release to prevent confusion or errors when synchronizing. For details, see "Notes for synchronizing team fields" on the next page.

- In Agile Manager, records assigned to a specific feature must also have a Theme defined. If you map the Feature field to be synchronized from ALM to Agile Manager (or in a bi-directional synchronization), you must also map the Theme field.

  Synchronizer generates an error if it finds a record in ALM that is assigned to a Feature, but no Theme.

> **Tip:** If you are mapping Feature and Theme fields, we recommend making them required fields in ALM to avoid synchronization errors.

Guidelines for mapping Release and/or Cycle fields in defect and requirement links

The following ALM release and cycle fields are available for mapping in defect and requirement links:

- Requirements: **Target Release, Target Cycle**
- Defects: **Target Release**, **Target Cycle**, **Detected in Release**, **Detected in Cycle**

> **Note:** For guidelines about configuring links to synchronize releases and sprints, see "Guidelines for releases and sprints" on page 123.

To map a cycle field, you must also map the corresponding release field. For example, if you map the **Target Cycle** field, you must also map the **Target Release** field.

Additional notes:

Release / cycle fields	Details
Release and cycle or sprint names	Must be identical, with the same name and capitalization, in both endpoints.
Release names	Must be unique in both endpoints. If they are not, and you map release fields, an error is written to the task report and the relevant records are not synchronized.
Target release for requirements	Must have a single target release in ALM. Synchronizing requirements from ALM with multiple target releases will fail.

> **Tip:** If you cannot modify these release names but you want to map these fields:
>
> Map specific field values to define the full path of the release. For example, you can map each value of the **Target Release** field to a value in a corresponding field in the other endpoint.
>
> Define the full path of the ALM release in the format `\<Release_Folder_Name>\<Release_Name>`. For example, `\Flight Application\Release_2`.
>
> You do not need to include the root **Releases** folder in the path.

Notes for synchronizing team fields

Agile Manager supports both **workspace** teams, which are available for all releases in a workspace, as well as **feature** teams, which are available for a specific release only. Although it is not recommended to have a workspace team and feature team with the same name in the same release to prevent confusion and errors, separate teams of different types with the same name are supported.

Such teams are synchronized as follows:

Direction	Details
Agile Manager > ALM	A workspace team or a feature team defined for a record are synchronized to the same ALM team value.
ALM > Agile Manager	Synchronizer first checks for a release team with the name in the record's defined release. If a feature team is found with the configured name, the record is synchronized with the feature team. If there is no release defined for the record, or if there is no feature team found in the defined release with the configured name, Synchronizer searches for a workspace team with that name. If the workspace team is found, the record is synchronized with that team value. If no team is found with the configured name, an error occurs. If there is not team defined for the record, no team value is assigned during synchronization.

Guidelines for mapping specific field values

Synchronizer enables you to map specific field values in one endpoint to specific values for the corresponding field in the other endpoint.

This is supported only for the following types of fields: **String**, **Single value list**, **Multi value list**, and **User list**

For task details, see "Map specific field values" on page 149.

Caution: If you have a different number of values for the field in each endpoint, select uni-directional mapping. Only one value can be synchronized back to the original endpoint, and if this field has a bi-directional mapping, Synchronizer may select the incorrect value in the original endpoint.

In uni-directional mapping, occurrences of the value in the source endpoint are mapped to the value in the destination endpoint. Occurrences of the value in the destination endpoint are *not* mapped to the value in the source endpoint.

> **Examples**
>
> - You have an ALM Priority field, with values of `Low`, `Medium`, `High`, and `Critical`.
>   You map the Priority field to an Agile Manager Importance field, with values of 1, 2, 3, and 4.
>   In this case, map `Low` to 1, `Medium` to 2, and so on. When the ALM Priority value changes from `Medium` to `High`, Synchronizer changes the Agile Manager Importance value from 2 to 3.
> - If however, suppose the Agile Manager Importance field had only three values, of 1, 2, and 3. If you map both Priority fields `Medium` and `High` to the Importance value 2, Synchronizer changes both Medium and High values to 2 during synchronization.
>   When synchronizing the same record back to ALM, the Priority field may be given a value of `High`, when it was actually originally `Medium`.

Guidelines for records with no corresponding fields in the other endpoint

Assign constant values to fields instead of mapping them to a corresponding field in the other endpoint, such as when there is no corresponding field. The constant value is assigned to the field when Synchronizer creates new entities, and is not updated in subsequent synchronizations. Multi value list fields support multiple constant values.

For task details, see "Map constant values" on page 151.

> For example, you may want to do this if:
>
> - You have a required field in ALM, but no corresponding field in Agile Manager. Assign a constant value so the required field is considered to be mapped, and integrity links can pass.
> - You want to distinguish between defects created directly in ALM and those synchronized from Agile Manager. Create a defects field in ALM named **Creation Method**, and assign a constant value of **created by Synchronizer**.

Guidelines for requirements and user stories, themes, and features

To view user stories in ALM as requirements, you must synchronize them between Agile Manager and ALM. Themes and features you create in Agile Manager are also synchronized as requirements in ALM.

Before you begin to synchronize requirements (including user stories, themes or features), you must modify your ALM project with additional requirement types in a specific hierarchy. For details, see "Adapt your ALM project" on page 126.

After creating a new link and selecting the requirements entity type, define other link properties, such as filter options, rules, and field mapping, as described in "Configure link properties" on page 141 and "Map endpoint fields" on page 145.

Specifically, define whether ALM or Agile Manager is the Master for the link. The Master endpoint is the endpoint that defines both the structure of your requirements tree in ALM, and similarly, the themes and features of a specific user story in Agile Manager.

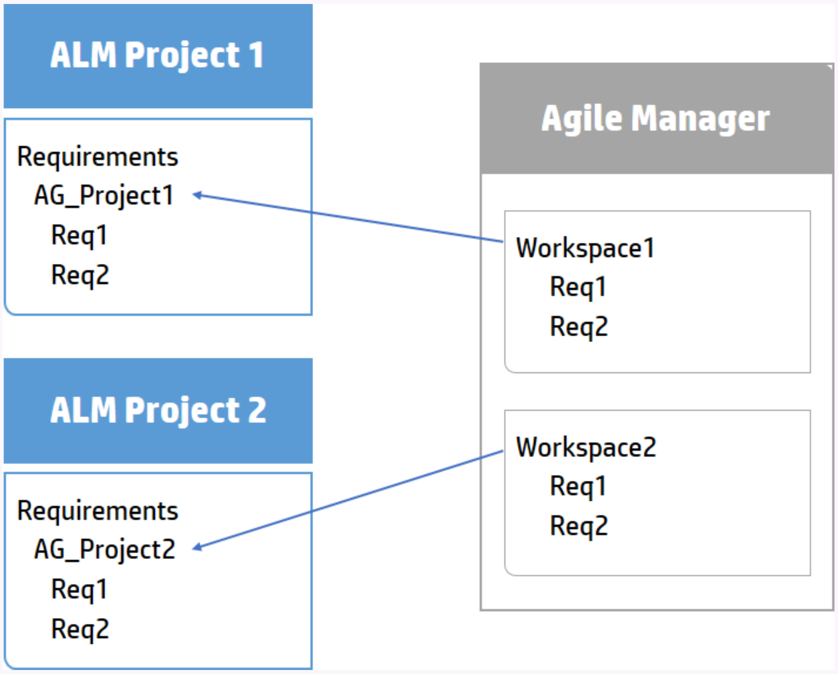
Synchronizing requirements in alternate root folders

By default, Synchronizer synchronizes all requirements in the ALM Requirements root folder. Specify an alternate root folder to synchronize only a subset of the requirements in your ALM project.

Note: If you specify an alternate root folder, ensure that other workspaces in your Agile Manager site do not synchronize with other root folders in the same ALM project.

In the example illustrated below:

- The user stories in Agile Manager **Workspace1** are synchronized with the requirements in the ALM **AG_Project1** folder instead of the **Requirements** folder.
- The user stories in Agile Manager **Workspace2** are synchronized with the requirements in the ALM **AG_Project2** folder instead of the **Requirements** folder.
- In both ALM projects, other sub-folders are ignored by Synchronizer.



Guidelines for specifying an alternate root folder

Specifying an alternate root folder for synchronization can cause unexpected behavior.

Consider the following:

- The path to the alternate folder defined in Synchronizer must replicate the exact hierarchy in ALM. For example: **Requirements\MyProject**. Note that when defining this folder, the **Requirements** folder is already defined for you in the dialog box path.
- If you reorganize the Requirements module in ALM after having run a synchronization task, carefully **move** the records while retaining the same hierarchy to retain the synchronization. Do *not* delete records and create new ones in the new location, as Synchronizer recognizes records according to their ALM ID.

  When you move records, make sure to retain the same hierarchy as is defined for the link in Synchronizer.

Guidelines for mapping ALM requirement subtypes

- Each new requirement type in ALM can be mapped only once, to either theme, features, or user stories in Agile Manager.
- If you do not map a specific ALM requirement type, requirements of that type are not synchronized.
- For each mapped pair, you can only define one endpoint as a source for newly created requirements. For example, if you manage your requirements as user stories in Agile Manager, new records created in Agile Manager will be synchronized to ALM, but new records created in ALM will not be synchronized to Agile Manager.

Notes about ALM subtypes defined for synchronized requirements

- Synchronization fails if synchronized requirements are not located in the correct location in the ALM root hierarchy, according to the requirement type (theme, feature, or user story). See "Adapt your ALM project" on page 126 for details.
- Synchronization of a specific requirement fails if the type of requirement changes. For example, a requirement that is mapped to a theme cannot be subsequently mapped to a user story.
- Requirements in the hierarchy defined as types other than theme, feature, or user story may exist, but are ignored during bidirectional synchronization.
- When synchronizing requirements defined as features, any ALM Product field that is mapped to an Application field in Agile Manager is reflected in synchronized user stories associated with that feature.

Guidelines for defining synchronization rules for requirements

For each requirement type mapping, one endpoint is selected as *master* for the record synchronization. Which endpoint is the master defines many of the rules for the master and non-master endpoint.

Synchronizer maintains the hierarchical requirements tree structure during synchronization, based on the master endpoint:

Requirement type	Details
New parent requirements	When a new requirement is created in the master endpoint, and the requirement is the child of requirements that were not previously synchronized, the parent requirements are also created in the other endpoint. If a filter is defined, the parent requirements are synchronized even if they do not match the filter.
Moved requirements	If a requirement is moved within the requirements tree of the master endpoint, it is moved accordingly in the other endpoint.
Alternate root folders	If you selected an alternate root folder in the Connectivity tab, requirements moved out of the specified folder are handled as deleted requirements.
Deleted parent requirements	If a parent requirement is deleted in the master endpoint, and the option to delete corresponding records in the other endpoint is selected, the parent requirement and all child requirements are deleted in the other endpoint. When a deleted parent requirement is recreated in an endpoint, the child requirements are also recreated.

Guidelines for synchronizing with ALM Version Control

- When a requirement is created in the ALM endpoint during synchronization, it is created with a **Checked In** status. A comment is added to the requirement's version history specifying that this requirement was created automatically.
- When a requirement is updated in the ALM endpoint during synchronization, Synchronizer creates and checks in a new version of the requirement. A comment is added to the requirement's version history specifying that the requirement was modified by the Synchronizer.
- When synchronizing a requirement that is checked out by the ALM user defined for the link, the requirement is updated and the new version of the requirement is checked in.

> **Caution:** Requirements that are checked out by an ALM user other than the user defined for the synchronization link are not synchronized.

Notes about Agile Manager Group Stories and Synchronizer

Group stories are not reflected in the ALM requirements tree. Therefore, Synchronizer does not automatically recognize Agile Manager Group Stories, and does not synchronize any group (parent/child) relationship between stories.

If a requirement in ALM is synchronized with a user story in Agile Manager, and that user story is later broken into a group story (in Agile Manager), Synchronizer considers the user story to have been deleted.

If the link is configured to recreate deleted user stories in Agile Manager based on the corresponding requirements in ALM, the original user story is recreated as a duplicate in Agile Manager.

> **Tip:** Synchronize the group story by creating a user defined field in ALM and mapping it to the Agile Manager Group Story field. The name of the group (parent) story is synchronized to the mapped ALM user defined field.
>
> This synchronization is always unidirectional, from Agile Manager to ALM.
>
> For details about creating user defined fields in ALM for Synchronizer, see "Create user defined fields for additional Agile Manager fields." on page 127

Perform an initial migration of ALM requirements to Agile Manager user stories

> **Tip:** For a brand new ALM project, there is no need to migrate requirements to Agile Manager.

Perform a one-time synchronization to migrate ALM requirements into Agile Manager:

1. Create a link. In the **Subtype Mapping** > **Rules** tab, define ALM as the "View or update rules and mapped fields (requirements)" on page 142.
2. Create filters to migrate only the relevant information to Agile Manager.

   For example, historical information and closed defects may well not be relevant.

   > **Tip:** You may want to first create a small filter to verify that the synchronization works as you expect it to, and enlarge it bit by bit until all your requirements are included in the synchronization.
   >
   > These filters should also be used for ongoing synchronization.

3. Run an integrity check, enable the link, and synchronize manually.
4. Once your ALM requirements are created in Agile Manager, assuming you choose to manage your backlog in Agile Manager, modify the link so that Agile Manager is the Master of this link.

Guidelines for releases and sprints

Synchronize releases to manage, view, and analyze release data in both Agile Manager and ALM. When you synchronize a release, all related Agile Manager sprints are synchronized with cycles in ALM.

Synchronized data includes:

- **Releases:** Names, start and end dates, descriptions, and attachments
- **Sprints/cycles:** Names, start and end dates

Caution: Agile Manager does not support custom release fields. If you have custom release fields that are mandatory in ALM, synchronize release data only from ALM to Agile Manager, and *not* from Agile Manager to ALM.

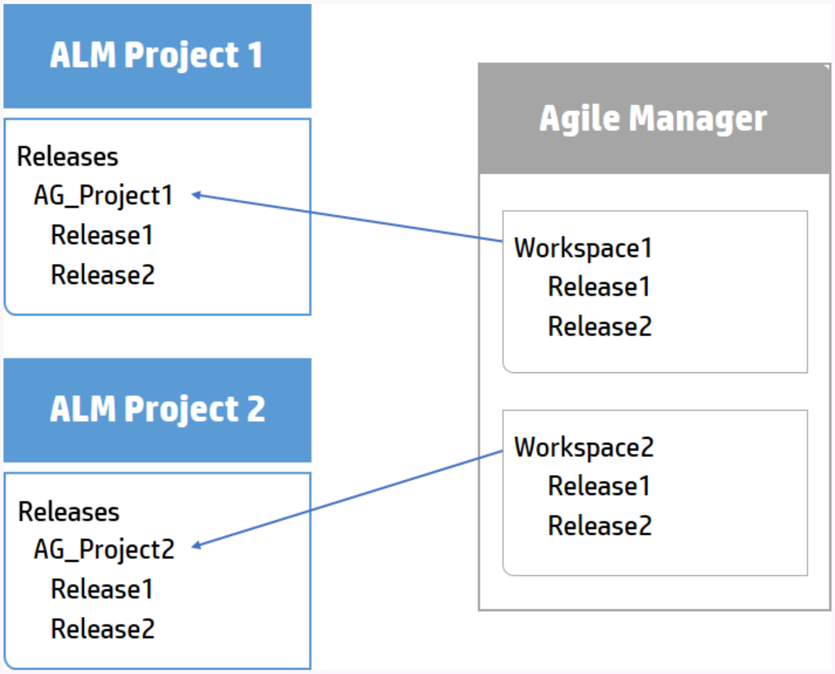
Synchronizing releases in alternate root folders

By default, Synchronizer synchronizes all current releases (with an end date that has not yet passed) in the ALM **Releases** root folder. Specify an alternate root folder to synchronize only a subset of the releases in your ALM project.

Note: If you specify an alternate root folder, ensure that other workspaces in your Agile Manager site do not synchronize with other root folders in the same ALM project.

In the example illustrated below:

- The releases in Agile Manager**Workspace1** are synchronized with the releases in the ALM**AG_Project1** folder instead of the **Releases** root folder.
- The releases in Agile Manager **Workspace2** are synchronized with the releases in the ALM **AG_Project2** folder instead of the **Releases** root folder.
- In both ALM projects, any other sub-folders that may exist are ignored by Synchronizer.



Guidelines for specifying an alternate root folder

Specifying an alternate root folder for synchronization can cause unexpected behavior.

Consider the following:

- The path to the alternate folder defined in Synchronizer must replicate the exact hierarchy in ALM. For example: **Requirements\MyProject**. Note that when defining this folder, the **Requirements** folder is already defined for you in the dialog box path.
- If you reorganize the Releases module in ALM after having run a synchronization task, carefully **move** the records while retaining the same hierarchy to retain the synchronization. Do *not* delete records and create new ones in the new location, as Synchronizer recognizes records according to their ALM ID.

  When you move records, make sure to retain the same hierarchy as is defined for the link in Synchronizer.

Guidelines for synchronizing releases that already exist in both endpoints

If you already have releases defined in both ALM and Agile Manager, compare the names of releases and sprints/cycles in both endpoints before synchronizing these releases.

If there are any pairs of releases or sprints with identical names in both endpoints, determine whether you want Synchronizer to map these pairs. Mapping pairs of releases and sprints with identical names uses data from the dominant endpoint for all fields, overriding any data in the other endpoint.

To automatically map these pairs, on the Rules tab, select the **Map pairs of new releases or sprints found with identical names** option. Clear this option if you want to retain the current release data in each endpoint.

If identically named releases or sprints are found and are not automatically mapped, these releases or sprints are not synchronized at all and an error is generated in the Run Report. If you later change the name of one of the releases or sprints, Synchronizer handles the release as a new record, and re-creates it in the destination endpoint.

For example:

If...	Then...
• You have an ALM release named `Release_1.3`, as well as an Agile Manager release named `Release_1.3` • You define Agile Manager as the dominant endpoint for the release link fields (in the Field Mapping tab) • You select the **Map pairs of new releases or sprints found with identical names** option in the Rules tab	• The two releases are mapped. • All data in the ALM release `Release_1.3` is overwritten by the data in the Agile Manager release `Release_1.3`.

Guidelines for deleting a sprint/cycle

If you delete a sprint or cycle in one endpoint, the deletion is not synchronized to the other endpoint during incremental synchronization tasks. Run a full synchronization task to update the sprints and cycles in the other endpoint.

Set up Synchronizer

This section includes details about how to set up your Synchronizer server, client, and users, as well as important information about how to modify your ALM project before you can synchronize it with an Agile Manager workspace.

> **Note:** If you are setting up a synchronization link for the first time for a specific Agile Manager site, first open a support ticket requesting that the site be enabled for synchronization.

Adapt your ALM project

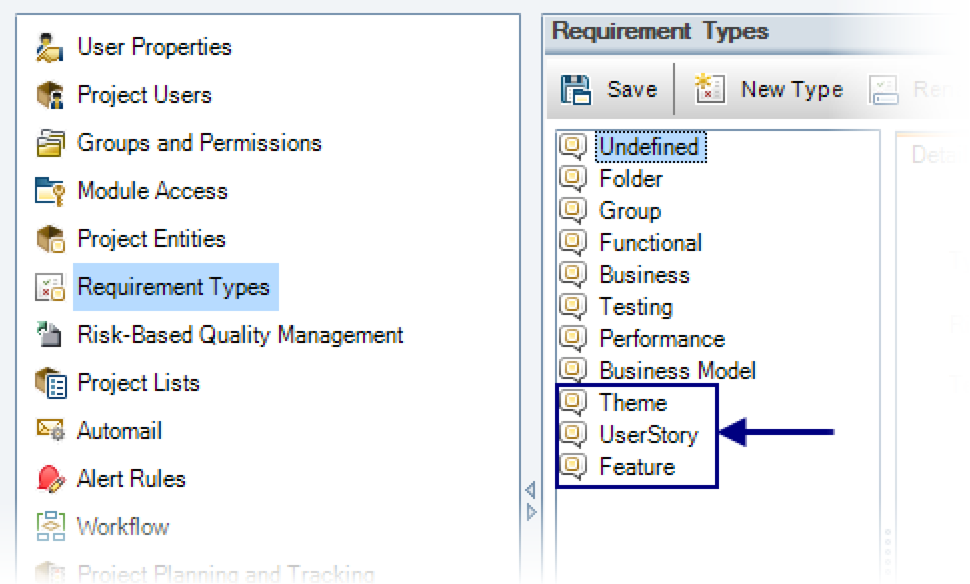
Before synchronizing records between Agile Manager and ALM, you must adapt your ALM project to match the various fields supported for user stories and defects in Agile Manager.

For example, Agile Manager defects can also have a feature and theme defined. To synchronize these fields, you must create corresponding fields in ALM.

> **Note:** Some of these steps have corresponding actions in Agile Manager.

1. Create new requirement types.

In ALM Customization, create new, user-defined requirement types that represent HP Agile Manager themes, features, and user stories.



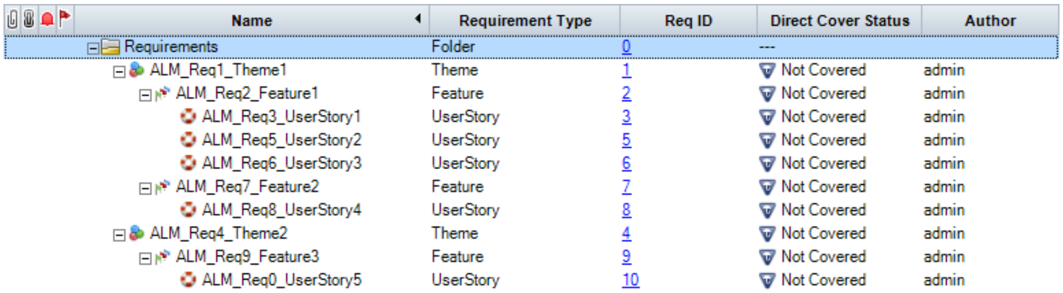
> **Note:** Do not base new requirement types on the **Folder** type.

2. Create or modify the requirement tree.

In ALM, create a requirement tree with a maximum of three levels (representing themes, features, and user stories).

- Requirements in the first level under the root are mapped to Agile Manager themes.
- Requirements in the second level under the root are mapped to Agile Manager features.
- Requirements in the third level under the root are mapped to Agile Manager user stories.

Synchronizer retains the hierarchy during synchronization, and by default synchronizes the entire ALM Requirements root folder and all of its sub-folders.



Name	Requirement Type	Req ID	Direct Cover Status	Author
Requirements	Folder	0	---	
ALM_Req1_Theme1	Theme	1	Not Covered	admin
ALM_Req2_Feature1	Feature	2	Not Covered	admin
ALM_Req3_UserStory1	UserStory	3	Not Covered	admin
ALM_Req5_UserStory2	UserStory	5	Not Covered	admin
ALM_Req6_UserStory3	UserStory	6	Not Covered	admin
ALM_Req7_Feature2	Feature	7	Not Covered	admin
ALM_Req8_UserStory4	UserStory	8	Not Covered	admin
ALM_Req4_Theme2	Theme	4	Not Covered	admin
ALM_Req9_Feature3	Feature	9	Not Covered	admin
ALM_Req0_UserStory5	UserStory	10	Not Covered	admin

Caution: Synchronization may fail if you do not map all requirement types, including Theme, Feature, and User Story.

Note: You can also configure a link to synchronize only a subset of the requirements tree by defining an alternate root folder for the link. For details, see "Synchronizing requirements in alternate root folders" on page 119.

3. Create user defined fields for additional Agile Manager fields.

In ALM, create user-defined fields to synchronize with fields that do not exist by default in ALM, but are used in Agile Manager, such as themes, features, and teams.

Entity type	Steps
Defects	Create user defined fields in ALM for the **Theme**, **Feature**, and **Team** fields.

Entity type	Steps
Requirements	- Create a user defined field in ALM for the **Team** field. - If you use group stories, create a user defined field in ALM for the **Story Group** field. - To synchronize ranking, create a user defined field in ALM for the **Rank** field. This field must be a Number field, and have read-write permissions. **Note:** For user stories, the theme and feature is represented in ALM by the requirement's location in the tree. For more details about synchronizing group stories, see "Notes about Agile Manager Group Stories and Synchronizer" on page 121.

When do you this, consider the following:

- Themes and feature names must be unique in both ALM and Agile Manager, and team names must be unique in ALM. If duplicate values are found during synchronization, that defect or requirement is not synchronized.

  > **Caution:** In Agile Manager, a workspace team and a feature team can technically have the same name. However, this is not recommended within the same release to prevent confusion or errors when synchronizing. For details, see "Notes for synchronizing team fields" on page 116.

- In Agile Manager, records assigned to a specific feature must also have a Theme defined. If you map the Feature field to be synchronized from ALM to Agile Manager (or in a bi-directional synchronization), you must also map the Theme field.

  Synchronizer generates an error if it finds a record in ALM that is assigned to a Feature, but no Theme.

4. Prepare ALM and Agile Manager to synchronize ALM and Agile Manager IDs.

To do this:

a. Create the following user defined fields:

   In ALM. Create a user defined **Number** field named **Agile Manager ID**.

   In Agile Manager. Create a user defined **Numeric** field name **ALM** or **QC ID**.

   Site administrators can create Agile Manager custom fields in the **Site** > **Fields** configuration page.

   b. When mapping fields later on, map these two fields and select the **Synchronize back on create** option for this mapped pair. For details, see "Synchronize back on create" on page 148.

Connect to ALM or Agile Manager via HTTPS

To enable secure connections to ALM or Agile Manager via HTTPS, do the following:

1. With ALM or Agile Manager open in a secured browser window, export the certificate from the browser, and save it to a file named **server.cer**.
2. On the Synchronizer server machine
   a. Place the **server.cer** file in the **<Synchronizer installation>\java\bin** directory.
   b. In the Windows Services dialog box, make sure that the Synchronizer server (**HP Application Lifecycle Management Synchronizer**) is run by the same Windows user who installed the server, and not by the default **Local System** user.

   > **Caution:** The same Windows user must also perform the following step.

   c. Use the keytool command from the **<Synchronizer installation>\java\bin** directory to import the **server.cer** file to the **<Synchronizer installation>\java\lib\security\cacerts** directory.

   For example:

```
keytool.exe -import -v -trustcacerts -alias tomcat -file server.cer -
storepass <password> -keystore <Synchronizer
home>\java\lib\security\cacerts
```

   d. Restart the Synchronizer server.

Connect to ALM using external authentication

Synchronizer can connect to ALM using SiteMinder single sign-on (SSO) or smart card authorization.

> **Note:** Entity links cannot be synchronized when using external authentication.
>
> Linked entities will remain linked in their original endpoint, but the links will not be synchronized to the other endpoint.

To enable connections to ALM using external authentication, do the following:

On the ALM server

Modify the account settings for the user that connects to ALM from Synchronizer (such as **synch_user@mycorp.com**). Ensure that this user can log in to ALM using a name, and not only an email address.

For details, see the *ALM Administrator Guide*.

On the Synchronizer server

1. Make sure that the Synchronizer server service (**HP Application Lifecycle Management Synchronizer**) is not run by the default **Local System** user. Instead, it must be run by the same Windows user who installed the Synchronizer server.

   You can check and edit this in the Windows Services dialog box.

   > **Caution:** This same Windows user must also be the one to install certificates and run the Webgate Customization tool in the following steps.

2. If you are using Smart Card authentication, install the SmartCardUser certificate on the Synchronizer server:

   a. Save the certificate to a file named **server.cer**, in the **<Synchronizer installation>\java\bin** directory.

   > **Tip:** If the SmartCardUser certificate is a **PFX** file, you can import it to the Microsoft Management Console, and then export to a **cer** file.

   b. From the **<Synchronizer installation>\java\bin** directory, use the keytool command to import the **server.cer** file to the **<Synchronizer installation>\java\lib\security\cacerts** directory.

   For example:

   ```
   keytool.exe -import -v -trustcacerts -alias tomcat -file server.cer -
   storepass <password> -keystore <Synchronizer
   home>\java\lib\security\cacerts
   ```

3. Using the Webgate Customization tool:

   On both the **Web Server Settings** tab and the **Proxy Settings** tab, configure access to ALM using external authentication from the Synchronizer server, by defining ALM server and Proxy server credentials.

   For details, see the *HP ALM External Authentication Configuration Guide.*

4. Disable linked entity synchronization.

   Open the **<Synchronizer installation directory>\dat\server.properties** file for editing, and add the following line:

   ```
   disable.sync.entityLink=Y
   ```
5. Restart the Synchronizer server.

Start the Synchronizer service and client

To start the Synchronizer service, on the Synchronizer server machine, select **Start > Programs > HP ALM Synchronizer > Start Synchronizer**. The Synchronizer service is started in the background.

> **Note:** You may need to wait a few minutes before you can connect a client to the service.
>
> The service times out and stops after a period of inactivity. Start it again to reconnect.

Connect a Synchronizer client to the server

1. On the Synchronizer client machine, open the **ALM Synchronizer Client** application.
2. Enter the server name and your Synchronizer authentication details, and click **Connect**.

Parameter	Description
Server Name	The name of the server running the Synchronizer service. The server name can be the full domain name, the IP address, or **localhost**. If this is the local machine, enter **localhost**.
User Name	The first time you connect, you must log in as the Synchronizer administrator (**admin**). Administrators can create additional users. For details, see "Manage Synchronizer users" on the next page.
Password	The **admin** user's initial password is blank. You can change your password after you log in. For details, see "Change your password." on the next page

> **Tip:** Multiple clients can connect to the Synchronizer server at the same time. If you work with multiple clients, verify that you work on links from only one client at a time.

What do you want to do?

Disconnect from or reconnect to the Synchronizer server

The Synchronizer client is automatically disconnected from the Synchronizer server after an extended period of inactivity. In such cases, you are notified that the client is not connected to a server, and you must manually disconnect and reconnect.

You may also want to disconnect from the current server and reconnect to a different one.

1. In the ALM Synchronizer client, select **Connection > Disconnect**, or click the **Disconnect** ⇌ button.
2. In the Connect to Synchronizer Server dialog box, click **Disconnect**.
3. To reconnect, or to connect to a different server, enter your login credentials, and click **Connect**.

Change your password.

1. In the Synchronizer client, select **Connection > Change Password**.
2. In the Change Password dialog box, enter the old and new passwords, and click **OK**.

> **Note:** The initial password is blank.

Close the Synchronizer client

To close the Synchronizer client, select **Connection > Exit**.

Stop the Synchronizer service

On the Synchronizer server machine, select **Start** > **Programs** > **ALM Synchronizer** > **Stop Synchronizer**.

Manage Synchronizer users

To access: Connect to the Synchronizer as the **admin** user, and select **Tools** > **User Management**.

The User Management dialog box enables administrators to add and delete users, modify the links visible to specific users, as well as reset user passwords.

> **Note:** By default, user passwords are blank, and users change them when they first log in to the client.

> **Caution:** When you define visible links for users, consider the following:
>
> - If a link is visible to a user, the user has full privileges and can run, edit, and delete the link.
> - By default, all links are visible to the **admin** user.
> - When you create a new user, no links are visible to the user by default. You can assign existing links to the user.
> - When a user creates a new link, the link is visible to the user and to the **admin** user by default.

What do you want to do?

Add a new user

1. Click **Add**. In the New User dialog box, define the new user name.
    - If the user is also an ALM user, use the email address defined in ALM as the Synchronizer user name.

      > **Note:** If an ALM user is defined with an email address, and that email address is identical to the one used to log in to Agile Manager, the users on the two lists are automatically mapped.

    - User names have a maximum length of 60 characters, and cannot include any of the following:

      ( ) @ \ / : * ? " ` < > | + = ; , %.
2. Define the visible links for the new user by moving links from the **Available Links** list to the **Visible Links** list.

Edit an existing user's visible links

Select the user name, and move links from the **Available Links** list to the **Visible Links** list.

Delete a user

Select the user name and click **Delete**. ALM Synchronizer warns you before deleting a user.

Reset a user password

Resetting a user password changes it to the initial blank password.

Select a user name and click **Reset Password**.

Configure server options

Connect to the Synchronizer client as the **admin** user.

Select **Tools > Server Options** and set any of the following options:

General tab	
Run history	Enter the number of days for which you want to keep run task history. View history from a link's General tab.
HP ALM Settings	Define the ALM version you are working with.
Adapter Settings	Modify the adapter log level to help you debug adapter errors. Adapter logs are located the **<Synchronizerinstallation>\log** directory on the Synchronizer Server machine, and have a prefix of **adapter_act**.
Server Backup Location	The location on the server machine to which you want to save backup data. Backup files include those created during automatic backups and those created when you export link data manually. If you do not define this location, backups are saved to the **<Synchronizerinstallation>\backup** directory on the Synchronizer Server machine. **Note:** If you define the backup directory to a location that is not on the Synchronizer Server machine, the user that logs in as a service must have permissions to write to the specified location.

General tab	
Log settings	Select **Enable advanced logging** to store extended log information for each link task run. Advanced logs are located the **<Synchronizerinstallation>\log** directory on the Synchronizer Server machine, and are named with the following syntax: `run_<Run ID>_link_<Link ID>.log` **Tip:** Identify run IDs in the Run History dialog box. Identify link IDs in the left column of the links grid. **Caution:** Advanced logs can use a significant amount of disk space and are not generated by default. For details about the logs generated by default, see "View task event logs" on page 164.
Email tab	
Email settings	Define the SMTP mail server you want to use to send notifications of link task run failures. For details about mail notifications, see "Set link notification settings" on page 166. **SMTP Server**. The SMTP server host name **User name/Password.** The authentication details for the user specified to connect to the mail server.

Configure an authentication proxy

By default, the connection between the Synchronizer server to Agile Manager is not authenticated by proxy.

If you configure an authentication proxy for connecting to Agile Manager, clicking **Check Connectivity** in the Create Link wizard or the link's Connectivity tab uses the values specified in the **proxy.properties** file for authentication.

> **Tip:** If authentication fails and errors 401 and 407 display in the **restClient.log**, verify that the contents of the **proxy.properties** file are syntactically correct and contain valid values.

Configure an authentication proxy for connecting to Agile Manager

1. In the **<ALM Synchronizer installation directory>\adapters\dat\HP-Agile-Manager** folder, open the **proxy.properties** file.
2. To use a proxy, change the **setProxy** value to **true**.

   If this value is **false**, proxy settings are ignored and no proxy is used.
3. Set the proxy host and port values:
   a. Change the **proxyHost** value to the proxy IP address or server name.
   b. Change the **proxyPort** value to the relevant port for the proxy.

      When **proxyHost** has a value, **proxyPort** is mandatory.

      ### Example

      ```
      setProxy=true

      proxyHost=123.45.6.7

      proxyPort=1234

      proxyUser=

      proxyPass=
      ```
4. If the proxy requires authentication:
   a. Change the **proxyUser** value to the Agile Manager user name.
   b. Change the **proxyPass** value to the Agile Manager password.

      When **proxyUser** has a value, **proxyPass** is mandatory.

      ### Example

      ```
      setProxy=true

      proxyHost=123.45.6.7

      proxyPort=1234

      proxyUser=MyUserName

      proxyPass=MyPassword
      ```
5. Save the **proxy.properties** file.
6. Restart the Synchronizer server.

Configure links

Create and configure links to synchronize data between an instance of ALM and an instance of Agile Manager.

Create separate links to synchronize between releases, requirements/user stories, and defects.

> **Tip:** Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.
>
> When first setting up Synchronizer, synchronize a filter that contains only one defect or requirement to verify that the synchronization works as you expect. Enlarge the filter slowly, verifying that the synchronization continues to update information as you expect, until you've covered the variety of scenarios in which you need to synchronize data.
>
> For details about supported filters, see "Plan before you begin" on page 106.

Create a synchronization link

Select **Link** > **Create** or click **Create Link** to open the Create Link wizard. Create separate links to synchronize between releases, requirements/user stories, and defects.

Connection property values for both ALM and Agile Manager endpoints are case sensitive.

Navigate through the **Create Link** wizard to do the following:

1. Assign general properties

In the General Properties page, define a name and description for the link.

The ALM and Agile Manager endpoint types are pre-defined for you.

2. Assign HP-ALM endpoint connection properties

In the HP-ALM Endpoint page, do the following:

a. Specify authentication details for the ALM user name you want to use to connect to the ALM endpoint.

> **Note:**
>
> - The ALM user defined for the synchronization link must have create, modify, and delete permissions for the entity being synchronized (defect or requirement) in the ALM project.
> - If you are working with ALM 12.20, you can also connect to ALM using external authentication.
>   In this case, you must use a name and not an email address for the user name. For other details, and steps required to enable external authentication, see "Connect to ALM using external authentication" on page 129.
> - To enable secure connections to ALM, see "Connect to ALM or Agile Manager via HTTPS" on page 129.

b. Define the settings for the ALM project you want to connect to.

To select a project from a list of available projects, click **Set Connection**. In the HP ALM Connection dialog box, enter the connection settings for the ALM server you want to connect to, and then enter the user and project details.

To connect to a project manually, populate the **ServerURL**, **Domain**, and **Project** fields for the ALM project you want to connect to. Enter ALM server paths using the following syntax:
`http://<ALM server name>[<:port number>]/qcbin`

> **Note:** You can later define an alternate root ALM folder for synchronizing requirements. For details, see "Create a synchronization link" on page 58.

For more details on ALM servers, domains, and projects, refer to the *HP Application Lifecycle Management Administrator Guide*.

c. Click **Check Connectivity** to verify the connection to the ALM project. You may want to test connectivity to several projects before finalizing a project for the link.

3. Assign HP-Agile Manager endpoint connection properties

In the HP-Agile Manager Endpoint page, do the following:

a. Specify authentication details for the Agile Manager user name you want to use to connect to the Agile Manager endpoint.

b. Define the settings for the Agile Manager site and workspace you want to connect to.

Parameter	Details
Workspace ID	The workspace ID, as displayed in the **Workspaces** configuration page (**Site** > **Workspaces**).
TenantID	You can find the tenant (site) ID in the Agile Manager URL. For example: **TENANTID=123456789**.
ServerURL	Use the following syntax: **http(s)://<server name>:<port number>/agm**
Domain	You can find the server URL in the Agile Manager URL. For example: **https://myserver.mycorp.com/agm/webui/alm/<Domain>...**
Project	The project name is always **Main** or **main**. You can find it in the Agile Manager URL.

c. Click **Check Connectivity** to verify the connection to the Agile Manager workspace.

> **Tip:** By default, the connection between the Synchronizer server to the Agile Manager endpoint is not authenticated by proxy. To work with proxies, see "Configure an authentication proxy" on page 135.

4. Select the entity type

In the Entity Types page, select the name of the entity you want to synchronize from each endpoint.

- Each link can synchronize only one entity type in each endpoint (defects, requirements, or releases).
- The entities you select here define the tabs that are displayed in the Synchronizer Client window.

At the prompt, click **Yes** to configure the link now, or **No** to open it in read-only mode and edit the link later.

> **Tip:** You can also create a link using another link as a base. For details, see "Export and import link configuration and data" on page 154.

What do you want to do?

Refresh link data

The Synchronizer client is not always automatically updated when changes are made by the Synchronizer server. This can affect the actions available to perform on a link.

For example, when a task runs automatically on a link, the client is not updated to display that a task is running on the link.

Click **Refresh** to update the data.

View or update general link properties

1. Click the **General** tab.
2. In edit mode, modify the link name and description, and endpoint names. All other information in the General tab is read-only.

View or update connection settings for each endpoint

1. Click the **Connectivity** tab.
2. In edit mode, update the connection settings as needed. For example, you may need to do this if log-in credentials change.

   To define an alternate root ALM folder for synchronizing requirements or releases, select **Use alternate root folder** and enter the path of the root folder you want to synchronize.

Delete synchronization links

In the links grid or navigation tree, select the link you want to delete, and select **Link** > **Delete**.

> **Caution:** Consider carefully before you delete a synchronization link, as deleting links can have unintended consequences. If you create and run a synchronization link, run an updated record synchronization, delete the link, and create the same link again, the next updated record synchronization you perform duplicates the records in both endpoints.
>
> For example, suppose you synchronized your records so that defects Bug 1 and Bug 2 exist in both your ALM project and your other endpoint. After deleting the synchronization link, creating the same link again, and performing another record synchronization, Bug 1 and Bug 2 will each appear twice in both ALM and the other endpoint.

Configure link properties

Link properties include all information about the link. Some main properties are displayed for all links in a sortable grid, and additional properties are displayed for a specific link in a series of tabs.

Open a link from the main grid or the navigation tree on the left to view or edit link properties. Tabs differ for each link, depending on whether you are synchronizing releases, defects, or user stories in the selected link.

Click **Refresh** or select **Link** > **Refresh** to refresh the data displayed in the grid or the link details tabs.

> **Caution:**
>
> Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.
>
> Therefore, before you start synchronizing, it is highly recommended that you read the topics that describe the various types of configurations available and the guidelines for specific types of synchronizations.
>
> See "Plan before you begin" on page 106 for details.

What do you want to do?

Edit a link

Open the link and click **Edit** .

You can have unsaved changes in multiple links. Unsaved changes are indicated by a red asterisk next to the link's icon in the navigation tree.

> **Caution:** Editing a link disables the link, and changes the link's status to **Unvalidated**. You must save your changes and enable the link again before you can run synchronization tasks on it, as described in "Enable or disable a link" on page 160.
>
> Before editing a link, verify that you do not need to run synchronization tasks.

View or update link filters (defects or requirements)

Tip:

Once a record in one endpoint is mapped to a record in the other endpoint, it is always synchronized if there is new data, regardless of whether the record still matches the link's filter.

When first setting up Synchronizer, synchronize a filter that contains only one defect or requirement to verify that the synchronization works as you expect. Enlarge the filter slowly, verifying that the synchronization continues to update information as you expect, until you've covered the variety of scenarios in which you need to synchronize data.

For other guidelines about link filters, see "Link filters" on page 108.

1. Click the **Filters** tab.
2. In edit mode, click **Refresh Filter Lists** to display the current list of filters for each endpoint.

   For each endpoint, select one of the following options:

Option	Description
No Filter	All records are considered for synchronization.
Use filters (for creation events)	Only enabled if there are filters in the endpoint available for the user. • Defect links support only one filter per endpoint. • Requirement links support multiple filters for each endpoint. If you define multiple filters for a requirement link, Synchronizer creates new records for any items that contain any or all of the combined filter criteria.

View or update rules and mapped fields (requirements)

Click the **Subtype Mapping** tab.

Tip:

If you do not see the **Subtype Mapping** tab, verify that you are editing a requirement link. To edit defects, see "View or update synchronization rules (defects)" on page 144 or "View or update mapped fields (defects or releases)" on page 145.

> Synchronizing requirements involves many details. Read through "Guidelines for requirements and user stories, themes, and features" on page 118 before you begin.

In edit mode:

1. Select a type for each endpoint, and click **Add Mapping**. The mapped pair is added to the Mapped Subtypes list.

   For example, select the **Feature** type in the HP-ALM list, and then the **Feature** type in the HP-Agile-Manager list to map these requirements as a pair.
2. In the Mapped Subtypes list or the navigation tree, select a pair, and click **Configure** to define field mapping and synchronization rules for that pair.

   > **Caution:** Deleting a requirement type mapping deletes all identity mapping data for the selected pair. For additional important information, see "Delete synchronization links" on page 140.
3. In the Rules tab, configure synchronization rules for the selected mapped pair of requirement types. You can verify which pair you are configuring by checking the highlighted pair in the navigation tree. Define the following options:

Option	Description
Master and Creation	Define which endpoint you want to define as the Master endpoint. For example, if you plan to manage requirements as user stories in Agile Manager, select **Master** in the HP-Agile-Manager column. Rules for newly created records are automatically set.
Update	For updated records, define rules in the *non-master* endpoint only.
Deletion	For deleted records, define rules in both endpoints. **Tip:** For the *non-master* endpoint, ensure that synchronized records are not accidentally deleted by selecting **Recreate based on its corresponding record in the other endpoint**.

4. In the Field Mapping tab, map fields for the selected mapped pair of requirement types. You can verify which pair you are configuring by checking the highlighted pair in the navigation tree. For details, see "Map endpoint fields" on page 145 and "Modify .csv map files in a text editor" on page 151.

View or update synchronization rules (defects)

Configuration rules direct Synchronizer how to handle the creation, update, and deletion of defects in each endpoint.

1. Click the **Rules** tab.
2. In edit mode, set rules for each endpoint, for the following scenarios:

Scenario	Description
Creation	Define what happens in the other endpoint when Synchronizer detects a new record in this endpoint.
Update	Define what happens in the other endpoint when Synchronizer detects an updated record in this endpoint. If you selected **Create a corresponding record in the other endpoint**, you must also select **Update its corresponding record in the other endpoint** for the same endpoint.
Deletion	Define what happens in the other endpoint when Synchronizer detects that a record was deleted in this endpoint. The **Recreate based on its corresponding record in the other endpoint** option is enabled only when the **Create a corresponding record in the other endpoint** option is selected for the other endpoint. Synchronizer handles deleted records only during full synchronization tasks, and not during incremental synchronization tasks.

View or update synchronization rules (releases)

Configuration rules direct Synchronizer how to handle the creation, update, and deletion of releases or sprints in each endpoint. When synchronizing releases, a synchronized record refers to a synchronized release.

1. Click the **Rules** tab.
2. In edit mode, set rules as follows:
   - Select **Map pairs of new releases or sprints found with identical names** if you want to automatically map new releases or sprints found in both endpoints with identical names.

     > **Note:** If this field is cleared and Synchronizer encounters a pair of identically named releases or sprints, the pair is not synchronized, and an error is generated in the run report.

> If you do not see this option, verify that you are configuring a releases link.

- Set rules for each endpoint, for the following scenarios:

Scenario	**Description**
Creation	Define what happens in the other endpoint when Synchronizer detects a new record in this endpoint.
Update	Define what happens in the other endpoint when Synchronizer detects an updated record in this endpoint. If you selected **Create a corresponding record in the other endpoint**, you must also select **Update its corresponding record in the other endpoint** for the same endpoint.
Deletion	Define what happens in the other endpoint when Synchronizer detects that a record was deleted in this endpoint. The **Recreate based on its corresponding record in the other endpoint** option is enabled only when the **Create a corresponding record in the other endpoint** option is selected for the other endpoint. Synchronizer handles deleted records only during full synchronization tasks, and not during incremental synchronization tasks.

View or update mapped fields (defects or releases)

Click the **Field Mapping** tab.

You must define field mappings for each link. For details, see "Map endpoint fields" below and "Modify .csv map files in a text editor" on page 151.

> **Tip:** If you do not see the **Field Mapping** tab, verify that you are editing a defect or release link. To map fields for requirements, see "View or update rules and mapped fields (requirements)" on page 142.

> **Note:** Before you can run synchronizations tasks on a link, you must run integrity checks and enable the link.

Map endpoint fields

For defects or releases: **Field Mapping tab**

For requirements: **Subtype Mapping** tab> Select a mapped pair and click **Configure** > **Field Mapping** tab

The Field Mapping tab displays requirement type, field type, and permission type for each field available in the endpoints, as well as the mapping direction and other properties for each pair of mapped fields.

Field type icons

Icons indicate whether the field is mandatory for the endpoint, strongly recommended, or optional for you to map.

	Description
🚩	**Mandatory** fields must be mapped as a destination of a field in the other endpoint, or configured with a constant value. *Errors* occur during integrity checks if records can be created in the endpoint and synchronized to the other endpoint, but mandatory fields are not mapped. Fields are set as Mandatory if they are required in ALM, but not given a default value in ALM when a record is created.
🚩	**Recommended** fields should be mapped as the destination of a field in the other endpoint, although you are still able to run synchronization tasks on this link without mapping this field. *Warnings* occur during integrity checks if records can be created in the endpoint and synchronized to the other endpoint, but recommended fields are not mapped. Fields are set as Recommended if they are required in ALM and are given a default value in ALM when a record is created.
🚩	Fields are set as Optional if they are not required in ALM, and are not given a default value in ALM when a new record is created.

Read-write attributes

Synchronizer indicates whether the field is read-only (**R**), or has read- and write-permissions (**RW**). You cannot map read-only fields.

Mapping directions

- **Bidirectional.** (Default) Changes made to data in either endpoint are always updated in the other endpoint. Always define a **Dominant side** in case of conflicts.
- **Unidirectional.** Changes made in the destination endpoint may be overridden by changes made in the source endpoint, even if they were made later.

What do you want to do?

> **Caution:** Before mapping endpoint fields, read through the following topics for the data you

> want to map:
>
> - "Guidelines for specific types of fields" on page 111
> - "Guidelines for requirements and user stories, themes, and features" on page 118
> - "Guidelines for releases and sprints" on page 123
>
> Incorrect mapping can cause errors in synchronization, or incorrectly synchronized data.

Modify the fields displayed for a specific endpoint

- *Sort* the fields by the data in a particular column by clicking the column header.
- *Filter* the fields to display only fields with a specific requirement level by clicking the icons above the grid.

  For example, to show only Mandatory fields, click the **Mandatory** button.

View field properties

- To view the properties of a *specific field*, select the field and click **View field properties**.
- To view properties for *both fields in a mapped pair*, select the pair in the Mapped Fields list, and click the **Mapping Properties** tab on the right.

Map a pair of fields

> **Note:** Each field in one endpoint can be mapped to only one field in the other endpoint.
>
> Different types of fields and mapping directions require various types of property settings. For details, see "Edit the properties for a specific pair of mapped fields" on the next page.
>
> Additionally, see "Guidelines for specific types of fields" on page 111 for the specific type of field you want to map.

In each endpoint's grid, select the fields you want to map and click **Map Selected Fields** at the top of the tab.

- To delete a mapping, select the pair and click **Delete Field Mapping**.
- To verify a mapping, select a pair and click **Check Field Mapping**. Reports include errors that will cause the link to fail, warnings that may prevent the link from running correctly, and other information. For details, see "Checks performed on link field mappings" on page 159.

Edit the properties for a specific pair of mapped fields

Select the pair in the Mapped Fields list, and then click the **Mapping Properties** tab.

Specifically, update the following properties in specific situations:

Property	Description
Dominant side	Relevant for bidirectional mapping. Defines which endpoint overrides the other endpoint if there are changes made to the same record in both endpoints. By default, ALM (**Endpoint 1**) is the dominant endpoint. **Example** Agile Manager (**Endpoint 2**) is set as the dominant endpoint. Since the last synchronization, a field value was changed in both Agile Manager and ALM, to different values. In Agile Manager, the value was changed to **20**, and in ALM, the value was changed to **10**. During the next synchronization, Synchronizer changes the value in ALM to **20**, as defined in Agile Manager, the dominant endpoint.
Synchronize back on create	Relevant for a single directional mapping. Defines whether Synchronizer sends any new field values created in a destination endpoint (during synchronization) back to the source endpoint. **Tip:** Use this option to synchronize custom fields you created to map ALM and Agile Manager IDs. For details, see "Prepare ALM and Agile Manager to synchronize ALM and Agile Manager IDs. " on page 128 **Example** A new record was created in ALM. During synchronization, that new record is added to Agile Manager, which generates an Agile Manager ID. Synchronizer now recognizes this new ID field value, and sends it back to ALM, adding it to the source record. This property helps to ensure that both endpoints contain exactly the same data.

Property	Description
Require matching field types	Defines whether the types of fields must match in a pair. **Yes.** Mapping fields of different field types is not permitted and the integrity check will fail. **No.** Set when you are mapping a **String** field with a **Number** or **Double** field. In this case, integrity checks will fail if this property is set to **Yes**. **Example** To map the Agile Manager **Req ID** field, which is a **Number** field, you might create a user-defined string field in ALM. When you map these fields, you must set the **Require matching field types** property to **No**.
Mapping method	Relevant for User list fields. Defines whether the field values are defined by: **Default.** The field is mapped manually, in the Value Mapping tab. **File.** The field is mapped using a user list mapping csv file. Files for mapping user list fields are located in the **<Synchronizer installation directory>\dat\Mappings** folder.
Mapping method value	Relevant for User list fields, when the Mapping method is set to **File**. Defines the name of the csv file that contains user list mapping. Files are stored in the **<Synchronizer installation directory>\dat\Mappings** folder.
Value	Defines a constant value for a field. For Multi list fields, separate values by semi-colons.

Map specific field values

> **Note:** You can also use this procedure to map individual user list field values. However, if you have many users to map, you might want to use a .csv file, as described below.
>
> If your ALM users are defined with email addresses, and those email addresses are identical to those used to log in to Agile Manager, the users are mapped automatically.

> See "Guidelines for mapping user list fields" on page 112 and "Guidelines for mapping specific field values" on page 117.

1. In the Mapped Fields list, select the pair of mapped fields for which you want to map specific values, and click the Value Mapping tab on the right.
2. Click **Add Value Mapping** + or **Edit Value Mapping** ✎.

   In the Add Value Mapping dialog box, select the field values in each endpoint that you want to map, as well as the mapping direction for this field value.

   > **Tip:** Endpoint 1 is ALM and Endpoint 2 is Agile Manager.

3. To remove a mapping between field values, in the Value Mapping tab, select the mapped pair of values and click **Delete Value Mapping** ✕.

Map user list fields using a .csv file

> **Note:** See "Guidelines for mapping user list fields" on page 112.

1. In the Field Mapping tab, select and map a pair of User list fields (such as an **Assigned to** field), and then select the mapped pair in the Mapped Fields list below.
2. In the Mapping Properties tab on the right, set the Mapping Method property to **File**.
3. Click the **Value Mapping** tab, and then click **Add Value Mapping** +.
4. In the Value Mapping dialog box, select your mapping file from the **Existing mapping files** list, and then click **Load**. Click **Refresh** ↻ if you do not see your file.
5. Select user values for each endpoint, and use the direction selector and arrow buttons to add pairs to the list of mapped values.
6. In each endpoint, click **Add** + to add a Default user, and map a user in each endpoint to the Default user in the other endpoint.

   > **Caution:** If the Default user is not mapped, synchronization fails for non-mapped user records.
   >
   > When you map the Default user, the direction must be unidirectional.

7. Click **Save** to save changes to the currently selected file or **Save As** to save the mappings to a new

.csv file.

You cannot save the mapping file unless the Status message at the bottom of the dialog box reads **OK**.

8. To use this .csv file for mapping field values, click **Set as mapping** before closing the file.

Map constant values

> **Note:** See "Guidelines for records with no corresponding fields in the other endpoint" on page 118.

1. Select the field to which you want to map a constant value, for new records created in the endpoint.

   For example, if you want to define a constant value for a field in ALM for records that were added in Agile Manager and created during synchronization in ALM, select the field in the column listing ALM fields.

2. Click **Add Constant Value** above that endpoint's field grid, and enter the value you want to use as a constant.

   To add multiple constant values for **Multi value list** fields, select multiple values from the **Value** selection list.

Export or import field mappings

- To export the currently configured field mappings, click **Export**. The mappings are exported to an XML file.
- To import field mappings, click **Import**.

  Browse to either a previously exported XML file, or a sample file, stored in **<ALM Synchronizer Client directory>\samples**.

  When importing mappings from a sample file, select the file for the type of entity link you are configuring.

Modify .csv map files in a text editor

.csv files used to map users for user list field values can be modified in any text editor.

Save the map files on the Synchronizer server machine, in the **<Synchronizer installation directory>\dat\Mappings** directory.

> **Note:** If your ALM users are defined with email addresses, and those email addresses are identical to those used to log in to Agile Manager, the users are mapped automatically.

> You can also edit .csv files directly in the Synchronizer Client, or map individual user list field values manually.

When you specify the mapping file while creating or editing a link in Synchronizer, Synchronizer validates the contents of the mapping file to make sure it is formatted correctly.

When editing a mapping file in a text editor, verify that:

- No header row is specified.
- The first value is the user list field value in ALM.
- The second value is the direction for synchronization:
  - **<** Unidirectional, from Agile Manager to ALM.
  - **>** Unidirectional, from ALMto Agile Manager.
  - **<>** Bidirectional.
- The third value is the user list field value in Agile Manager.

Example

```
maria,<>,maria@maincompany.com
charley,<>,charles@maincompany.com
rafelo,<>,rafelo@maincompany.com
timmy,<>,tim_smith@maincompany.com
angela,<,ang@maincompany.com
admin,>admin@maincompany.com
leroy,<>,leroy@maincompany.com
veronique,>,vlr@maincompany.com
```

Configuration for mapped attachment fields

Some Synchronizer behavior for synchronizing mapped attachment fields depends on the settings configured in the **server.properties** file.

The **server.properties** file is located in the **Synchronizer installation directory>\dat** directory on the Synchronizer server machine.

Attachments with identical names in opposite endpoints

Attribute	**Details**
Parameter name	`pass.entity.sync.on.attach.conflict`
Description and values	Defines whether the task run report displays a **failed** or **passed** status, when Synchronizer attempts to synchronize and entity with attachments in each endpoint that have identical names. **Default value.** N **Note:** Irrespective of the status of the `pass.entity.sync.on.attach.conflict` parameter, such attachments cannot be synchronized.

File-encoding for URL attachments created in ALM

Attribute	**Details**
Parameter name	`alm.file.encoding`
Description and values	Defines the encoding used by ALM for URL attachments created in ALM. Enter a list of comma separated values. For example: `alm.file.encoding=UTF-8,UTF-16` **Default value.** <Null>. By default, Synchronizer attempts to match the default encoding defined on the machine on which it is installed, as well as UFT-8 and UTF-16. If ALM uses a different encoding and it is not defined here, Synchronizer cannot determine the encoding used, and cannot synchronize the URL attachments to Agile Manager.

Deleted attachments

Attribute	**Details**
Parameter name	`delete.source.attachment.on.url.deletion`

Attribute	Details
Description and values	Determines how Synchronizer handles attachments that were deleted in the destination endpoint, but were modified in the source endpoint. Values: - **Y** = The attachment in the source endpoint is deleted. - **N** = (Default) The attachment in the source endpoint is kept, and the attachment in the destination endpoint is recreated.

Export and import link configuration and data

Export link configurations and or mapping data to files that you can import and reuse to create new links.

You can export and import data using the following methods:

Exported file	Description
XML configuration file	Export a configuration file to reuse the configuration of a synchronization link. **Tip:** To export and import only field mappings for a specific link, see "Map endpoint fields" on page 145 instead. Configurations are exported to an XML file saved in a location you define, and include: - **The link name** - **Email notification information** - **Data from the following tabs:** - Connectivity - Scheduling - Filters - Rules - Field Mapping For a list of modifications to make when importing this file as a new link, see "Create a link from an exported XML file" on page 156.

Exported file	Description
.ZIP backup file	Export a .ZIP file to reuse all data for a synchronization link, such as moving the link to another synchronization server. The .ZIP file includes all configurations exported to the "XML configuration file" on the previous page, as well as entity mappings, and link synchronization history. The exported information is saved in a **<link name>.zip** file, in the **<HP ALM Synchronizer installation directory>\backup** directory on the Synchronizer server. This location is defined per server. For details about changing this location, see "Configure server options" on page 134. **Caution:** • The name of the exported .zip file is not editable and is based on the name of the link. If you have already backed up data for the link or a link with the same name, exporting link data will overwrite the existing backup file. • If you plan to import this link to NextGen Synchronizer, make sure not to export a link that synchronizes requirements in sub-folders. To migrate such a link to NextGen Synchronizer, do the following: - Restructure your requirement tree to avoid using sub-folders. - Re-run the synchronization in ALM Synchronizer. - Export the link from ALM Synchronizer. • For considerations about importing the .ZIP file as a new link and steps required, see "Create a link from an exported .ZIP file" on the next page.

What do you want to do?

Export links

1. In the links grid or navigation tree, select the link whose configuration and/or mapping data you want to export.
2. Determine the data and file type you want to export using the table above.
3. Select **Link** > **Export**, and then select one of the following:
   - **Link Configuration Into XML File**
   - **Link Data Into Backup File**

Create a link from an exported XML file

Note: If you are setting up a synchronization link for the first time on your system, first contact customer support to enable your system for synchronization.

1. If you are creating the link on the same Synchronizer server as the one you exported from, you must modify the link name in the XML file to prevent errors caused by having two links with the same name.

   Open the XML file for editing, and modify the link name.

   For example:

   ```
   <LinkConfig version="0.58">

   <name>Defects_Link</name>
   ```

2. Select **Link** > **Create From** > **Link Configuration XML File**.
3. Browse to, and select the file to import. A new link is displayed in the links grid and navigation tree based on the settings you imported.
4. Modify data in the new link as needed, especially on the following tabs:
   - **Connectivity**. You cannot run two links with the same connectivity data.
   - **Filters**.
   - **Field Mapping**. Refresh the schema after updating the connectivity data, and then re-map any user defined or custom fields.

Create a link from an exported .ZIP file

1. Select **Link** > **Create From** > **Link Data Backup File**.
2. Browse to, and select the file to import. A new link is displayed in the links grid and navigation tree based on the settings you imported.

   Caution: Modifying connectivity data after importing may cause data corruption during synchronization.

Maintain links

Run an integrity check

Integrity checks identify possible problems that can occur during the synchronization process.

You must run an integrity check after making changes to a link and before you can enable the link and run synchronization tasks on it. Run integrity checks after creating a new link, modifying a link, or modifying the schema for one of the link's endpoints.

Integrity checks verify both general settings for the link, and the field mappings defined for the link. Each individual check within the integrity check can **pass** or **fail**. The integrity check passes only if *none* of the individual checks within it fail.

> **Caution:** If you do not run an integrity check, or if the integrity check does not pass, the link remains **unvalidated** and cannot be enabled for synchronization. For more information about link states, see "Enable or disable a link" on page 160.

1. Select **Run Task** > **Run Integrity Check** or click **Run** > **Integrity Check**.
2. View details about the integrity check in the Execution pane at the bottom of the Synchronizer Client window. Click **View Report** to view the full, detailed report, with any extra error messages. You might want to view the detailed report if your integrity check failed, to determine specifically which checks failed and how to fix the link.
3. After you fix the link, run the integrity check again.

Click below for details about the checks performed during integrity checks, as displayed in the run report.

Checks performed on general link settings

Name, as listed in report	Description
Endpoint Connection	Checks that Synchronizer can successfully connect to the endpoint using the settings defined.

Name, as listed in report	Description
User permission check	Checks that the user connecting to the endpoint has sufficient permissions to perform the required tasks.
Endpoint parameters check	Checks and validates additional parameters that may be defined for the endpoint. For example, if an alternate root folder is defined for requirements synchronization, checks that the folder exists in ALM. For details and guidelines for defining alternate root folders, see "View or update connection settings for each endpoint" on page 140
Fetching endpoint schema	Checks that Synchronizer can obtain the database schema for the endpoint.
<requirement type> Subtype: Mapped fields check	Performs checks on fields that are mapped for the endpoint.
Specified filter exists	If a filter is defined for the endpoint in the link, checks that the filter exists in the endpoint.
Subtype exists check	Checks that the mapped requirement type exists in the endpoint.
Endpoint events check	Checks the following: • If the endpoint is set to handle record creation in the other endpoint, that it is also set to update the other endpoint. • If the endpoint is set to recreate records, that the other endpoint is set to handle record creation. • That one endpoint only is set to handle record creation for the mapped requirement type.
Fields mapping defined	Checks that a field mapping is defined between the endpoints and that it can be obtained by the Synchronizer.
Consistency of mapping and endpoint events	Checks that if a field mapping is defined from the endpoint, the link is set to handle record creation or updates in the other endpoint. Also checks that if the link is set to handle record creation or updates in the endpoint, a field mapping is defined to the endpoint.

Checks performed on link field mappings

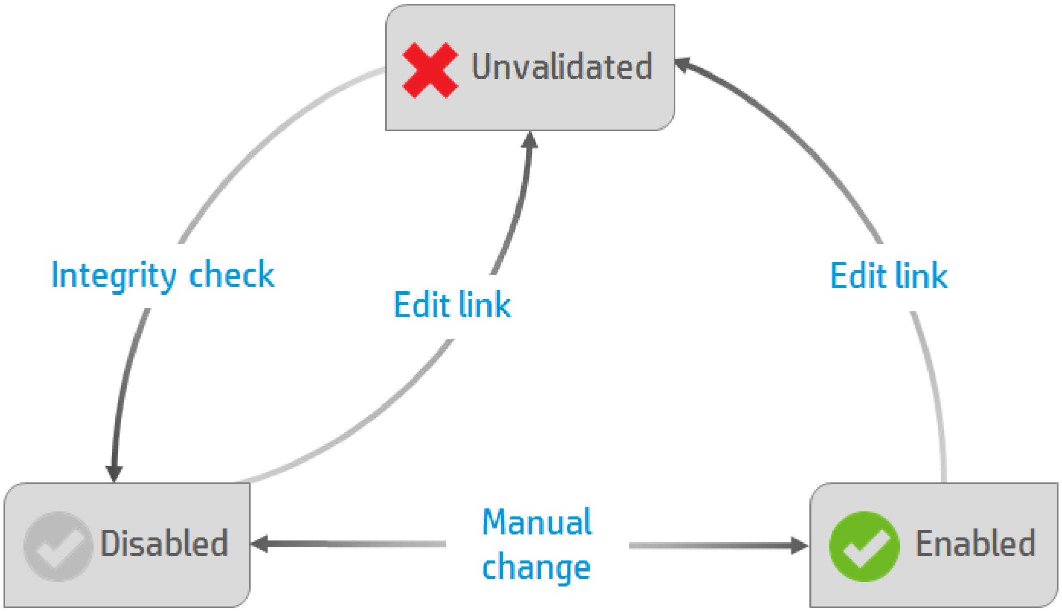
An integrity check performs the following checks on the field mappings you define for the link. Synchronizer also performs these checks when you check the field mappings when you create or configure a link. Depending on the type of field mapped, not all of these checks are performed for every identity mapping.

Name, as listed in report	**Description**
Required fields check	Checks that required fields in the destination endpoint are mapped to a field in the source endpoint, or are assigned a constant value. If this is not the case, the check fails. In addition, checks that recommended fields in the destination endpoint are mapped to a field in the source endpoint, or are assigned a constant value. If this is not the case, the check passes with a warning.
Field existence check	Checks that the field exists in the endpoint.
Field types match check	Checks that if a mapping exists between fields of different types, the values can be converted between the types.
Fields length match check	For string type fields (**String**, **Multi value list**, **Single value list**, **User list**), checks that the maximum length for values for each of the fields in a mapping is the same. If the maximum length is different, the check passes with a warning that some values may be truncated.
Fixed list mapping check	Checks whether the source field of a mapping is not a verified list field, whereas the destination field is a verified list field. In such a case, the check passes with a warning as it is possible that values will be mapped to the destination that are not in its list.
User list check	Checks whether the source field of a mapping is not a user list field, whereas the destination field is a user list field. In such a case, the check passes with a warning as it is possible that values will be mapped to the destination that are not in its user list.
Value mapping types check	Checks that it is possible to convert between the type of the value mapped to a field and the type of the field.

Name, as listed in report	Description
Values length match check	For string type fields (**String**, **Multi value list**, **Single value list**, **User list**), checks that the length of values mapped to the field in a field value mapping is not greater that the maximum length for the field. If a value is mapped that is longer that the maximum length, the check passes with a warning that the value will be truncated.
Values mapping in mandatory field check	Checks that no field value mapping maps an empty string to a mandatory field.
Fixed list values mapping check	Checks that no field value mapping exists that maps values to a verified list field that are not in the list associated with the destination field.
Read only check	Checks that there is no mapping to read-only fields.

Enable or disable a link

Each synchronization link can be in one of the following states: **Unvalidated**, **Disabled**, and **Enabled**.



State	Description
Unvalidated	The link's configuration has not been verified. You cannot run tasks for the link. A link's state begins at **Unvalidated**, and also returns to **Unvalidated** if you modify the link configuration. Change an **Unvalidated** link status to **Disabled** by running an integrity check.
Disabled	An integrity check has verified the link's configuration, but you cannot run tasks on the link. A link's state changes from **Unvalidated** to **Disabled** after you successfully run an integrity check, or if you manually disable it. For details, see "Enable or disable a link" below.
Enabled	The link's configuration has been validated, and you can run tasks on the link. You must manually change a link's state from **Disabled** to **Enabled**. For details, see "Enable or disable a link" below.

For details about integrity checks, see "Run an integrity check" on page 157.

Enable or disable a link

1. In the links grid or navigation tree, select the link you want to enable or disable.

   > **Note:** Before you enable a link, verify that the link is **Disabled**. If the link is in an **Unvalidated** state, you must run an integrity check to change its state to **Disabled**, as described in "Run link tasks manually" on page 163.

2. Do one of the following:
   - Click **Enable Link** ✓ or select **Link > Enable**.
   - Click the **Disable Link** ⊘ or select **Link > Disable**.

Run synchronization tasks

Synchronizer can run only one task at a time for a particular link. When you have multiple links configured, Synchronizer can run only one full synchronization task at a time, or five incremental tasks from different links.

If a task is scheduled to start automatically and another task is still running, Synchronizer resolves the conflict as follows:

- The second task waits in a queue and runs immediately after the first task is completed.

  If the second task is of the same type (for example, both are incremental tasks), the second task does not run at all.
- If both an incremental task and a full task are scheduled to run at the same time, the full task runs first. The incremental task enters a queue and runs when the full task is completed.
- If the maximum number of tasks is already running, any additionally scheduled task waits in a queue, and runs as soon as one of the currently running tasks is completed.

If the maximum number of tasks is already running, you cannot start running a manual task.

> **Note:** Records that are locked in a specific endpoint are not synchronized. Check the report at the end of any task to determine if any records were not synchronized, and why. If mapped records were not synchronized because they were locked during the run, you can update them by doing one of the following:
>
> - Running another incremental synchronization task after the record is modified again.
> - Resetting the link time stamp, as described in "Reset a link time stamp or history" on page 166.
> - Running a full synchronization task.

For details about how records are handled in incremental and full synchronizations, see "Synchronization task types" on page 109.

What do you want to do?

Run link tasks automatically

> **Note:** If you do not specifically schedule synchronizations, you must run synchronizations manually.

1. Run an integrity check.
2. Configure the task schedule in the link's Scheduling tab:

   From the navigation tree or the links grid, open the link, and click **Edit**.

   Click the **Scheduling** tab, and then select **Enable scheduling**.

   > **Note:** To disable automatic scheduling, clear the **Enable scheduling** checkbox.

Schedule synchronization tasks to run in one of the following modes:

Scheduling mode	Description
Schedule every:	Schedule synchronization tasks to run at regular intervals, either hours, minutes, or for full synchronizations, days.
Run task at:	Schedule synchronization tasks to run at a specific time every day, or at a specific time on specific days. Click **Browse** to select specific days of the week.

For details about the differences between incremental and full synchronizations, see "Synchronization task types" on page 109.

3. Enable the link. The link's tasks run as scheduled, and the progress is shown in the Execution pane below.

   If a task is currently running for a specific link, a green arrow is added to the link's icon in the navigation tree. Click **Refresh Selected** to update the information displayed.

Run link tasks manually

Use the following steps to run integrity tests, incremental synchronization tasks, and full synchronization tasks.

1. Enable the link.
2. Select the link on which you want to run the task and run the task using the Run toolbar button or the **Run Task** menu commands. The task progress is displayed in the Execution pane below.

Monitor the progress of a currently running task

In the navigation tree, right-click the link on which the task is running, and select **View Run**.

The task's progress is displayed in the Execution pane below.

Execution pane options

While a task is running, the Execution pane at the bottom of the Synchronizer Client window enables you to do the following:

Option	Description
Cancel Current Task	Cancel the task execution at any stage.

Option	Description
View Report	When the task is completed, click to view a summary of the task run. For details about the data shown in the report, see "View run history, reports, or logs" below.
Refresh Progress	Enabled only when **Auto Refresh** is not selected. Click at any stage to display the next information message in the task progress.
Auto Refresh	Click to have the Synchronizer Client periodically display information messages in the Execution pane. Clear to prevent the automatic display of these information messages.

View run history, reports, or logs

Synchronizer stores the history of the tasks run for a specific link, as well as detailed reports about the task progress.

See "Task run statuses" on the next page for details about the implications of specific task run statuses.

View task run history

The Run History dialog box displays the task run details in a sortable grid.

1. From the navigation tree or the links grid, open the relevant link.
2. In the General tab, click **Get History** for the type of task for which you want to view run history.

> **Tip:** To modify the number of runs displayed in the Run History dialog box, select **Tools** > **Local Client Options**, and enter the number of runs you want to display.

View task run reports

Reports display details about the selected task run, including information about the relevant link, details about checks performed and any records synchronized during the run, and endpoint connection information.

In the Execution pane at the end of a run or in the Run History dialog box, click **View Report**.

View task event logs

Event logs list all events processed by the Synchronizer Server during a task execution.

In a task run report, click **View Log** in the bottom left corner.

Log levels display the following types of errors.

Error type	Description
FATAL	
ERROR	Indicates a critical problem with the link. • **In an integrity check:** The integrity check fails and you cannot run tasks on the link. • **In a synchronization task:** If the error indicates a general problem with the link, the synchronization task fails. If the error indicates a problem with synchronizing a specific record, the synchronization passes with errors.
WARN	A warning of an issue of which you should be aware. • **In an integrity check:** The integrity check does not fail, so tasks on the link can run, but it may cause unexpected results. • **In a synchronization task:** May indicate that the synchronization had unexpected or undesired results.
INFO	A message displayed for information only. No action is necessary.
DEBUG	

Note: You must have JavaScript enabled to filter the log by log level.

Task run statuses

Statuses listed in the Run History dialog box and the task run report include the following:

Status	Description
Passed	All records were synchronized successfully, or there were no changed records to be synchronized.
Failed	No records synchronized successfully.
Passed with errors	At least one record synchronized successfully. (Not relevant for integrity check task runs.)
Error	System error occurred preventing synchronization
Cancelled	User canceled the synchronization task.

Set link notification settings

Synchronizer can send email notifications when a link task fails or when a link task passes with errors.

1. Select **Tools** > **Server Options**. In the Email tab, specify or verify the email settings used to send notifications.
2. From the navigation tree or the links grid, open the link for which you want to modify notification settings.
3. Click the **Advanced** tab, and define the notification settings for the selected link. Only one email address can be specified for each link.

Reset a link time stamp or history

Each synchronization link in the Synchronizer has an associated time stamp, and each record mapping within a link has a version. The time stamp represents the time the link was last handled by Synchronizer. The version enables Synchronizer to identify the records that can be synchronized.

When Synchronizer runs a synchronization task for a link, it updates the time stamp for the link at the start of the task's execution. In addition, when Synchronizer handles the successful synchronization of a paired record mapping, it adds a record containing the versions of each pair of synchronized records to the database.

Synchronizer uses the time stamp and versions when it determines which records to synchronize. In some circumstances, you may want to override the automatic time stamp and the record version history:

- **Time stamp.** Override the automatic time stamp and reset the time stamp to a time prior to the last synchronization. This is useful if there were issues with the latest synchronization of some records, and you want to revert to an earlier version of these records so that you can run a synchronization task again.
- **Synchronization history.** Perform a complete reset to clear both the time stamp and the version history for the mapped records. This is useful when a field mapping changes, and you want to synchronize the mapped entities as if you created a new link.

> **Tip:** You can sometimes achieve the same outcome as resetting the link's time stamp by running a full synchronization task. For details, see "Synchronization task types" on page 109.

1. In the links grid or navigation tree, select the link, and then select **Link > Reset** or click the **Reset Link** button ↺.
2. Reset the link using one of the following options:

Option	Description
Reset to specific time stamp	Reset the link to the time stamp you specify.
Complete link reset	Clear all synchronization version history for mapped records in addition to completely resetting the time stamp for this link.

Back up and restore the database

The Synchronizer database is automatically backed up every eight hours, by default to the **<Synchronizer installation>\backup** directory on the Synchronizer server.

Backup files are named **qcsync_db.backup**. The last three backup files are kept and overwritten, as new backups are created.

> **Tip:** We recommend backing up this directory regularly, or changing the default backup location to a network drive that is regularly backed up. This will ease data restoration in the event of local hard disk failure.

Restore the Synchronizer database

From the Windows Command Prompt, navigate to the **<Synchronizer server installation>\backup** directory, or another path where the backup files are stored, and enter:

```
restore_data.bat <backup filename>
```

Change the backup location

Select **Tools** > **Server Options**, and enter a path in the **Server Backup Location** setting.

Synchronizer Q&A

This section describes common problems or troubleshooting issues and relevant workarounds for the following topics:

- "During synchronization" below
- "Connection settings" on page 170
- "Filter definitions" on page 170
- "Field mappings" on page 171
- "Synchronizer service and installation" on page 171
- "Synchronizer server configuration errors" on page 173

During synchronization

How many synchronization tasks can I run simultaneously?

Synchronizer can run only one task at a time for a particular link. When you have multiple links configured, Synchronizer can run only one full synchronization task at a time, or five incremental tasks from different links.

What happens if my system does not have enough disk space to support the synchronization?

During synchronization, Synchronizer monitors the amount of available disk space.

If the remaining available disk space is lower than a predefined threshold (500 MB by default):

- The synchronization stops.
- An error message is added to the **synchronizer.log** file.
- Synchronizer sends an email to the address configured in the link's **Failure Notification Settings**.

Clean up the hard drive to free more disk space, and start ALM Synchronizer for Agile Manager again.

To modify the disk space threshold:

1. Open the **<Synchronizer installation folder>\dat\server.properties**
2. Add a line to the file: `minimum.free.space.threshold=<number of megabytes>`
3. Restart the ALM Synchronizer service.

> **Note:** This functionality is available from ALM Synchronizer version 0.59.0.254, which was released at the same time as Agile Manager 2.40.

I'm experiencing Agile Manager timeouts during synchronizations.

Increase the number of seconds before a timeout occurs. The default is 200 seconds.

1. On the Synchronizer server machine, navigate to the **<Synchronizer installation directory>\adapters\dat\HP-Agile-Manager** directory.
2. In a text editor, create a file named **adapter.properties**, or open this file if it exists.
3. Define the following property:

   connection.timeout=<timeout per request to Agile Manager in milliseconds>

   Example

   ```
   connection.timeout =300000
   ```

4. Restart the Synchronizer server.

I have a new Application field value in Agile Manager, but I don't see any changed Product values in ALM when I synchronize relevant defects and requirements.

If a new Application is added to a user story or defect in Agile Manager, the new Product value is not automatically created in ALM. To synchronize these new Product and Application values, add the new Product value in ALM.

Error: Mandatory User Fields with Blank Values

This error may occur if you have a mandatory user field in one endpoint mapped to an optional user field in the opposite endpoint, and the optional field has a blank value.

User fields that are mapped to mandatory fields in the other endpoint cannot be blank. Enter values for these fields and synchronize again.

Error: User Fields with no Mapping

This error may occur if there is a user field in either endpoint that is not mapped to a corresponding field in the other endpoint. In such cases, do one of the following:

- Add the corresponding user field to the other endpoint, and map the two fields.
- Define a default user for any user fields without mapped values. For details, see "Map user list fields using a .csv file" on page 150.

Connection settings

Error: HP ALM Synchronizer is not enabled on project.

Your Agile Manager site is not enabled for synchronization. Open a support ticket requesting that the synchronization be enabled.

I've configured an authentication proxy for connecting Synchronizer to Agile Manager, but the connection is not using the proxy.

You must restart the Synchronizer service after configuring the proxy.

If authentication fails and errors 401 and 407 display in the **restClient.log**, verify that the contents of the **proxy.properties** file are syntactically correct and contain valid values.

When connecting the Synchronizer Client to my server, I receive a message notifying me that my client and server versions don't match. What does that mean?

If your Synchronizer administrator has updated the server version, you must also update your client version to match.

Synchronizer cannot connect to ALM

If Synchronizer cannot connect to ALM, you can use a script file to check that the ALM endpoint’s API is functioning properly.

1. On the Synchronizer server machine, open the Navigate to the **<Synchronizer installation directory>\bin** directory and locate the **checkQcConnectivity.vbs** file.
2. Edit the script file to include the connection properties for the endpoint. For details, see "Assign HP-ALM endpoint connection properties" on page 138.
3. Double-click the script file. If connection is successful, a confirmation message displays.

Filter definitions

I renamed a filter in one of my endpoints, and now Synchronizer lists the filter under the old name as well as the new name.

Simply remove the filter's previous name from the list of filters for the selected link.

Field mappings

I have multiple ALM releases with the same name. How can I map my target release and target cycle fields for synchronized defects and releases?

Map specific field values to define the full path of the release. For example, you can map each value of the **Target Release** field to a value in a corresponding field in the other endpoint.

Define the full path of the ALM release in the format `\<Release_Folder_Name>\<Release_Name>`. For example, `\Flight Application\Release_2`.

You do not need to include the root **Releases** folder in the path.

Synchronizer service and installation

Synchronizer server generates errors in a non-English locale

Problem: The Synchronizer server may have errors when installed on a computer that uses a locale other than an English-based locale.

Workaround:

1. On the Synchronizer server, create a user account with an English locale setting, such as **United States**.
2. Copy the locale settings to the System Local account using the Windows Copy settings functionality (**Control Panel** > **Region and Language** > **Administrative** tab).
3. Restart the Synchronizer server.

Synchronizer service does not start

If the Synchronizer service does not start, verify the following:

Description	Action
The service was installed with appropriate permissions.	To verify service properties: 1. Select **Start** > **Run**, and then enter **services.msc**. 2. Right-click **ALM Synchronizer** and select **Properties**. 3. In the **Log On** tab, verify that the account listed is an administrator user. 4. Verify that the password was typed correctly.

Description	Action
The service account has appropriate permissions.	Verify that the user account you entered during server configuration has permissions to log on as a service: 1. From the **Start** menu, select **Run** and type **secpol.msc**. 2. In the Local Security Policy dialog box, select **Security Settings** > **Local Policies** > **User Rights Assignments**. 3. In the right pane, double-click **Log on as a service**. 4. In the Log on as a service Properties dialog box, verify that your user is listed, or click **Add User or Group** to add it to the list.
PostgreSQL is installed.	Verify that PostgreSQL is listed in Windows Add or Remove Programs.
PostgreSQL is running.	To verify that the PostgreSQL service is running: 1. Select **Start** > **Run**, and then enter **services.msc**. 2. Verify that PostgreSQL Database Server 8.3 is listed.

ALM Synchronizer service installation did not complete successfully.

Verify the following:

- The user running the installation has administrator permissions on the machine on which the Synchronizer is being installed.
- The user account you enter during server configuration has administrator permissions.
- The user account you enter during server configuration has permissions to log on as a service:
    a. From the **Start** menu, select **Run** and type **secpol.msc**.
    b. In the Local Security Policy dialog box, select **Security Settings** > **Local Policies** > **User Rights Assignments**.
    c. In the right pane, double-click **Log on as a service**.
    d. In the Log on as a service Properties dialog box, verify that your user is listed, or click **Add User or Group** to add it to the list.

Then on the Synchronizer server machine, run the following files located in the **<ALM Synchronizer installation directory>\bin** folder:

1. To uninstall any previous version of the service, run **stop_and_remove_synchronizer_service.bat**.
2. To install the service, run **sync_service_install.bat**.

Previous Synchronizer version did not completely uninstall

During installation, an error message indicates that the previous Synchronizer version was not uninstalled. This can occur even when **ALM Synchronizer** in not listed in the Windows Add or Remove

Programs Control Panel.

This error indicates that references to the previous installation may remain in the **vpd.properties** file, located in the Windows system root folder.

To remove all remaining references to a previous installation:

1. Verify that the Synchronizer was uninstalled by checking that it is not listed in Windows Add or Remove Programs Control Panel.
2. Navigate to the Windows system root (**%systemroot%**) folder and backup the **vpd.properties** file.
3. In a text editor, open the **vpd.properties** file and delete all rows containing references to Synchronizer.

Error: Could not load the Java Virtual Machine

The Synchronizer service fails to start if the **msvcr71.dll** file is not in the system path.

Workaround: Add **<Synchronizer-Install-Dir>/java/bin** to the system PATH variable.

Synchronizer server configuration errors

During installation of the Synchronizer server, the Synchronizer Server Configuration wizard installs and configures the PostgreSQL database management system, and creates a service on the Synchronizer server machine. If a problem is encountered during server configuration, an error message displays in the configuration results dialog box. This section lists problems that may occur and suggestions for handling them.

PostgreSQL installation did not complete successfully

If you uninstalled a previous installation of PostgreSQL, verify that it was removed completely, and rerun the server configuration.

For more information on uninstalling PostgreSQL, see "Uninstall PostgreSQL" on page 105.

To rerun the server configuration, on the Synchronizer server machine, navigate to the **<ALM Synchronizer installation directory>\bin** folder, and run the **run_config_tool.bat** file.

> **Note:** If this step does not resolve the problem, run **install_postgre.bat** instead, which is located in the same directory. Then, rerun the server configuration.

Unable to create the Synchronizer schema on the PostgreSQL database management system

Verify that PostgreSQL access is not locked by another user, and rerun the server configuration.

To rerun the server configuration, on the Synchronizer server machine, navigate to the **<ALM Synchronizer installation directory>\bin** folder, and run the **run_config_tool.bat** file.

Glossary

A

Acceptance test

A test defined by the developer or customer to verify that the application as delivered meets the conditions of a user story.

Action item

In Sprint Closure, a specific activity that is called for at the end of a sprint. Action items can be generated automatically from the sprint retrospective, and can be converted in turn to user stories that are added to the backlog.

Actual effort

The total number of hours invested and remaining for all tasks in a backlog item.

ALI Dev Bridge

The ALI Dev Bridge is a simple mini-web application that connects HP Agile Manager hosted in a SaaS environment to Source Code Management systems and Build Management systems hosted in your local development environment.

Application

One of the components being developed in the framework of your project. An application is defined by the features you assign to it.

Application (API)

An application or program you develop, and integrate with Agile Manager over the Agile Manager API. Register your application in the configuration area to create client credentials used when authenticating your API over OAuth.

Archive

Backlog items removed from the product backlog. Adminstrators can archive themes and features, or remove items from the archive. Archiving an item also archives any related child items.

B

Backlog

A list of work items planned to be handled during a specific stage of the product development life cycle. Can refer to the product, release, or sprint backlog.

Backlog item

A work item that is listed in the product, release, or sprint backlog. A backlog item can be either a user story or defect.

Build

A process to produce the key deliverables of software development.

Build Agent

A Build Agent is a set of scripts or proprietary applications installed on a Build Server configured for listening on a Build System. When appropriate, changes on the Build Server are pushed to ALI.

Build configuration

A build configuration specifies how and with what tools the build is to be built.

Build server

A computer used to create a build. The server automatically runs the unit tests periodically or even after every commit and reports the results to the developers.

C

Client ID

An ID created for a client application that you wish to integrate with Agile Manager via the Agile Manager API. Clients are assigned to specific workspaces and roles, similar to Agile Manager users.

Client secret

A password for a specific client, created for an application you wish to integrate with Agile Manager. Record your client secret securely, because it is like a password, and once generated, cannot be retrieved again. If you need to, generate a new secret to replace your current secret.

Closed defects (ALI)

ALI metric that measures the number of defects closed in a build.

Code change

Any change made to the code that was committed to the SCM repository. ALI metrics count the number of lines of code changed in a build. Code changes are often grouped by their association with user stories, defects, or neither.

Code coverage

ALI metric that measures the percentage of code in a build that is covered by unit tests.

Committer

A developer who committed code changes.

Custom field

Fields defined by administrators in the configuration area. Custom fields are created at the site and workspace level, and can apply to user stories, defects, all backlog items (user stories and defects), themes, or features.

Cycle

A sub-division of ALM releases. In ALM, requirements and defects can be assigned to cycles within a release. When synchronizing releases, ALM cycles are matched with Agile Manager sprints.

Cycle redundancy checks (Synchronizer)

Verify whether the updates detected in synchronized records were made in fields specifically mapped for the selected link. If the changes were made in fields that are not mapped, the record is not synchronized.

D

Defect

A fault or bug detected in the application under development. Defects are included in the product backlog as backlog items along with user stories. Defects can be linked to user stories, and can be associated with features.

Detected defects

ALI metric that measures the number of defects detected in a build.

Dominant side / Dominant endpoint

When synchronizing data between Agile Manager and ALM: The endpoint whose data is used in cases of conflict, where the same entities were modified both on Agile Manager and on ALM.

E

Endpoint
An instance of ALM or Agile Manager connected that is synchronized with another endpoint using HP ALM Synchronizer. ALM endpoints can only connect to Agile Manager endpoints, and Agile Manager endpoints can only connect to ALM endpoints.

Entity (Synchronizer)
The type of data synchronzied in a Synchronizer link. Entity types include releases, requirements/user stories, and defects.

Entity link
A link between two entities in Agile Manager or ALM, such as a link between a requirement and a defect.

F

Feature
A functional area in an application. Several features can be grouped together under a theme. A feature is fulfilled by the user stories associated with it.

Feature team
Teams created and used only in the scope of a single release.

Full synchronization
A full comparison and update of the records in each endpoint, including deleted records.

G

Group story
After you break a user story it is converted to a group story. The group story contains the parts that you define when breaking the original story. To view group stories, on the Product Backlog > Backlog page, select the Group Stories View.

I

Identity mappings (Synchronizer)
Unique IDs that are stored in a mapping table for records in each endpoint. This mapping table records the correspondence between each pair of records.

Incremental synchronization
Synchronizes data between two endpoints for records that were created or modified since the last synchronization task.

Integration Bridge
The platform that enables two-way communication between Agile Manager and on-premise applications located behind firewalls, such as HP ALM.

Integration Bridge service
A Windows service or linux daemon that makes sure the Integration Bridge is automatically started when you system starts.

K

KLOC

Thousand Lines Of Code. Used to measure the amount of effort used in the item being measured.

L

Link destination endpoint

The Synchronizer link endpoint to which data is synchronized. Data in the destination endpoint is updated according to the data in the source endpoint and the mapping's settings.

Link source endpoint

The Synchronizer link endpoint from which data is synchronized. Data in the source endpoint for the mapping remains unchanged

P

Planned effort

The total number of hours estimated for all tasks in a backlog item.

R

Release

A group of changes to the application that will be available for distribution at the same time. You can assign user stories and defects to the release.

Role

Each user in the project is assigned a role. The role defines the user's read/write permissions in different areas of Agile Manager.

S

SCM

Source Code Management is the management of changes to documents, computer programs, large web sites, and other collections of information.

SCM agent

An SCM agent is a set of scripts or proprietary applications installed on a SCM server configured for listening on a SCM system. When appropriate, changes on the SCM server are pushed to AGM.

SCM branch

A set of files under version control may be branched or forked at a point in time so that, from that time forward, two copies of those files may develop at different speeds or in different ways independently of each other.

SCM repository

A database used to enable the collaborative development of large projects by multiple engineers.

Sprint

A time period, measured in days or weeks, in which teams work on a set of backlog items planned to that sprint and team.

Sprint capacity

1. The number of hours a team member is available to work in a sprint. The sprint capacity is based on the team member's daily work hours multiplied by the number of his/her work days in the sprint. 2. The sum of all team velocities, in story points, of teams participating in a sprint.

Story points

A method for estimating the size of a user story or defect. Story points compare one story to another to determine a relative size and then assign points denoting that size. A team's estimated sprint velocity is then used to estimate how many story points the team can deliver in a sprint.

Synchronization link

Connects an ALM endpoint and an Agile Manager endpoint and synchronizes data between them.

T

Task

One of the work items that should be carried out in order to implement a user story or defect. A user story or defect is considered done when all its tasks are completed.

Team

A group of people that work together on a sprint. Teams are defined at the release level. A team can include members from different departments (such as development, QA and technical writers) who work together on the same backlog items. The amount of work a team can deliver in a sprint is estimated in story points.

Team member

A user that is assigned to a team. A user can be a member on a number teams simultaneously. This can represent a shared resource that contributes to several teams, such as a technical writer.

Test success

ALI metric that measures the success rate of unit tests run on a build.

Theme

A top-level objective or a high-level functional area that is fulfilled by the features associated with it. A theme may span several applications.

Time sheet data (API)

Data available for retrieval from Agile Manager through the API. Time sheet data includes changes made to the Invested (hours) field for each assigned task, for specified users, and within a specific time frame.

U

User story

A basic action that a user should be able to carry out in the application. User stories are added to the product backlog and estimated in story points. User stories are typically written using the following format: 'As a <role>, I want <goal/desire>'.

V

Velocity

The number of story points a team is estimated to complete or has completed in a sprint. The estimated team velocity is used as a basis to calculate the total sprint or release capacity.

W

Widget

A graph or mini application that can be displayed in a dashboard. Widgets are available from the Widget Gallery.

Worked on defects

ALI metric that measures the number of defects worked on in a build.

Workspace

A top-level layer of data visiblity that enables you to apply scaled agile methodology in an enterprise organization. Users must be assigned to specific workspaces, and can view and access only data within the assigned workspaces.

Workspace team

Teams created at the workspace level, and reused in multiple releases.

Send Us Feedback

Let us know how we can improve your experience with the Synchronization Guide.

Send your email to: docteam@hpe.com

Java™
COMPATIBLE