



HP Agile Manager

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Synchronization Guide

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Synchronization with ALM

Synchronize your Agile Manager workspaces with your ALM projects in order to view and/or update your requirements and defects in both endpoints. Agile Manager user stories, features, and themes, are all synchronized as requirements in ALM.

The table below describes the differences between the different synchronization methods currently supported by Agile Manager:

| ALM Synchronizer for Agile Manager | NextGen Synchronizer |
|---|---|
| <ul style="list-style-type: none">• Requires administrators to install a separate client and server, and manually upgrade for updates. <p>Upgrading to the newest version of the Synchronizer is required to access new functionality, but existing functionality remains available regardless.</p> <ul style="list-style-type: none">• Supports synchronizing requirements, defects, and releases.• Supports ALM / Quality Center 11.00 and 11.50, in addition to later versions. <p>For details, see "HP ALM Synchronizer for Agile Manager" on page 11.</p> | <ul style="list-style-type: none">• Embedded directly into Agile Manager's configuration area. Many features are updated automatically, together with Agile Manager. <p>NextGen Synchronizer is under development and in certain releases a manual upgrade process will be required to enable synchronization to continue. When this is the case, it will be specified in the What's New.</p> <ul style="list-style-type: none">• Supports synchronizing requirements and defects.• Supports synchronization links from a single Agile Manager workspace to ALM projects stored in different ALM versions. <p>For details, see "NextGen Synchronizer" on page 113.</p> |

Note:

- If you need to synchronize releases, continue synchronizing all of your entities in ALM Synchronizer for Agile Manager.
- Neither synchronization tool supports workflow procedures 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.

For a list of the supported versions of ALM or Quality Center, see "[Supported ALM versions](#)" on page 16 (for ALM Synchronizer for Agile Manager) and "[Supported ALM/Quality Center versions](#)" on page 128 (for NextGen Synchronizer).

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

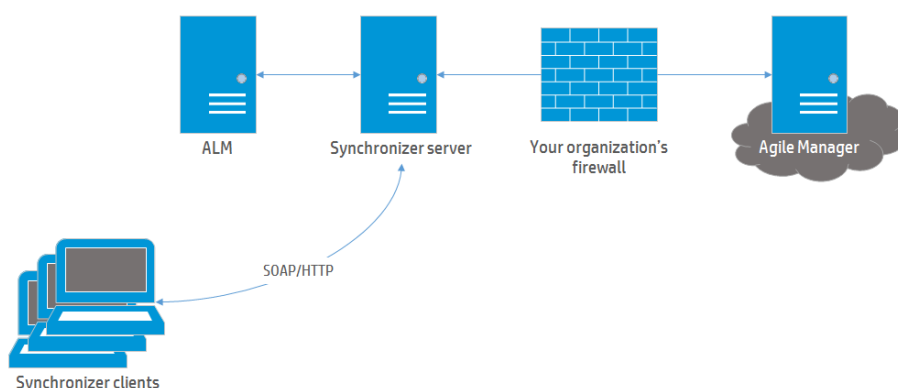
Working with Synchronizer involves the following steps:

| Step | Details |
|--|---|
| "Install a Synchronizer system" on the next page | Install the Synchronizer server and client. |
| "Plan before you begin" on page 24 | 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 54 | Modify your ALM project for synchronization, add Synchronizer users, and configure server options, such as a proxy for authentication. |
| "Configure links" on page 66 | Create and configure links, map specific fields and field values. |
| "Maintain links" on page 90 | 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 105 | Look for answers to some common questions and problems. |

Install a 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.

Additional links

["Upgrade Synchronizer" on page 17](#)

["Install Synchronizer" on page 18](#)

["Uninstall Synchronizer" on page 23](#)

["System requirements" below](#)

Troubleshooting:

["Synchronizer service and installation" on page 108](#)

["Synchronizer server configuration errors" on page 111](#)

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](#)

["Supported ALM versions" on page 16](#)

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 |

| Component | Requirement |
|-------------------------|---|
| Operating system | <ul style="list-style-type: none"> • 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 <p>Note: In Windows 2003, the Synchronizer client cannot connect to the Synchronizerserver if the Windows Firewall is switched on.</p> <p>Workaround: Add HP-ALM-SyncService.exe manually to the Windows Firewall Exceptions list.</p> |

Note: 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 |

| Component | Requirement |
|-------------------------|---|
| Operating system | <ul style="list-style-type: none"> • 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 |

Supported ALM versions

You can synchronize Agile Manager with the following versions of ALM or Quality Center:

| Product | Supported Versions |
|--------------------------|---|
| HP ALM | 11.00, 11.50, 11.50 with Integration Enablement Pack, 11.52, 12.01, 12.20 |
| HP Quality Center | 11.00, 11.50, 11.52, 12.01, 12.20 |

Synchronizer supports all patches of the supported ALM or Quality Center versions.

Note:

- Synchronizer does not support SSO connections to ALM.
- You cannot configure multiple links on the same Synchronizer server that connect to ALM endpoints of different versions or patch levels.

Upgrade Synchronizer

If you are upgrading from a previous version of Synchronizer, you must upgrade both your server and client. The Synchronizer server and client versions must match.

Perform the following steps before installing the new version:

| Step | Details |
|--|---|
| Back up the synchronization links you've already configured | In the Synchronizer client, select Link > Export > Link Data Into Backup File . You can use the backup file to restore links in case of any data loss. For more details about backup data, see " Back up and restore the database " on page 104. |
| Uninstall the previous version of the server and client | See " Uninstall Synchronizer " on page 23. |
| Restart the server machine | After uninstalling the Synchronizer server, restart the server machine. |
| Install the new version | Install the new versions of the Synchronizer server and client. See " Install Synchronizer " on the next page. Caution: To continue working with the existing database, including synchronization links and link data, be sure to select Keep Existing Database in the Database Configuration screen. For details, see " Database Configuration screen " on page 20. |

Install Synchronizer

Install the Synchronizer server, and then install the client. The Synchronizer server and client versions must match.

This section includes the following topics:

["Install the Synchronizer server" below](#)

["Install the Synchronizer client" on page 22](#)

Install the Synchronizer server

Note:

- If you restart your computer during Synchronizer server installation, the Server Configuration Wizard will not run. If you are prompted to restart your computer, choose to restart at a later time.
- If you are upgrading, see ["Upgrade Synchronizer" on the previous page](#).

Clear ports required by Synchronizer

- Remove any applications that use ports 1098 or 1099.
- Remove any applications that use port 7064, or change this Synchronizer port. For details about changing this port, see the HP Software Self-solve knowledge base article [KM306335](#).

Copy the server installation file to a local directory

1. Open the following FTP directory:

`ftp://agm_read@ftpast.saas.hp.com/users/agm_rnd/Synchronizer/ForAGM_2.30`

Tip: This path cannot be accessed via a web browser. Access the FTP directory by copying this path to Windows Explorer or an FTP client.

Note: The installation files located in this directory are engineered specifically for your version of Agile Manager.

Installation files located in other directories on this FTP server are incompatible with your version of Agile Manager and may result in errors.

2. Browse to the **Installation/Server** directory.
3. Copy the **setup.exe** file to your Synchronizer server machine.

Run the installation

Run the **setup.exe** file to install the Synchronizer server, following the instructions in the installation wizard.

1. Accept the terms of the license agreement, and click **Next** to start.
2. In the **Directory Name** field, specify the location where you want to install Synchronizer.
3. On the Summary Information screen, click **Next** to start the installation process.
4. When complete, click **Finish** to move on to installing and configuring the PostgreSQL database management system.

Install and configure the PostgreSQL database management system

If you are working with an earlier version of Synchronizer that uses PostgreSQL 8.1, the PostgreSQL database version is upgraded to PostgreSQL 8.3.

HP ALM Configuration screen

Select the version of ALM you want to synchronize with.

Service Configuration screen

- To allow the service to run using the Windows Local System account, leave all fields empty.
- To allow the service to run using a different Windows Administrator user account, enter your Windows Administrator login information.

Caution: Be careful to enter the correct login credentials, as the Server Configuration Wizard does not verify the user credentials that you provide.

If the user credentials are incorrect, you will not be able to start the Synchronizer server.

If you are unsure, see ["Verify user permissions for service logon" on the next page](#) for details.

Database Configuration screen

Note: This screen appears during upgrades only.

- To keep your existing database, select **Keep Existing Database**.

The database is backed up to a file in the **C:\postgres** directory. The file is named in the following format:

SAVEDBACKUP<_yyyy_MM_dd_HH_mm_SynchronizerVersion>.backup

For example: **SAVEDBACKUP_2008_12_31_11_45_0.5.backup**

- To delete an existing database and create a new one, select **Delete Existing Database** instead.

Caution: Selecting **Delete Existing Database** permanently deletes all Synchronizer link data.

Verify user permissions for service logon

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.

Exit and start the Synchronizer service

Click **Finish**.

To exit the wizard and start the Synchronizer service later, clear the Start Synchronizer Service checkbox.

In this case, you must start the service manually to begin working with Synchronizer. For details, see "[Start the Synchronizer service and client](#)" on page 59.

Install and run HP ALM Connectivity add-in

- Download the HP ALM Connectivity add-in from the **HP Application Lifecycle Management Tools** page. To install this tool, select **Tools > HP ALM Connectivity** in the HP ALM Options window or from the ALM Help menu.
- Configure the HP ALM Connectivity add-in to run as the **administrator** user.

Install the Synchronizer client

Install the Synchronizer client after installing the Synchronizer server.

Note: If you are upgrading, see ["Upgrade Synchronizer"](#) on page 17.

Copy the client installation file to a local directory

1. Open the following FTP directory:

ftp://agm_read@ftpast.saas.hp.com/users/agm_rnd/Synchronizer/ForAGM_2.30

Tip: This path cannot be accessed via a web browser. Access the FTP directory by copying this path to Windows Explorer or an FTP client.

Note: The installation files located in this directory are engineered specifically for your version of Agile Manager.

Installation files located in other directories on this FTP server are incompatible with your version of Agile Manager and may result in errors.

2. Browse to the **Installation/Client** directory.
3. Copy the **HP-ALM-Sync-Client.msi** file to your Synchronizer server machine.

Install the client

Run the **HP-ALM-Sync-Client.msi** file. Follow the instructions in the installation wizard.

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.

Uninstall the Synchronizer server

| Step | Details |
|--------------------------------------|---|
| Stop the Synchronizer service | See "Stop the Synchronizer service" on page 61. |
| 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" on the next page. |

Uninstall the Synchronizer client

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

Uninstall PostgreSQL

Caution:

- 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.

| 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 | <ol style="list-style-type: none">1. On the Synchronizer server 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 | <p>Agile Manager is used to manage backlog items and defects.</p> <p>Tests are defined in ALM and are developed using the backlog context in ALM.</p> <p>Defects are created in Agile Manager, but can also be created during a test execution in ALM.</p> <p>All defects should be visible in Agile Manager for a complete view of the product backlog.</p> <p>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:</p> <ul style="list-style-type: none">• Defects that do not have Closed status• Requirements that do not have Done status, and any related themes and features |
| Synchronization includes | <p>An initial migration of all relevant items from ALM to Agile Manager.</p> <p>Ongoing user story synchronization from Agile Manager to requirements in ALM.</p> <p>Ongoing bi-directional synchronization of relevant defects between Agile Manager and ALM.</p> |

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

Note: Perform the procedures described in ["Set up Synchronizer" on page 54](#) to prepare your ALM project and Synchronizer server and client for synchronization.

Sample use cases

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

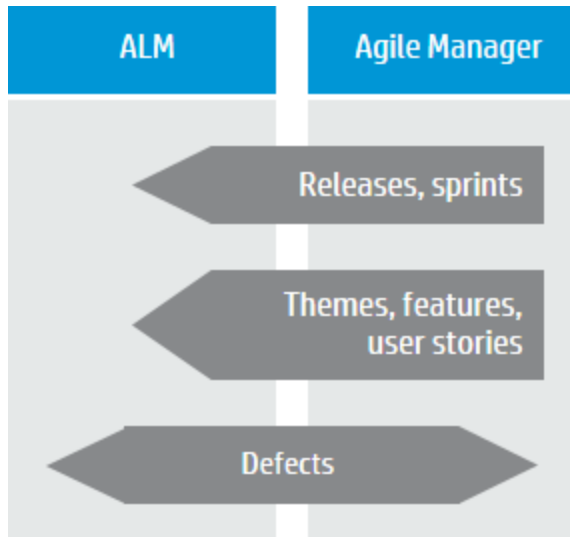
Note: Releases, requirements, and defects are all synchronized in separate links.

["Develop and plan in Agile Manager; test in ALM" on the next page](#)

["Develop in Agile Manager; test in ALM" on page 29](#)

["Manage workload for both user stories and defects in Agile Manager" on page 30](#)

Develop and plan in Agile Manager; test in ALM



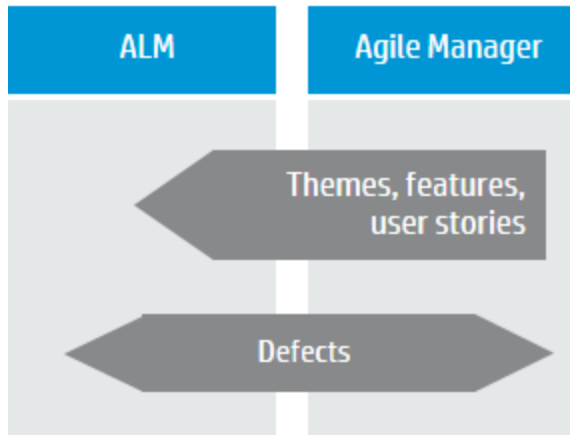
Releases and sprints are created and updated in Agile Manager, enabling teams to schedule work according to Agile methodologies.

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



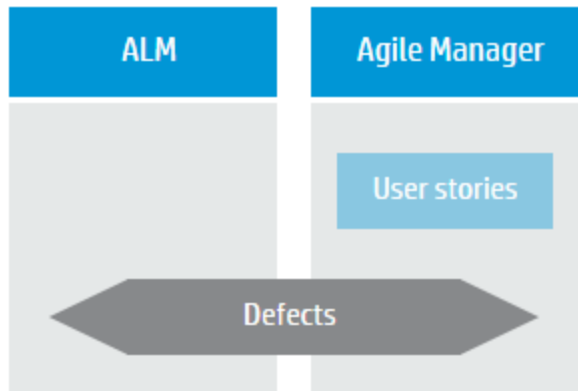
Requirements are managed as user stories in Agile Manager, together with themes and features, and are scheduled within releases and sprints.

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.

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.

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. 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 72.

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 77](#).

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 96](#).

| | Incremental synchronizations* | Full synchronizations |
|---------------------------------|--|---|
| General description | <p>Finds records in each endpoint that were created or modified since the previous synchronization task.</p> <p>Synchronizes data between the two endpoints according to the mapping and settings you defined for the link.</p> | <p>Performs a full comparison of the records in each endpoint.</p> <p>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.</p> |
| List of relevant records | <p>Each endpoint supplies a list of records that were <i>created</i> or <i>modified</i> since the last synchronization task was run.</p> <p>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.</p> <p>Records that were modified after the last synchronization task are included in the list.</p> | <p>Each endpoint supplies a list of <i>all</i> 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.</p> |

| | Incremental synchronizations* | Full synchronizations |
|------------------------|---|---|
| Updated records | <p>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 <i>updated</i> since the last synchronization.</p> <p>Synchronizer performs a cycle redundancy check to determine if the changes include mapped fields, and therefore require synchronization.</p> <p>If the changes appear in mapped fields, Synchronizer updates the corresponding record in the destination endpoint, depending on the settings defined for the link.</p> | <p>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.</p> <p>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.</p> |
| Deleted records | <p>Incremental synchronizations do not handle deleted records. To handle deleted records, run a full synchronization.</p> | <p>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.</p> |

| | Incremental synchronizations* | Full synchronizations |
|--------------------|---|-----------------------|
| New records | <p>Records that had not been previously synchronized are considered to be newly created records.</p> <p>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.</p> <p>New records are handled in the same way in both incremental and full synchronizations.</p> | |

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 77](#).

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 83 . |

| Mapping type | Details |
|---------------------|--|
| Bulk mapping | <p>Map ALM and Agile Manager users in bulk if you have <i>many</i> users whose email addresses do not match in ALM and Agile Manager, and therefore are not mapped automatically.</p> <p>Use a .csv file, which you can create and edit directly in the Synchronizer client or any text editor.</p> <p>For details, see "Map user list fields using a .csv file" on page 84.</p> |

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 | <p>Synchronizer updates an attachment if <i>both</i> of the following have changed:</p> <ul style="list-style-type: none"> • The record to which the file is attached • The attachment name, size, or last modified property <p>The attachment description is synchronized only during the initial attachment synchronization, and is never updated.</p> |
| Deleted attachments in the source endpoint | <p>If an attachment is deleted from the record in the source endpoint, Synchronizer also deletes it from the corresponding record in the destination endpoint.</p> |

| Attachment type | Details |
|--|--|
| Deleted attachments in the destination endpoint | <p>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.</p> <p>You can modify this behavior in the server.properties file.</p> |

Notes for new attachments

| New attachment... | Details |
|---|---|
| Separate attachments in opposite endpoints with the identical file names | <p>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.</p> |
| File encoding | <p>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.</p> |

Opening attachments

| When opening... | Details |
|------------------------------------|--|
| Permissions | <p>Users must have appropriate permissions in both endpoints to open the synchronized attachment.</p> |
| ALM System Info attachments | <p>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.</p> |

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 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 71.

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, it is recommended to make 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 51.](#)

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 | <p>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.</p> <p>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.</p> <p>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.</p> |

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 83.

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 85](#).

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 55](#).

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 71](#) and ["Map endpoint fields" on page 77](#).

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.

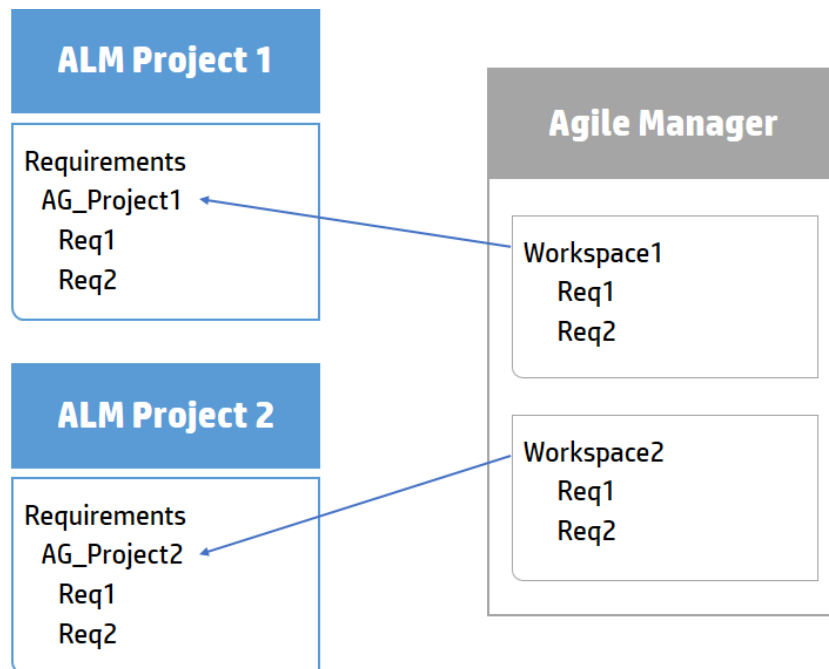
Synchronizing requirements in alternate root folders

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.

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.

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.



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 55](#) 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. |

| Requirement type | Details |
|------------------------------------|---|
| Deleted parent requirements | <p>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.</p> <p>When a deleted parent requirement is recreated in an endpoint, the child requirements are also recreated.</p> |

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 56

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 73.
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.

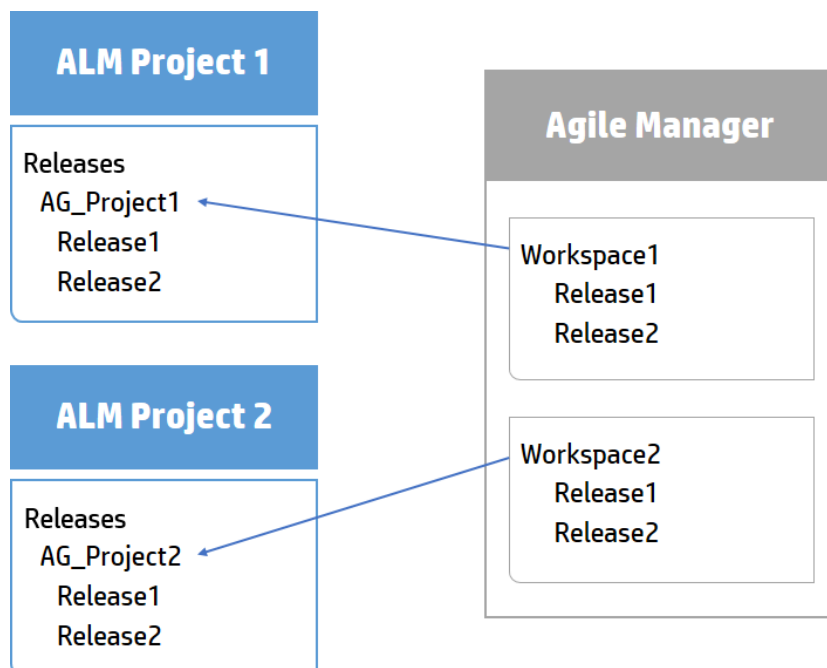
Synchronizing releases in alternate root folders

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.

In the example 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.

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.



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... |
|---|---|
| <ul style="list-style-type: none">• You have an ALM release named <code>Project_1.3</code>, as well as an Agile Manager release named <code>Release_1.3</code>• 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 | <ul style="list-style-type: none">• The two releases are mapped.• All data in the ALM release <code>Project_1.3</code> is overwritten by the data in the Agile Manager release <code>Release_1.3</code>. |

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.

Adapt your ALM project

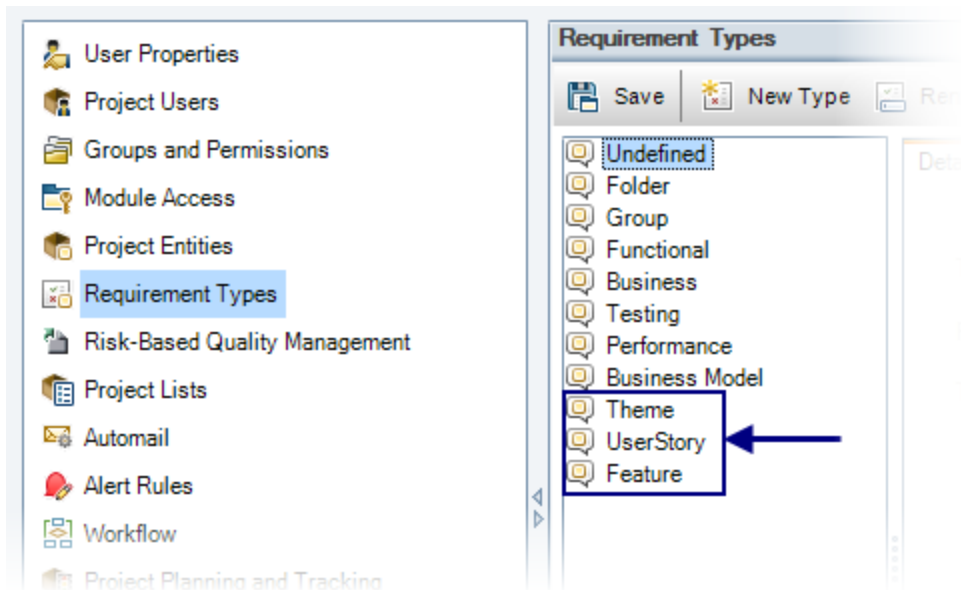
Before synchronizing records between Agile Manager and ALM, you must adapt your ALM project to match the various fields supported for user stories and defects in Agile Manager.

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 46.

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. |
| Requirements | <ul style="list-style-type: none"> ■ 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. <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;"> <p>Note: For user stories, the theme and feature is represented in ALM by the requirement's location in the tree.</p> <p>For more details about synchronizing group stories, see "Notes about Agile Manager Group Stories and Synchronizer" on page 49.</p> </div> |

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 42.

- 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 field named **Agile Manager ID**.

In Agile Manager. Create a user defined field name **ALM** or **QC ID**.

Site administrators can create Agile Manager custom fields in the **Site > Custom 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 82.

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, place the **server.cer** file in the **<Synchronizer installation>\java\bin** directory.
3. 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 -keypass <password>
```

4. 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 page 61 . |

| Parameter | Description |
|-----------------|---|
| Password | The admin user's initial password is blank. You can change your password after you log in. For details, see " Change your password. " below |


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 | <p>Select Enable advanced logging to store extended log information for each link task run.</p> <p>Advanced logs are located the <Synchronizerinstallation>\log directory on the Synchronizer Server machine, and are named with the following syntax:</p> <pre>run_<Run ID>_link_<Link ID>.log</pre> <p>Tip: Identify run IDs in the Run History dialog box. Identify link IDs in the left column of the links grid.</p> <p>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 101.</p> |

| Email tab | |
|----------------|---|
| Email settings | <p>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 102.</p> <p>SMTP Server. The SMTP server host name</p> <p>User name/Password. The authentication details for the user specified to connect to the mail server.</p> |

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 24](#).

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.

- 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]/qcbn`

Note: To enable secure connections to ALM, see ["Connect to ALM or Agile Manager via HTTPS"](#) on page 58.

Note: You can later define an alternate root ALM folder for synchronizing requirements. For details, see ["Define an alternate ALM root folder \(Requirement links only\)"](#) on page 161.

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 |

| Parameter | Details |
|----------------|--|
| Domain | You can find the server URL in the Agile Manager URL. For example: https://myserver.mycorp.com/agm/webui/alm/<Domain>... |
| Project | Always defined as Main . |

- 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 64](#).

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 89](#).

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 24 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 95](#).

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 31](#).

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) | <p>Only enabled if there are filters in the endpoint available for the user.</p> <ul style="list-style-type: none">■ Defect links support only one filter per endpoint.■ Requirement links support multiple filters for each endpoint. <p>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.</p> |

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 the next page or "[View or update mapped fields \(defects or releases\)](#)" on page 76.

Synchronizing requirements involves many details. Read through "[Guidelines for requirements and user stories, themes, and features](#)" on page 45 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 70.

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 <i>non-master</i> endpoint only. |
| Deletion | For deleted records, define rules in both endpoints. Tip: For the <i>non-master</i> 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 77 and "[Modify .csv map files in a text editor](#)" on page 86.

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 86.

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 73.

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 |
|---|--|
|  | <p>Mandatory fields must be mapped as a destination of a field in the other endpoint, or configured with a constant value.</p> <p><i>Errors</i> occur during integrity checks if records can be created in the endpoint and synchronized to the other endpoint, but mandatory fields are not mapped.</p> <p>Fields are set as Mandatory if they are required in ALM, but not given a default value in ALM when a record is created.</p> |
|  | <p>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.</p> <p><i>Warnings</i> occur during integrity checks if records can be created in the endpoint and synchronized to the other endpoint, but recommended fields are not mapped.</p> <p>Fields are set as Recommended if they are required in ALM and are given a default value in ALM when a record is created.</p> |
|  | <p>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.</p> |

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 35](#)
- ["Guidelines for requirements and user stories, themes, and features" on page 45](#)
- ["Guidelines for releases and sprints" on page 51](#)


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" below](#).

Additionally, see ["Guidelines for specific types of fields" on page 35](#) 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 93](#).

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 | <p data-bbox="448 390 1307 506">Relevant for bidirectional mapping. Defines which endpoint overrides the other endpoint if there are changes made to the same record in both endpoints.</p> <p data-bbox="448 533 1230 569">By default, ALM (Endpoint 1) is the dominant endpoint.</p> <div data-bbox="448 596 1365 1050" style="background-color: #f0f0f0; padding: 10px;"><p data-bbox="467 621 602 657">Example</p><p data-bbox="467 684 1325 720">Agile Manager (Endpoint 2) is set as the dominant endpoint.</p><p data-bbox="467 747 1341 905">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.</p><p data-bbox="467 932 1349 1047">During the next synchronization, Synchronizer changes the value in ALM to 20, as defined in Agile Manager, the dominant endpoint.</p></div> |

| Property | Description |
|------------------------------|--|
| Synchronize back on create | <p>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.</p> <p>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 58</p> <p>Example</p> <p>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.</p> <p>This property helps to ensure that both endpoints contain exactly the same data.</p> |
| Require matching field types | <p>Defines whether the types of fields must match in a pair.</p> <p>Yes. Mapping fields of different field types is not permitted and the integrity check will fail.</p> <p>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.</p> <p>Example</p> <p>To map the Agile Manager Req ID field, which is a Number field, you might create a user-defined string field in ALM.</p> <p>When you map these fields, you must set the Require matching field types property to No.</p> |



| Property | Description |
|----------------------|--|
| Mapping method | <p>Relevant for User list fields. Defines whether the field values are defined by:</p> <p>Default. The field is mapped manually, in the Value Mapping tab.</p> <p>File. The field is mapped using a user list mapping csv file.</p> <p>Files for mapping user list fields are located in the <Synchronizer installation directory>\dat\Mappings folder.</p> |
| Mapping method value | <p>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.</p> <p>Files are stored in the <Synchronizer installation directory>\dat\Mappings folder.</p> |
| Value | <p>Defines a constant value for a field.</p> <p>For Multi list fields, separate values by semi-colons.</p> |

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 35 and "[Guidelines for mapping specific field values](#)" on page 43.

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 35.

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 44](#).

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>\modules\server\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 ALM to 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,>,v1r@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 | <code>pass.entity.sync.on.attach.conflict</code> |
| Description and values | <p>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.</p> <p>Default value. N</p> <p>Note: Irrespective of the status of the <code>pass.entity.sync.on.attach.conflict</code> parameter, such attachments cannot be synchronized.</p> |

File-encoding for URL attachments created in ALM

| Attribute | Details |
|------------------------|---|
| Parameter name | <code>alm.file.encoding</code> |
| Description and values | <p>Defines the encoding used by ALM for URL attachments created in ALM.</p> <p>Enter a list of comma separated values. For example: <code>alm.file.encoding=UTF-8,UTF-16</code></p> <p>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.</p> <p>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.</p> |

Deleted attachments

| Attribute | Details |
|------------------------|---|
| Parameter name | <code>delete.source.attachment.on.url.deletion</code> |
| Description and values | <p>Determines how Synchronizer handles attachments that were deleted in the destination endpoint, but were modified in the source endpoint.</p> <p>Values:</p> <ul style="list-style-type: none"> • 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.

When you export link configurations only, the mapping data is not exported for the link, and you must remap the link fields in the new link. Configurations are exported to an XML file saved in a location you define.

When you export both link configurations and mapping data, 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 63](#).

Tip:

- To move Synchronizer to a different machine, you can export link data, install Synchronizer on the new machine, and then import the link data to the new machine.
- To export and import only field mappings for a specific link, see ["Map endpoint fields" on page 77](#).

Export links

1. In the links grid or navigation tree, select the link whose configuration and/or mapping data you want to export.
2. Select one of the following:
 - **Link > Export > Link Configuration Into XML File**
 - **Link > Export > Link Data Into Backup File**

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.

Create a link from an exported XML or .zip file

1. Select one of the following:
 - **Link > Create From > Link Configuration XML File**
 - **Link > Create From > Link Backup File**
2. Select the XML or zip file that contains the data you want to import.

A new link is displayed in the links grid and navigation tree based on the settings you imported. If you created a new link based on a .zip file, the new link also includes the imported mapping data.

Note: You cannot import a file to create a new link that will have the same name or connections to the same pair of endpoints as an existing link.

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 95](#).

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. |
| User permission check | Checks that the user connecting to the endpoint has sufficient permissions to perform the required tasks. |

| Name, as listed in report | Description |
|---|---|
| Endpoint parameters check | <p>Checks and validates additional parameters that may be defined for the endpoint.</p> <p>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 "Configure link properties" on page 71</p> |
| 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 | <p>Checks the following:</p> <ul style="list-style-type: none"> • 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. |

| Name, as listed in report | Description |
|--|--|
| 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.

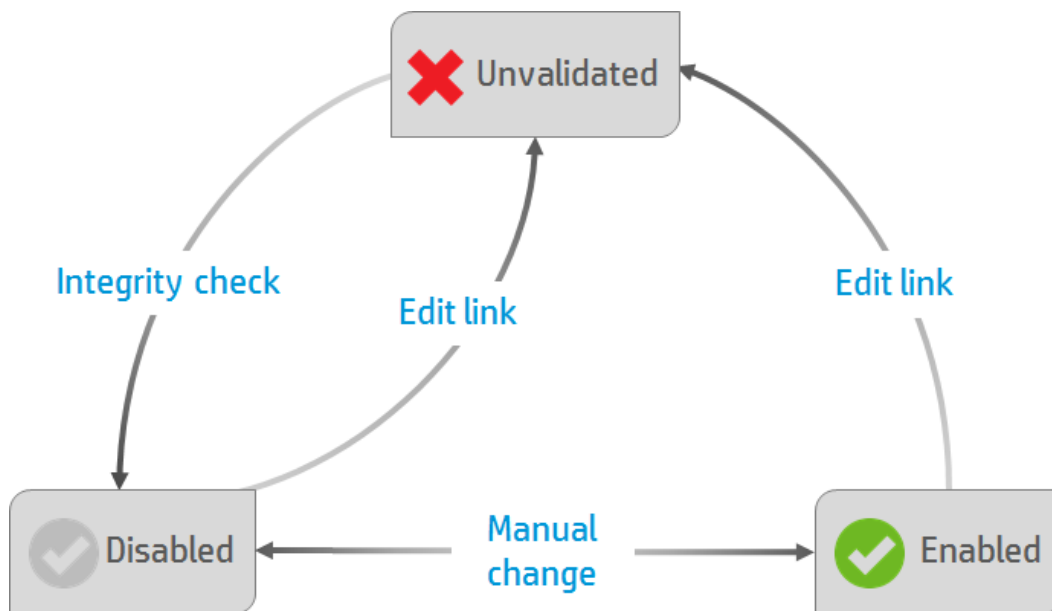
| Name, as listed in report | Description |
|---------------------------|---|
| Required fields check | <p>Checks that required fields in the destination endpoint are mapped to a field in the source endpoint, or are assigned a constant value. If this is not the case, the check fails.</p> <p>In addition, 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.</p> |
| 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. |

| Name, as listed in report | Description |
|---|--|
| 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. |
| 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 than the maximum length for the field. If a value is mapped that is longer than 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. |

| Name, as listed in report | Description |
|---------------------------|--|
| 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 | <p>The link's configuration has not been verified. You cannot run tasks for the link.</p> <p>A link's state begins at Unvalidated, and also returns to Unvalidated if you modify the link configuration.</p> <p>Change an Unvalidated link status to Disabled by running an integrity check.</p> |

| | |
|-----------------|--|
| Disabled | <p>An integrity check has verified the link's configuration, but you cannot run tasks on the link.</p> <p>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.</p> |
| Enabled | <p>The link's configuration has been validated, and you can run tasks on the link.</p> <p>You must manually change a link's state from Disabled to Enabled. For details, see "Enable or disable a link" below.</p> |



For details about integrity checks, see ["Run an integrity check"](#) on page 90.

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 99.

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 102.
- Running a full synchronization task.

For details about how records are handled in incremental and full synchronizations, see "[Synchronization task types](#)" on page 32.

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 32.

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. |
| 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 " on the next page. |

| Option | Description |
|------------------|---|
| 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 page 102 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 | <p>Indicates a critical problem with the link.</p> <ul style="list-style-type: none">• 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 | <p>A warning of an issue of which you should be aware.</p> <ul style="list-style-type: none">• 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 | <p>A message displayed for information only. No action is necessary.</p> |
| 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 32.

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. |

| Option | Description |
|----------------------------|--|
| 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: It is recommended that you back up this directory regularly, or change 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 107](#)

["Field mappings" on page 108](#)

["Synchronizer service and installation" on page 108](#)

["Synchronizer server configuration errors" on page 111](#)

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.

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 84.](#)

Connection settings

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 Navigator 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 67](#).
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: <ol style="list-style-type: none"> 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. |
| The service account has appropriate permissions. | Verify that the user account you entered during server configuration has permissions to log on as a service. For details, see " Verify user permissions for service logon " on page 21 |
| 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: <ol style="list-style-type: none"> 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 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. For details, see "[Verify user permissions for service logon](#)" on page 21.
- The user running the installation has administrator permissions on the machine on which the Synchronizer is being installed.

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** is 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 ["Install Synchronizer" on page 18](#).

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.

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.

Note: NextGen Synchronizer does not currently synchronize releases. If you need to synchronize releases, synchronize all your entities using ALM Synchronizer for Agile Manager.

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** (requirements/user stories or defects).
- 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 and requirements 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 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 128.

Synchronization steps

Working with Synchronizer involves the following steps. Click the links in the table for more details.

| Step | Description |
|--|--|
| "Create Agile Manager and ALM favorites" on page 118 | <p>Create favorites for Synchronizer to use when looking for new records in ALM or Agile Manager.</p> <p>If no favorite is configured, all records are considered for synchronization.</p> <p>You can perform this step before setting up Synchronizer, or come back and do it later.</p> <div data-bbox="570 982 1365 1178"><p>Tip: We especially recommend creating integration favorites before your first synchronization. Run a simulation using your favorite to verify that synchronization works as you expect.</p></div> |
| "Adapt the data in your endpoints" on page 119 | <p>Make recommended modifications to your ALM project and Agile Manager workspace to ensure smooth synchronization.</p> |
| "Define Synchronizer users" on page 126 | <p>Define both an Integration Administrator user to manage the synchronization links, as well as an Integration Bridge user defined to connect Agile Manager and ALM via the Integration Bridge.</p> |
| "HP Integration Bridge overview" on page 127 | <p>The Integration Bridge connects between Agile Manager and ALM, and must be installed on a machine that has access to both systems.</p> <p>When configuring the Integration Bridge, enter the Integration Bridge user credentials defined in the previous step.</p> |

| Step | Description |
|--|---|
| "Create a synchronization link on page 156 and then "View and edit link configuration" on page 162 | <p>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.</p> <p>Then, continue with mapping link fields and field values.</p> |
| "Run synchronizations" on page 187 | <p>Run an integrity check to prevent errors during synchronization, and an optional simulation to understand details about the data that will be updated.</p> <p>Run manual synchronizations or enable synchronizations to run automatically.</p> |
| "Review link summaries and error details" on page 192 | <p>Review the status of your links and investigate any errors that may have occurred during synchronization.</p> |

See also

["Configure Synchronizer notifications" on page 183](#)

["Import a link from ALM Synchronizer" on page 184](#)

["Duplicate a link" on page 194](#)

["Edit a link's ALM endpoint" on page 196](#)

["Link status reference" on page 197](#)

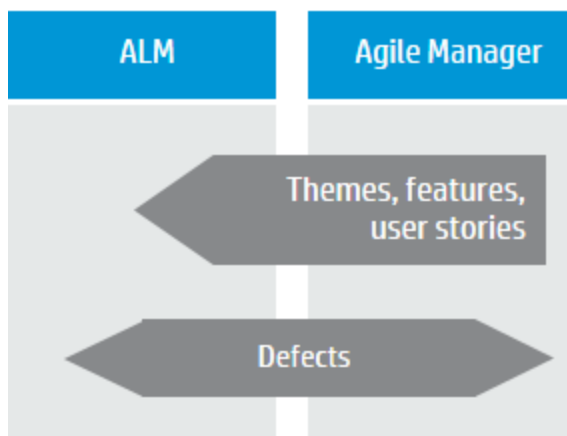
["How can I improve synchronization performance?" on page 202](#)

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: Requirements and defects are synchronized in separate links.

Develop in Agile Manager; test in ALM



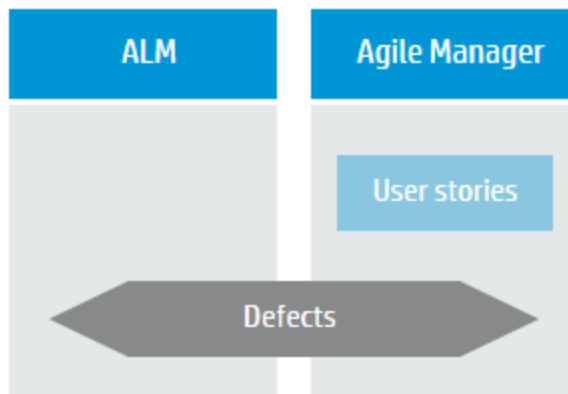
Requirements are managed as user stories in Agile Manager, together with themes and features, and are scheduled within releases and sprints.

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.

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.

- In Agile Manager, save your synchronization favorites in the **Integration** favorites folder in the **Product Backlog > Backlog** grid. 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, it is always synchronized if there is new data, regardless of whether the record still matches 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:

- ["Define favorites and an alternate root folder \(Optional\)" on page 160](#)
- ["View or modify synchronization favorites and alternate root folder" on page 165](#)

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 168](#).

Modify in ALM

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

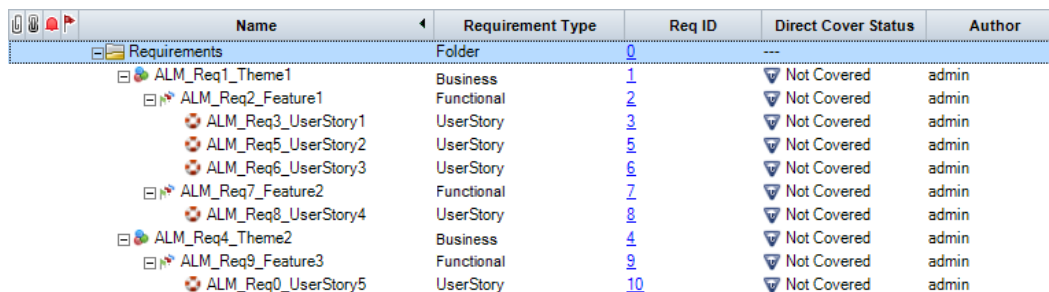
Decide on ALM requirement types that represent Agile Manager themes, features, and user stories, and arrange them in a hierarchy that matches the one in Agile Manager.

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, and by default synchronizes the entire ALM Requirements root folder, not including sub-folders.

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.

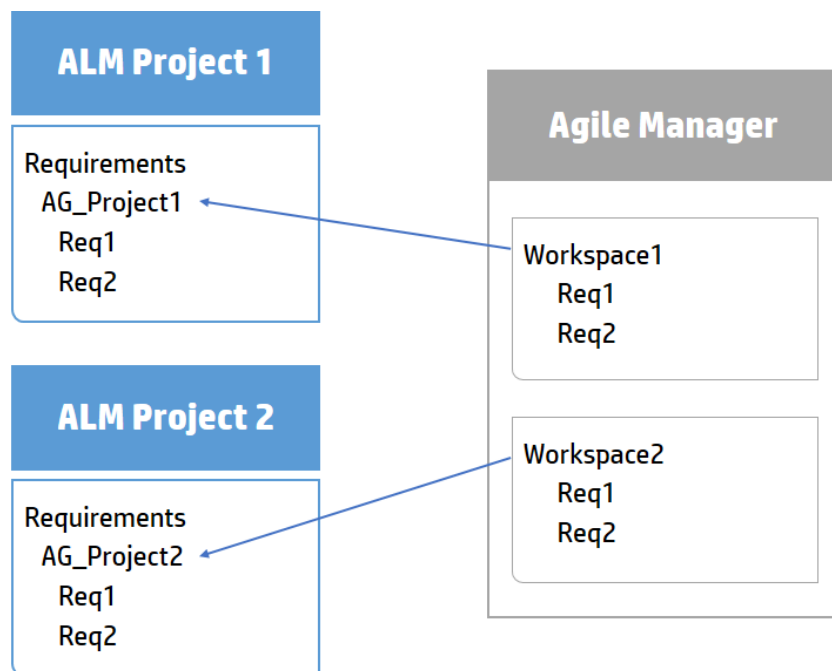
Create a subset of requirements in the tree (requirement synchronization | optional)

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

In the ALM project's requirements tree, create a sub folder that contains only the requirements that you want to synchronize (without any sub-folders).

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.



For details on defining the alternate root folder in your synchronization link, see ["Define favorites and an alternate root folder \(Optional\)"](#) on page 160.

Create or modify fields (defect and requirement synchronization)

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 168.

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 <i>not</i> to verify this value. <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Tip: Alternately, when editing your link, map the Agile Manager Application field to the ALM Product field.</p> <p>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.</p> </div> | √ | √ |
| 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 <i>not</i> to verify this value. | √ | x |
| Feature | Define as a Lookup List field. Configure ALM <i>not</i> to verify this value. <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Note: This field is required if you use features and themes.</p> </div> | √ | x |

| Field name | Description | For Defects | For Requirements |
|--------------------------|---|-------------|------------------|
| Feature Status | Define as a Lookup List field. Configure ALM <i>not</i> 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. | √ | √ |
| Story Status | Define as a Lookup List field. Configure ALM <i>not</i> to verify this value. | x | √ |
| Team | Define as a Lookup List field. Configure ALM <i>not</i> to verify this value. | √ | √ |
| Theme | Define as a Lookup List field. Configure ALM <i>not</i> 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 168](#).

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 178](#).
- 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 Synchronizer users

Before using NextGen Synchronizer, assign users to the Integration Administrator and Integration Bridge roles in Agile Manager.

For details about assigning Agile Manager roles, see the following topics in the *Agile Manager Help Center*:

- [Define site users](#)
- [Define workspace users](#)

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.

Integration Bridge user

The **Integration Bridge** user is used to access Agile Manager from the Integration Bridge.

Assign a user to the Integration Bridge role on the **Site > Users** configuration page.

Caution: For security purposes, we recommend creating a user specifically for this role, and not assigning any other roles to this user.

HP Integration Bridge overview

The HP Integration Bridge is a platform that enables two-way communication between Agile Manager and on-premise applications located behind firewalls, such as HP ALM.

Integration Bridge components

The Integration Bridge is composed of:

- **The Integration Bridge agent.** A software component installed on the customer system to mediate between Agile Manager and the on-premise application. The agent initiates communications with—and receives tasks from—Agile Manager.
- **The Integration Bridge service.** The entry point for Agile Manager to submit tasks, and for Integration Bridge agents to request tasks. In addition to allowing task execution on Integration Bridge agents, the service is also responsible for agent registration and management, monitoring, secure communication, and so on.

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: <ul style="list-style-type: none">• Windows Server 2008 R2 SP1 64-bit• Windows Server 2012 R2 SP1 64-bit |
| Memory | 8 GB |
| Free disk space | 80 GB |

Note: The Integration Bridge must be installed to a path named only with ASCII characters.

Supported ALM/Quality Center versions

The Integration Bridge can interface with the following versions of ALM or Quality Center: 11.52 patch 5; 12.01 patch 1; 12.20

Earlier patch numbers are not supported.

Note: Synchronizer does not support SSO connections to ALM.

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 credentials" on page 132](#)

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 146](#)
- ["Manage the bridge agent and service" on page 149](#)
- ["Uninstall/Remove the Integration Bridge" on page 151](#)
- ["Upgrade the Integration Bridge" on page 152](#)
- ["Integration Bridge troubleshooting" on page 154](#)

Download and install the bridge

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.

Install the bridge on a computer that can access both Agile Manager and ALM. Install and run the bridge as a Windows administrator user.

You can install multiple bridge agents. This is only necessary if you need to synchronize with ALM projects that reside on different networks, or if you define a large number of synchronization links and you want to distribute the load between multiple agents.

In this procedure, you will need to enter credentials for the Agile Manager user assigned to the **Integration Bridge** role, used to access Agile Manager from the Integration Bridge.

Assign a user to the Integration Bridge role on the **Site > Users** configuration page.

1. 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. |
| If you are installing an additional bridge or performing an upgrade | Select More Actions > Download Integration Bridge . |

Extract the downloaded **hp-integration-bridge-windows.zip** file. You must extract this zip file to a path named only with English characters.

2. Run the **hp-integration-bridge.exe** file to begin the installation. When the wizard opens, click **OK** to get started.
3. Follow the instructions in the installation wizard to complete the installation.

Note: The Integration Bridge must be installed to a path named only with ASCII characters.

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

On the **Setup connection** page:

| Settings | Description |
|--------------------|-------------------------------|
| Bridge name | Define a name for the bridge. |

| Settings | Description |
|--|--|
| <p>URL</p> | <p>The URL of your Agile Manager site. By default, this URL is provided for you.</p> <p>This URL will be used in email notifications, such as to Integration Administrators.</p> <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;"> <p>Tip: We recommend ensuring that this URL is accessible to email recipients and from the ALM client.</p> </div> |
| <p>Login name and Password fields</p> | <p>Enter credentials for the user assigned to the Integration Bridge role.</p> <p>If you need to modify these credentials later on, see "Set Agile Manager credentials" on page 143.</p> |
| <p>Proxy server</p> | <p>If you will be using a proxy server to access Agile Manager, select Use proxy server.</p> <p>Enter details for the proxy server and the user who will be logging into the proxy server:</p> <ul style="list-style-type: none"> ■ Host. A valid address for the proxy server. ■ Port. A valid port number (integer, between 1-65535) <p>For details about modifying the proxy credentials later, see "Configure a proxy for Agile Manager connections" on page 144.</p> |

Tip: Click **Test Connection** to verify that the bridge can connect to Agile Manager.

4. When the installation is finished, the **Installation complete** page is displayed. Click **Done** to quit the installer.
5. The Endpoint Credentials Manager application opens automatically. Define credentials for connecting to ALM, as described in ["Manage credentials" on the next page](#).

Note: You must configure ALM credentials before you configure your links.

If the Endpoint Credentials Manager does not open automatically, open it manually. The Endpoint Credentials Manager application is installed together with the Integration Bridge.

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.

See also

["Upgrade the Integration Bridge" on page 152](#)

Manage credentials

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

The Endpoint Credentials Manager application, used to manage ALM credentials, opens automatically after installing the Integration Bridge.

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 does not open automatically after installation, or if you need to open it again later, open the application manually. The Endpoint Credentials Manager is installed together with the Integration Bridge.

- ["Set ALM credentials \(Endpoint Credentials Manager\)" on the next page](#)
- ["Set ALM credentials \(CLI\)" on page 134](#)
- ["Configure a proxy for ALM connections" on page 141](#)

- ["Set Agile Manager credentials" on page 143](#)
- ["Configure a proxy for Agile Manager connections" on page 144](#)



Set ALM credentials (Endpoint Credentials Manager)

Perform this procedure as a Windows administrator user.

1. On the Integration Bridge machine, open the Endpoint Credentials Manager application. The Endpoint Credentials Manager is installed together with the Integration Bridge.
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.

- 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**.

Set ALM credentials (CLI)

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

This tool is located in the **Bridge_installation_directory>\product\util\opb** directory. Run this tool as a Windows administrator user.

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 credentials" on page 132](#).

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

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

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

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

Sample Results

```
Endpoint types :
1. alm-11.5
```

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 |
| -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 |
| -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

| | |
|---|--|
| <code>-endpoint</code> <code><ENDPOINT TYPE></code> | Endpoint type name, such as the ALM version. This type name must be a value available in the "listEndpointTypes" command. |
| <code>-credentialId</code> <code><CREDENTIALS ID></code> | 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, as a Windows administrator user.

1. In the **<Integration Bridge installation directory>\product\domain\alm\conf** 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 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 ["Manage the bridge agent and service" on page 149](#).

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 **agentAuthentication.bat** command line tool to set the credentials used to connect to Agile Manager.

This tool is located in the **<Bridge_installation_directory>\product\util\opb** directory. Run this tool as a Windows administrator user.

Note: Set Agile Manager credentials only if the credentials change from when you first installed the Integration Bridge agent.

The **agentAuthentication.bat** tool supports the following commands:

["setAuth" below](#)

["help" on the next page](#)

setAuth

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

Note: The user logging in to Agile Manager must be assigned to the Agile Manager **Integration Bridge** role.

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

Usage

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

Parameters

| | |
|-------------------|---|
| -user <USER NAME> | The name of the user connecting to Agile Manager. |
| -pass <PASSWORD> | The password of the user connecting to Agile Manager. |

help

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

Usage

```
agentAuthentication help
```

Configure a proxy for Agile Manager connections

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

This tool is located in the **<Bridge_installation_directory>\product\util\opb** directory. Run this tool as a Windows administrator user.

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 ["Manage the bridge agent and service" on page 149](#).

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

["setAddress"](#)

["removeProxyConfiguration "](#)

["setAuth"](#)

["removeAuth"](#)

["help" on page 146](#)

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.

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 via SSL" below](#)
- ["Connections via self-signed certificates" below](#)
- ["Password encryption" on the next page](#)
- ["Security recommendations" on the next page](#)

Communication via SSL

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

The agent logs in to Agile Manager using the user credentials provided during installation, or later as described in ["Set Agile Manager credentials" on page 143](#).

Connections via self-signed certificates

To connect to a secured Agile Manager or ALM server using a self-signed certificate, import the server'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

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:

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

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 agent 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 agent machine | Install the Integration Bridge on a dedicated, hardened machine. |
| Integration Bridge agent network | Deploy the Integration Bridge in an isolated network, with a firewall between the bridge and the target on-premise application. <ul style="list-style-type: none">• 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. |

| Security recommendations | |
|-------------------------------------|---|
| Installation folder | The Integration Bridge service is run using the Windows Local System service user. You can protect the Integration Bridge installation folder by granting permissions to that folder only to administrators and the Local System service user. |
| 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. |

Manage the bridge agent and service

The Integration Bridge agent and service are automatically started when your system starts. This topic describes how to manage them manually.

These procedures must be performed as a Windows administrator user.

Note:

- Both the agent and service must be running for Agile Manager to communicate with on-premise applications such as ALM. For details about these components, see ["HP Integration Bridge overview" on page 127](#).
- 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.

Start the Bridge agent

Search or browse for, and select the **Start HP Integration Bridge** application.

Stop the Bridge agent

Search or browse for, and select the **Stop HP Integration Bridge** application.

Manage the service using Windows Services

1. Run the **services.msc** command.
2. Select the **HP Integration Bridge** service.
3. Stop or start the service as required.

Manage the service from the command line

Use the following commands:

| Task | Command |
|-----------------------------------|--|
| Run agent in a console | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat console |
| Install agent as a service | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat install |
| Start service | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat start |
| Stop service | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat stop |
| Restart service | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat restart |
| Remove service | <Bridge_installation_directory>/product/bin/HPIntegrationBridge.bat 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.

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

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**.

2. Do the following:

| Task | Description |
|---|---|
| Uninstall the bridge | <p>Uninstall the Integration Bridge using the Start menu option or via the Windows Control Panel, as a Windows administrator user.</p> <p>In the uninstall wizard, 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 or upgrade.</p> |
| Remove the bridge from user interface (optional) | <p>Select the bridge name and either select Remove Bridge from the context menu, or select More Actions > Remove.</p> <p>Caution: Only remove the bridge from the user interface if you have no intention of recovering it.</p> <p>You cannot recover a bridge removed from the NextGen Synchronizer, even if you have not yet uninstalled it.</p> |

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. If you need to use this information later, such as to upgrade the bridge, rename the backup file and copy it to a folder for a new installation.

For more details, see "[Upgrade the Integration Bridge](#)" below.


Upgrade the Integration Bridge

Upgrade the Integration Bridge using 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

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 the previous page. In the uninstall wizard, do *not* select **Remove credentials**.
2. Download the new version of the Integration Bridge from the **Integrations** >  **Link Configuration** page. Click **More Actions** > **Download Integration Bridge**.
3. Extract the new **hp-integration-bridge-windows.zip** file 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.
 - 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 value of the **agent.guid** property 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** to begin the installation.

In the installation wizard, on the **Select installation** folder screen, select the installation folder that was used for the previous version.

For more details, see "[Download and install the bridge](#)" on page 129.

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 151. In the uninstall wizard, do *not* select **Remove credentials**.
2. Download the new version of the Integration Bridge from the **Integrations** >  **Link Configuration** page. Click **More Actions** > **Download Integration Bridge**.
3. Extract the downloaded **hp-integration-bridge-windows.zip** file 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.
 - 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 value of the **agent.guid** property from the previous installation file, and append it to the new file. Save the new file.

5. Run the **hp-integration-bridge.exe** to begin the installation.

In the installation wizard, on the **Select installation** folder screen, select the directory where you want to install the new version.

For more details, see ["Download and install the bridge" on page 129](#).


Both upgrade methods retain the configured endpoint credentials.

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" on the next page](#)
- ["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 page 156](#)
- ["Enable additional endpoint flows" on page 156](#)

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 Agent**, or refresh the browser page.

- If the bridge still does not appear, verify whether the agent and service has started. For details, see ["Manage the bridge agent and service" on page 149](#).

The Integration Bridge service attempts to start the agent several times. If it is not successful, the application shuts down and the service stops.

- If the agent is not started, verify whether 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 agent, 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 service is down. In Agile Manager, click the agent name to view the last time the agent accessed the service.

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

The credentials defined for the endpoint may be incorrect. For details about verifying or modifying credentials, see ["Manage credentials" on page 132](#).

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.

Enable additional endpoint flows

By default, the Integration Bridge is run using the Windows Local System user. If you need to enable flows for additional endpoint types, you can modify the Local System user to include additional required access rights.

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 or requirements).

- ["Define connection settings" on the next page](#)
- ["Map requirement types \(for requirement synchronization links only\)" on page 158](#)
- ["Set the rules that define which endpoint controls the synchronized entities" on page 158](#)
- ["Define favorites and an alternate root folder \(Optional\)" on page 160](#)

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 or requirements).
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 126.

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: <code>http(s)://<hostname>:<port>/qcbn</code> |
| 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. |

| Field | Description |
|---|--|
| Credentials Display Name | <p>Select a predefined credentials record from the dropdown list.</p> <p>These records are defined in the Endpoint Credentials Manager. For details, see the <i>Integration Bridge Installation Guide</i>.</p> <p>You must define ALM credentials before creating a synchronization link.</p> |
| ALM/QC Domain ALM/QC Project | <p>The ALM domain and project you want to synchronize with.</p> <ol style="list-style-type: none">Click Authenticate next to the User Credentials Name field to retrieve values for these fields.Select the ALM domain and project names from the listed items. |

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

Map requirement types (for requirement synchronization links only)

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 120.

Only mapped requirement types are synchronized.

Set the rules that define which endpoint controls the synchronized entities

Select where you plan to manage defects and different types of requirements. For examples on when you might select the different options, see "[Sample use cases](#)" on page 117.

Select one of the following:

| Option | Description |
|--|--|
| Agile Manager | <p>Select this option to create defects or requirements 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.</p> <p>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.</p> |
| ALM | <p>Select this option to create defects or requirements 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.</p> <p>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.</p> |
| Both Agile Manager and ALM (Defect links only) | <p>Select this option to create and update defects 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.</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p>Note: If you select Both..., you also need to select a dominant side, in case of conflicts.</p> </div> |

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 167](#).

Define favorites and an alternate root folder (Optional)

You can limit the synchronization to a subset of your ALM or Agile Manager database:

| | |
|---|--|
| Select Agile Manager and ALM favorites | <p>Define favorites to use as filters for new items when synchronizing between endpoints. For details, see "Create Agile Manager and ALM favorites" on page 118.</p> <p>No favorites are defined by default. This means that all records in the Agile Manager workspace or ALM project are synchronized.</p> <p>Tip: If this is the first time you are configuring a link, start by using a filter that contains only one record to verify that the synchronization works as you expect.</p> <p>Enlarge the favorite gradually, 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.</p> <p>Remember to schedule a full synchronization each time you modify a favorite in order to synchronize the newly included records. For details, see "Full synchronizations" on page 190.</p> |
|---|--|

| | |
|--|--|
| <p>Define an alternate ALM root folder (Requirement links only)</p> | <p>Select Use an alternate root folder and enter the path to a sub folder in your ALM project's Requirements folder.</p> <p>The path must replicate the exact hierarchy in ALM starting with the Requirements folder, according to the ALM locale. For example: Requirements\MyProject.</p> <p>Caution: Specifying an alternate root folder for synchronization can cause unexpected behavior.</p> <ul style="list-style-type: none">• 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 <i>not</i> delete records and create new ones in the new location, as Synchronizer recognizes records according to their ALM ID. <p>When you move records, make sure to retain the same hierarchy as is defined for the link in Synchronizer.</p> <ul style="list-style-type: none">• Do not map different workspaces on the same Agile Manager site to different sub folders in the same requirements tree.• You can edit the path to an alternate root folder before you run the first successful synchronization for the link. Afterward, the ability to edit this path is disabled. |
|--|--|

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 183
- ["Run synchronizations"](#) on page 187
- ["Review link summaries and error details"](#) on page 192

For details about the **Run History** tab, see ["View the run history for a specific link"](#) on page 193.

See also




- ["Import a link from ALM Synchronizer"](#) on page 184
- ["Duplicate a link"](#) on page 194
- ["Edit a link's ALM endpoint"](#) on page 196
- ["Link status reference"](#) on page 197
- ["How can I improve synchronization performance?"](#) on page 202

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 to 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" below](#)
- ["Edit requirement type mapping" on page 166](#)
- ["Edit synchronization rules" on page 167](#)
- ["Edit field mapping" on page 168](#)
- ["Map user list fields" on page 180](#)



Next steps

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

- ["Configure Synchronizer notifications" on page 183](#)
- ["Run synchronizations" on page 187](#)
- ["Review link summaries and error details" on page 192](#)

For details about the **Run History** tab, see ["View the run history for a specific link" on page 193](#).

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" on the next page](#)
- ["View link status" on the next page](#)
- ["Check ALM connectivity" on page 165](#)
- ["View or modify synchronization favorites and alternate root folder" on page 165](#)

View or edit basic link details

| | |
|-----------------------------|---|
| Entity Type | Defines the type of entity being synchronized. NextGen Synchronizer currently supports defect and requirement synchronization. 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: <ul style="list-style-type: none">• Start Automatic Mode• Stop Automatic Mode <p>Note: You cannot start automatic mode until you have run a successful integrity check, and saved your changes.</p> |

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 | <p>Displays the link's current status, as well as a summary of any issues remaining from previous runs.</p> <p>Link statuses reflect whether integrity checks have passed or not, and whether recent synchronizations have generated errors or warnings.</p> <ul style="list-style-type: none">• 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. <p>For details and action items required for each status, see "Link status reference" on page 197.</p> |
|--------------------|--|

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 196.

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 and alternate root folder

- 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 190.

- For requirement synchronization links, view the alternate root folder selected to

limit the synchronization to a subset of the **Requirements** folder.

You can edit the path to an alternate root folder before you run the first successful synchronization for the link. Afterward, the ability to edit this path is disabled.

For more details, see ["Create Agile Manager and ALM favorites" on page 118](#), or ["Define favorites and an alternate root folder \(Optional\)" on page 160](#).

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 187](#).

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.)



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

Remove a mapped requirement type

Right-click the sub node for the requirement type and select **Remove Requirement Type**.

Note: 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 . Note: You can map requirement types to user stories, features, or themes, if they are not mapped. |
|---|--|

Note:

- 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 120](#).
- 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 187](#).



Edit synchronization rules

View the current settings on the link configuration **Rules** tab, and modify these rules 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.

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 190](#).

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 187](#).

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 180](#).

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 178](#).



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 173](#). For additional recommendations before synchronizing, see ["Adapt the data in your endpoints" on page 119](#).

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 119](#).

If you need to map multiple fields in the opposite endpoint, click **+** in the **Mult. 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. |
| 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. |

| Action | Description |
|---------------------------|---|
| Show only specific fields | <p>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.</p> <p>At the bottom of the grid, select:</p> <ul style="list-style-type: none">■ 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" on the next page](#)
- ["View other field properties" on the next page](#)
- ["Remove a field mapping" on page 173](#)

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 page 174](#).

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.

["Example of mapping field values" on page 179](#)

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.

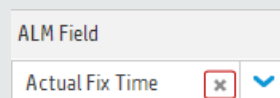
The displayed properties differ, depending on the type of field you select.

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 **x** in the **Mult. Mapping** column.

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

For example, when viewing fields sorted by Agile Manager field, click the **x** 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 187](#).

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 119](#).

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 179.](#)

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 | <p>Synchronizer updates an attachment only if <i>both</i> of the following have changed:</p> <ul style="list-style-type: none">• The record to which the file is attached• The attachment name, size, or last modified property <p>The attachment description is synchronized only during the initial attachment synchronization, and is never updated.</p> |
| Deleted attachments | <ul style="list-style-type: none">• If an attachment is deleted from the record in the <i>source</i> endpoint, Synchronizer also deletes it from the corresponding record in the destination endpoint.• If an attachment is deleted from a <i>destination</i> endpoint, and changes are simultaneously made to the attachment in the <i>source</i> 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 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 version 11.52 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.

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 172](#).

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 | <p>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.</p> <p>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.</p> <p>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.</p> |

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 |

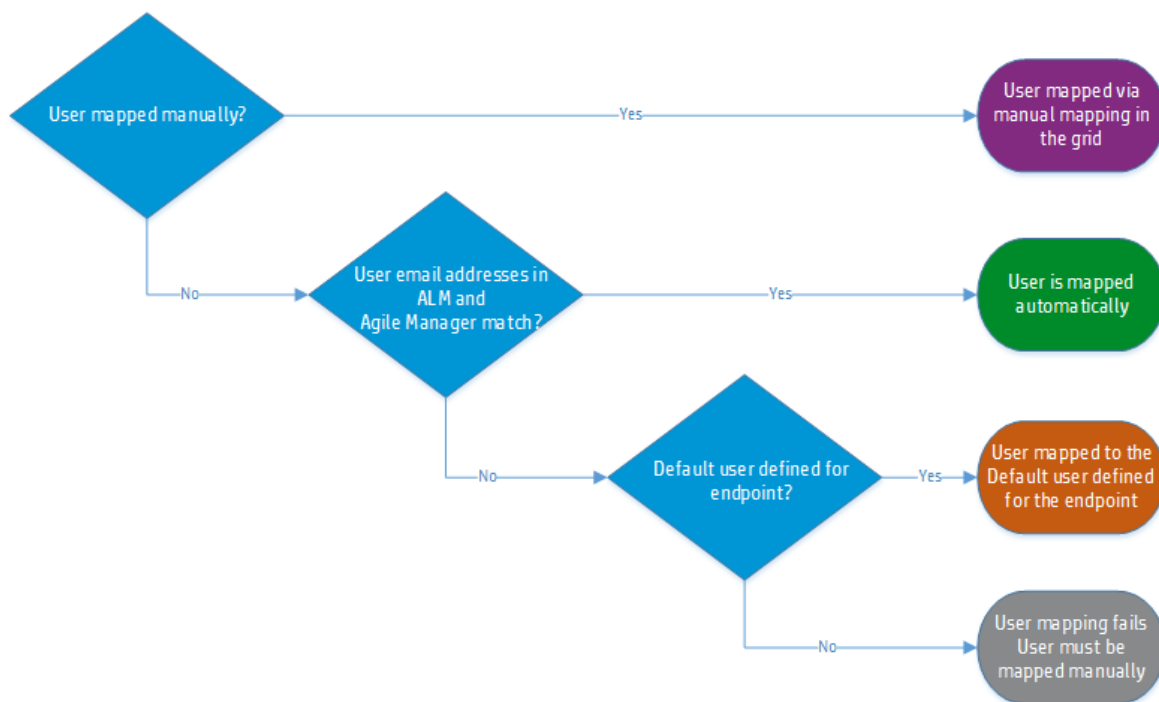
| Agile Manager | Direction | ALM |
|---------------|--------------------|----------|
| New | ↔ Bidirectional ↔ | New |
| Open | ↔ Unidirectional ↔ | Reopen |
| Fixed | ↔ Bidirectional ↔ | Fixed |
| Propose Close | ↔ Bidirectional ↔ | Rejected |
| Closed | ↔ Bidirectional ↔ | Closed |
| Deferred | → 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.



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.

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: 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 184](#).

2. Define default users for when there is no matching user in the target 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 target endpoints in both Agile Manager and ALM.

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 185](#).

Configure Synchronizer notifications

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

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.

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 98](#)
 - ["Enable or disable a link" on page 96](#)
2. Export the following files from ALM Synchronizer:

| File | Description |
|--------------------------|--|
| Link backup file (.zip) | For details, see "Export links" on page 89 . |
| User mapping file (.csv) | Optional, only if you want to import user mapping data. For details, see: <ul style="list-style-type: none">■ "Map user list fields using a .csv file" on page 84■ "Modify .csv map files in a text editor" on page 86 |

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 156](#).

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 166](#) and ["Edit synchronization rules" on page 167](#).

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 163](#)
- ["Edit synchronization rules" on page 167](#)

- ["Edit field mapping" on page 168](#)
- ["Map user list fields" on page 180](#)

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.

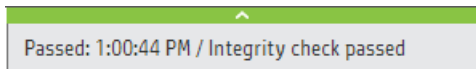
Integrity checks


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:



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 | <p>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.</p> <ul style="list-style-type: none">• 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 | <p>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.</p> <p>If you stop automatic synchronizations, you will need to run a manual synchronization task or start automatic synchronizations again to update your records.</p> |

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:

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

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 189.


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" on the next page](#)

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 156](#).

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

Caution: Duplicating mappings for user-defined fields and requirement types is recommended 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 163](#)
- ["Edit synchronization rules" on page 167](#)
- ["Edit field mapping" on page 168](#)
- ["Map user list fields" on page 180](#)

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: <code>http(s)://<hostname>:<port>/qcbn</code> |

| Field | Description |
|---|---|
| Endpoint | <p>The name of the endpoint you want to edit.</p> <p>Note: If you selected a specific link before opening the Edit Endpoint dialog box, you can edit only that link's endpoint.</p> |
| Endpoint Display Name | <p>Identifies this connection to ALM.</p> <p>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.</p> |
| Credentials Display Name | <p>Select a predefined credentials record from the dropdown list.</p> <p>These records are defined in the Endpoint Credentials Manager. For details, see the <i>Integration Bridge Installation Guide</i>.</p> <p>You must define ALM credentials before creating a synchronization link.</p> |
| ALM/QC Domain ALM/QC Project | <p>The ALM domain and project you want to synchronize with.</p> <ol style="list-style-type: none"> 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"](#) on the next page
- ["/ Status: Sync. Warning"](#) on the next page
- [" / Status: Sync. Error"](#) on the next page
- [" Status: Integration bridge is offline "](#) on page 200
- [" Status: Integration bridge needs upgrade "](#) on page 200

 /  **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 | <ul style="list-style-type: none"> 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 " Manage the bridge agent and service " on page 149. |

 **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 129. |

NextGen Synchronizer FAQs

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: <ul style="list-style-type: none">Do not synchronize any data and ...Are more than 10 days old. | An <i>empty run</i> is only displayed in the run history when it is the latest run, and was run in the last 10 days. |
| Runs that: <ul style="list-style-type: none">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 191.](#)

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 | <pre>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);</pre> |
| Oracle | <pre>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);</pre> |

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 166.

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, and so on, verify that you are synchronizing with a supported version of ALM. For details, see "[Supported ALM/Quality Center versions](#)" on page 128.

If your version of ALM is indeed 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.

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.

Archive

Backlog items removed from the product backlog. Administrators 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

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

A field added to items in your project. Custom fields are defined in the configuration area, and can be displayed in grids and item details, and included in filters.

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.

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 synchronized in a Synchronizer link. Entity types include

releases, requirements/user stories, and defects.

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.

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.

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.

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.

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