

HP Service Manager

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For the supported Windows® and UNIX® operating systems

Delta Migration Tool help topics for printing

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Delta migration tool

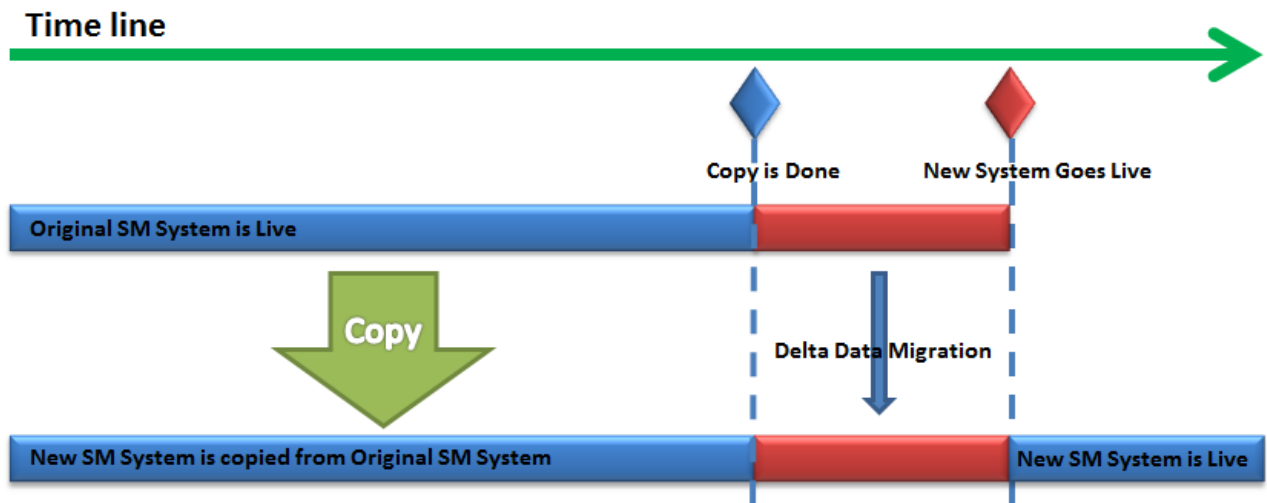
As of version 9.34, Service Manager provides a delta migration tool to transfer the “delta data” from one Service Manager system (original system) to another (new system).

Typical scenario

There are times where you need to migrate data from one Service Manager server to another. Take the following scenario:

- The original system is running live
- You make a copy of it
- You make changes to the workflow in the copy
- You replace the original live system with the copy that has the new workflow

Of course from the time you made a copy until the time the new system goes live, end users are making changes. The following figure depicts this scenario.



Tip: You can also use this tool to keep the data in a “test” system in sync with a “production” system or a “development” system in sync with a “test” system.

Data migration methods

The delta migration tool enables you to keep the original system and the copy in sync in either of the ways:

- Allowing manual export or import of changed records
- Scheduling an automated export or import

Caution: For a table without the “sysmodtime” field, the tool cannot migrate “delta data” from the original system.

Prerequisites

There are some prerequisites for using this tool. For details, see ["Prerequisites for using the delta migration tool" on page 7](#).

Supported applications versions

This tool is already available in Service Manager 9.34 applications; to use this tool on earlier applications versions, you need to load **DeltaMigrationTool.unl**, which you can find in the Service Manager 9.34 Upgrade package root folder.

Installing the delta migration tool

The delta migration tool is already built in for Service Manager 9.34 and later systems.

To install the delta migration tool in Service Manager 9.33 and earlier versions, you need to deploy a UNL package. You can find the package in the upgrade folder, along with the other Service Manager application upgrade utility files. To install the delta migration tool, follow these steps:

1. Log in to the Service Manager system as the administrator.
2. Open **Database Manager**, right click, and then select **Import/Load**.
3. Select **DeltaMigrationTool.unl**, and then click **Load FG** to deploy it.

Prerequisites for using the delta migration tool

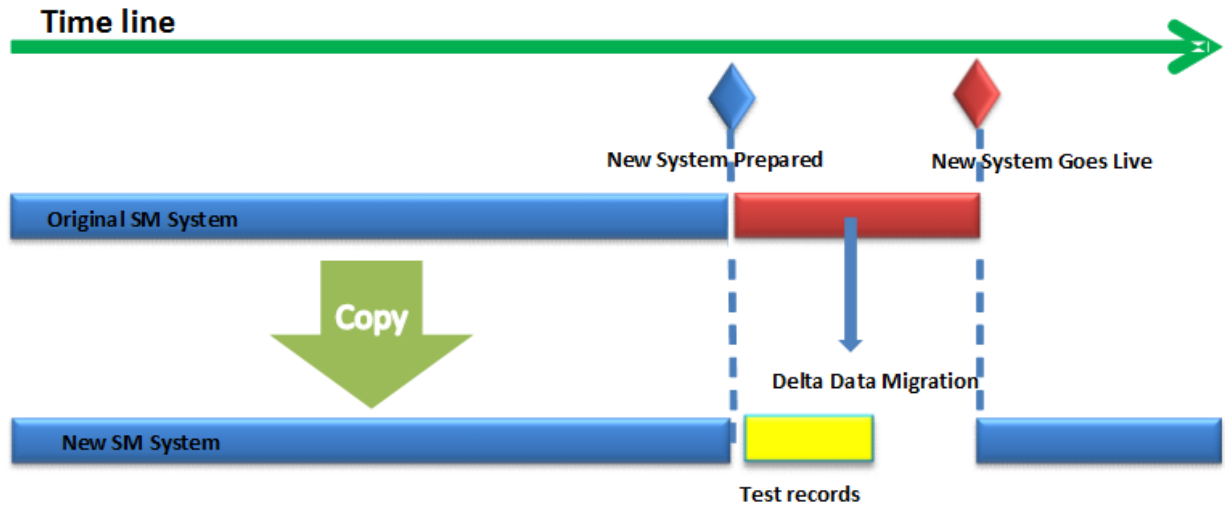
Before you use the delta migration tool to migrate the delta data, the following prerequisites must be met.

Note: Only the first requirement applies to both method 1 and method 2, while the other four requirements apply only to method 2.

- Make sure that the new Service Manager system is clean and does not contain any test records.

Before the delta migration, the new Service Manager system should include only the records or modifications from the original system. You must remove any test data that was created or modified on the new system during the delta data period.

If there are some test records added to the new system during the delta data period, as shown in the following figure, then the delta data from the original Service Manager system cannot be migrated to the new system because of a data conflict. Even if you decide to use the delta data from the original Service Manager system to overwrite the test records, there is a risk of a data integrity violation.



For example, a new incident IM12345 (called IM_A) is created in the original system during delta data period, and another test record IM12345 (called IM_B) is created in the new system, with several activity logs. If you then use IM_A in the original system to overwrite IM_B in the new system, you will find that IM_A in the new system contains some incorrect activity logs, which belong to IM_B.

- Make sure that the date format of the original Service Manager system does not have the y2k problem. To do this, follow these steps:
 - a. Open **System Navigator > Base System Configuration > Miscellaneous > System Information Record**.
 - b. Go to **Data Info**.
If the date format contains only two digits for the year value, such as "mm/dd/yy", change it to four digits (for example, "mm/dd/yyyy").
 - c. Save the modification and restart the Service Manager service.
- Create a new administrator's account in the original Service Manager system. The date format and time zone settings of this account should be the same as those in **System Information Record**.

Because background tasks will use the default time zone and date format in the **System Information Record**, creating a new admin account with the same time zone setting and date format of **System Information Record** will avoid missing data.

- Make sure that the five background schedulers (bg_load_unload 1, ..., bg_load_unload 5) have been started in both of the Service Manager systems. If the background schedulers haven't been started,

they should be visible in the **System Status** record. If they are not there, click **Start Scheduler** and select **dmt.unload.load**.

- Make sure that an empty folder is created on the original Service Manager system for exporting the delta data.

Delta migration methods

There are two methods to complete the delta migration:

- Method 1: Manually export/import a single UNL file

You need to use the delta migration tool to generate an unload script, and then use this unload script to export and import data manually. This method is simple and you can use it to migrate delta data between two systems with similar versions (for example, from Service Manager 7.11 to Service Manager 7.11).

Note: If the table structures of the new and original Service Manager systems are different, use method 2 to migrate the delta data.

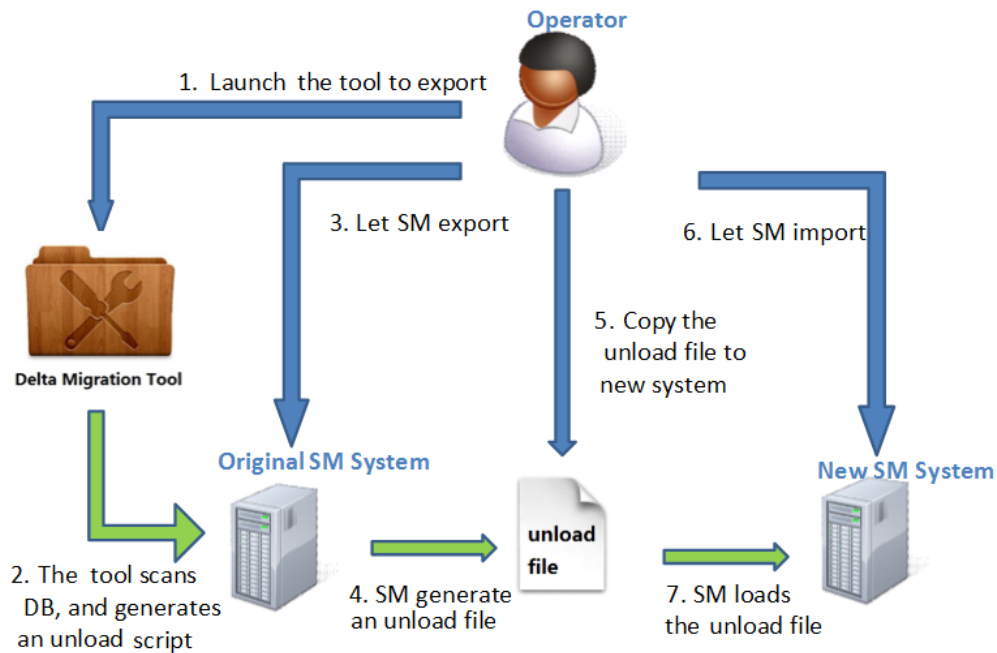
- Method 2: Automatically export/import multiple UNL files

You need to create background schedules to export the tables that contain the delta data into the UNL files in a specified original folder. Then, move the entire folder to the new Service Manager system and create background schedules to import them.

Migration by using this method uses the background schedule tasks to export and import the delta data, so it has minimal performance impact on the running production system. You can apply this method to migrate delta data between two systems with different versions (for example, from Service Manager 7.11 to Service Manager 9.34). Most of Service Manager upgrade projects should use method 2.

Method 1: Manually export/import a single UNL file

The following flow chart illustrates how the operator migrates the delta data by using method 1.



To export the delta data by using method 1, follow these steps:

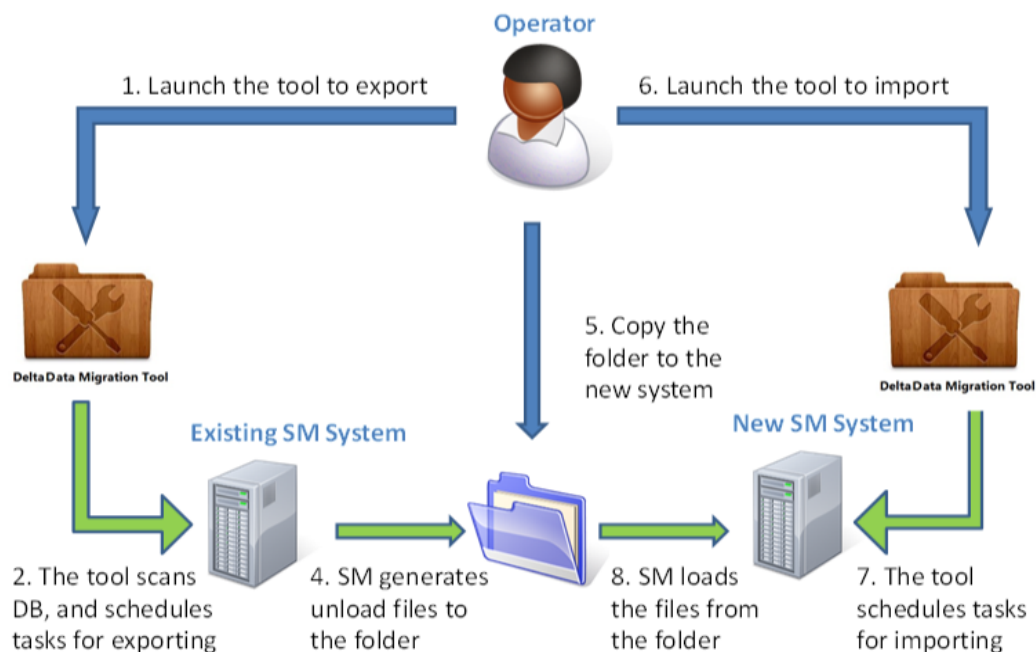
1. Log in to the original Service Manager system.
2. Open **Tailoring > ScriptLibrary**. Type **DeltaMigration_Export** in the **Name** field, press **Enter**. And then click **Execute**. A welcome page appears showing the instructions for migration.
3. Click **Next** on the welcome page and select **Method 1: Manually export/import a single UNL file**.
4. Click **Next** to check the steps of using method 1.
5. Click **Next** to specify the time range of the delta data. The delta migration tool will generate an unload script to extract all the delta data within this range.
6. Click **Next** to generate the unload script.
7. Open the generated unload script, and then run it to generate an UNL file.
8. Copy the UNL file to the new system.

To import the delta data by using method 1, follow these steps:

1. Log in to the new Service Manager system as an administrator.
2. Disable the triggers by adding `$L.void=rtecall("trigger",$L.rc,0)` in the format control file of **login.DEFAULT** file.
3. Log out and then log in to the new Service Manager system again.
4. Open **Database Manager**, right click, and then select **Import/Load**.
5. Select the UNL file that you want to import.
6. Enable the triggers by removing `$L.void=rtecall("trigger",$L.rc,0)` in the format control file of **login.DEFAULT**.
7. Log out and then log in to the new Service Manager system again.

Method 2: Automatically export/import multiple UNL files

The following flow chart illustrates how the operator migrates the delta data by using method 2.



To export the delta data by using method 2, follow these steps:

1. Log in to the original Service Manager system.
2. Open **Tailoring > ScriptLibrary**. Type **DeltaMigration_Export** in the **Name** field, press **Enter**, and then click **Execute**.
3. Click **Next** on the welcome page, and then select **Method 2: Automatically export/import multiple UNLs**.
4. Click **Next** to check the steps of using method 2.
5. Click **Next** to specify a folder for the exported delta data, and then specify the time range of the delta data.
6. Click **Next** to verify the provided migration suggestions after the tool checks the tables. You can ignore some tables even if they contain some delta data.
7. Click **Next** to verify the final confirmation for the migration. The message displays the number of the tables that will be migrated and the time that the exporting will take.
8. Click **Next** to start background schedule tasks to export the delta data.
9. Click **Finish** to exit the tool when the overall progress reaches 100%.

Note: To check the export status, go to the selected folder and open **Overall Export Status Report.html**.

10. Copy the whole folder to the new Service Manager system.

To import the delta data by using method 2, follow these steps:

1. Log in to the new Service Manager system as an administrator.
2. Open **Tailoring > ScriptLibrary**. Type **DeltaMigration_Import** in the **Name** field, press **Enter**, and then click **Execute**. A welcome page appears showing the instructions for migration.
3. Click **Next** on the welcome page.
4. Click **Next**, and then specify the folder that contains the exported delta data.
5. Click **Next** to select the tables to migrate. If the table structures are different, HP recommends that you click **Click here to check the table structure mismatch...** link, to acknowledge the

detailed difference, the risk, and then decide if you migrate or not.

Note: If the table structure mismatch may introduce risks, and you decide not to migrate, then try to migrate the data in these tables by other methods to avoid data loss. For more information about how to do this, see "[How can I handle skipped tables?](#)" on page 18.

6. Click **Next** to check the final confirmation for the migration. The message displays the number of the tables that will be imported.
7. Click **Next** to start background schedule tasks to import the delta data.
8. Click **Finish** to exit the tool when the overall progress reaches 100%.

Note: To check the importing status, go to the selected folder and open **Overall Import Status Report.html**.

Note: If tables are ignored during the export operation because they have no last modification time field, then check if a full-table migration is needed.

Troubleshooting delta migration

- Why can I not export the delta data in some tables?

To export the delta data from a table, a field to record the last modification time is necessary. For most tables in Service Manager, this field is **sysmodtime**.

However, some tables (especially custom tables) contain no such field, or the field name is not **sysmodtime**. In both cases, the tool cannot find or export the delta data, and you therefore need to migrate the data manually. For example, you can export all the data in these tables to another UNL file, and deploy this UNL file on the new system.

- Why is the delta data in some tables not suggested for the import operation?

There are potential risks if the table structures of the new and the original Service Manager system are different. For example, if the table for interaction in the new Service Manager system contains more fields than the original Service Manager system, the new columns will be left blank when you try to migrate data in this table by using UNL files. More seriously, if one of the new fields is inserted between the original fields instead of at the end of table, then importing the table may cause unexpected behavior.

Before the delta data is imported, the tool checks the table structure. If the structure is different, the tool will provide a risk estimation, and you can decide whether to import the data or not. If you decide not to import a table, see "[How can I handle skipped tables?](#)" on page 18.

- Where can I check the status of the background export/import tasks?

During the import and export operations, there is a real-time report **Overall Export Status Report.html** / **Overall Import Status Report.html** report located under the specified folder. Open the file and check the overall status at the top of it. If your browser warns you about the script or ActiveX controller on the webpage, allow it. When the overall status changes to 100%, all the background export/import tasks have finished.

- What files are included as the output materials?

After a successful export operation, the materials in the user specified folder should include the following files.

| File name | Description |
|------------|---|
| readme.txt | Records of the basic information of this folder |

| | |
|---|--|
| | This file includes the time range of the exported UNL files. |
| Overall Export Status Report.html | A real-time report for the export operation |
| Overall Import Status Report.html | A real-time report for the import operation Note: This file only appears during the import operation. |
| <SM table name>_unload_result.txt | A record of how many UNLs are to be exported for a specified table |
| <SM table name>_unload_structure.txt | A description of the table structure of the original Service Manager system This information is used for comparison with the table structure in the new Service Manager system, and to help to decide if the delta data in table should be migrated here. |
| <SM table name>_unload_structure_new.txt | Describe the table structure of the new Service Manager system Note: These files only appear during the import operation. |
| <SM table name>_<start time>_<end time>.UNL | Unloaded UNL files The format of the start and the end time is "yyyymmdd_hhMMss" |
| table_exported.txt | A list of tables for which the delta data is exported The timestamp field in each table is also recorded in this file |

- Why do I receive an error from the background scheduler?

If you try to migrate the delta data by using background tasks and receive the following error message of, you must start the scheduler:

```
background_scheduler 'dmt_unload_load*' not started, ...
```

To start the schedule, follow these steps:

- a. Log in to Service Manager as an administrator.
- b. Click **System Navigator >System Status> Start Scheduler**.
- c. Click **dmt_unload_load** to start the five background schedulers.

If you have already started the schedule, return to the previous step in the wizard. Wait for one minute and then try again.

- Why do I receive a file writing error during the export operation?

If you receive a "can't write files into output folder" error message during the export operation, follow these steps:

- a. Check if the specified folder exists.
- b. Check if Service Manager has the right to add and modify files in the folder, especially when Service Manager is installed on a non-Windows-based server.

- Why do I receive an "empty folder" error message during the import operation?

If you receive a "selected folder is empty, or 'readme.txt' missing" error message during the import operation, follow these steps:

- a. Check if the specified folder exists.
- b. Check if the specified folder contains everything that was generated during the export operation.
- c. Check if Service Manager has the right to access the files in the folder, especially when Service Manager is installed on a non-Windows-based server.

- Why do I receive a "trigger disabled" error message from the background scheduler?

All triggers will be disabled to avoid unexpected behavior during the import operation. It may take no more than one minute for each background session to disable the triggers. If you receive the following error message, wait for a while, and then return to the previous step to try again:

```
background scheduler 'dmt_unload_load*' are trying to disable triggers, ...
```

- How can I decide if the data in a specified table should be unloaded/loaded or not?

If the table has a **sysmodtime** field, and if the structure of the table is the same in the original system and in the new system, then the delta data can be migrated without problem. Simply migrate the data according to the suggestions made by the tool.

If a table has no **sysmodtime** field, the tool will suggest that you do not migrate the data in it. If the information in the table is not time-sensitive or is not changed very often, you can migrate all data in it to the new system by using a Service Manager unload script or by using the database functions.

If a table structure has changed, but the tool reports no risk to the import operation, then you can migrate the table. However, if the tool reports risks, do not import the table. For more information, see "[How can I handle skipped tables?](#)" below.

- How can I handle skipped tables?

All the information in the original Service Manager system should be migrated to the new Service Manager system, except the information that belongs to a feature or function that is no longer valid in the new Service Manager system.

- If a table is skipped during the export operation because it contains no delta data, then no additional work is needed.
- If a table is skipped during the export operation because the **sysmodtime** field is missing, migrate all the data in the table to the new system by using the Service Manager unload script.
- If a table is skipped during the import operation because of structure changes, write a script to perform the migration. The script should include a field mapping to ensure that all fields in the table of the new Service Manager system will be prepared, just as if these delta data were created or modified in the new Service Manager system.

- What if there is a lot of delta data to be migrated, and the operation takes a long time?

If there is a lot of delta data to migrate, the operation may take several hours. This leads to several hours' downtime, and new delta data is generated during this downtime. You can run the tool multiple times to resolve this issue.

For example, you have a delta time range from 00:00:00 on Jan 1st to 16:00:00 on Feb 2nd (the present). If you set the delta data time range from 00:00:00 on Jan 1st to 00:00:00 on Feb 2nd, it may take several hours to migrate the data. You can then run the tool again and set the delta data time range from 00:00:00 on Feb 2nd to the present time. This time, the operation may take several minutes only. These several minutes are the only downtime and after that, the new Service Manager system will function as a production system.

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