How To Use the SAP ME Archiving Feature

Applicable Release: ME 15.0

Version 1.1

September 16, 2014
## Document History

<table>
<thead>
<tr>
<th>Document Version</th>
<th>Description</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Initial version</td>
<td>Chet Moutrie</td>
</tr>
<tr>
<td>1.1</td>
<td>Added Component Time Log entries and Resource Time Log entries to section 3.1.1. Added information regarding unarchiving a single SFC in section 3.3.1</td>
<td>Chet Moutrie</td>
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1 Introduction

1.1 Purpose
The ME How-To-Guide for Archiving is intended to provide sufficient information to enable the user to easily utilize the SAP ME Archiving feature, making use of available best practices.

1.2 Scope
This information covers all aspects of the SAP ME Archiving feature. It does not cover in detail the use of the ODS database ODS tables for holding detail and summary history data removed from the WIP database. For more information regarding the ODS tables, see the SAP ME How-To-Guide – ODS Setup.

The ODS database contains ODS tables (used primarily for external reporting), Audit Log tables (used for logging and viewing changes made to the SAP ME master data) and the Archive tables (used to hold information regarding SFCs removed from the WIP database). This How-To-Guide is focused primarily on the use of the Archive tables.

1.3 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archive tables</td>
<td>The tables in the ODS database that hold data, related to specific SFCs and shop orders, that has been removed from the WIP database</td>
</tr>
<tr>
<td>Audit Log tables</td>
<td>The tables in the ODS database that hold the history of changes to the ME master data made via maintenance activities</td>
</tr>
<tr>
<td>ODS</td>
<td>Operational Data Store</td>
</tr>
<tr>
<td>ODS database</td>
<td>The ME database that consists of Audit Log tables, ODS tables and Archive tables</td>
</tr>
<tr>
<td>ODS tables</td>
<td>The ME operational data store tables that hold production history details and summary history data for reporting and query purposes</td>
</tr>
<tr>
<td>WIP</td>
<td>Work In Process</td>
</tr>
<tr>
<td>WIP database</td>
<td>The ME transactional database that holds all of the current data regarding the manufacturing execution objects and processes and the ME system status</td>
</tr>
</tbody>
</table>
2 Archiving Overview

This overview will provide a high level description of the configuration and use of the SAP ME Archiving feature.

2.1 Description and Applicability

The ODS Archiving tables provide storage for ME SFC and shop order related data no longer needed for production processing but needed to meet retention requirements or to meet reporting needs. These tables contain data for SFCs, shop orders and related objects managed by ME.

During real-time transactions, SAP ME stores data in the WIP (Work In Process) database tables. These tables are designed and indexed to optimize data management for the real time functions of SAP ME. Production data can be periodically transferred to the ODS tables and summarized in the ODS summary tables. These tables are designed and indexed to optimize their use in the creation and running of reports. WIP data modified via the ME maintenance activities can be stored in the Audit Log tables of the ODS database. The ME Archive function stores SFC related data in the Archive tables of the ODS database.

The following figure illustrates the high level data landscape for ME.

- Data can be periodically deleted from WIP tables via ODS scripts. This is only for WIP tables that contain data that does not get archived to the Archive tables and that have corresponding ODS tables. Data in the ODS tables can be periodically deleted via ODS scripts.

- The Archiving feature moves records about a unique completed product (represented by an SFC number) or about a shop order from the active work in process (WIP) database to archive tables in the ODS database. Over a period of time, the number of records in the WIP database becomes large. When the system has to search through a very large number of records, it slows down the retrieval process. Archiving records, which are no longer needed for production activities, can improve the retrieval speed of other production records. Archiving moves SFC and/or shop order related data from the WIP database to the ODS database Archive tables.

Setting up archiving is an important step that should be addressed during initial ME system setup.
2.2 Business Purposes / Functions
The Archive tables and scripts are for the purpose of providing access to data for SFCs and shop orders that are no longer needed in the production WIP database, but that are still needed to meet data retention requirements or reporting needs.

The SAP ME Archiving feature provides the following functions:
- Manually Archive SFCs or shop orders
- Automatically Archive SFCs and shop orders
- Restore (un-archive) SFCs or shop orders

In addition to the SFC objects and related data, ME will archive the following types of related ME objects:
- Closed engineering change order
- Shop order when the last SFC in the shop order is archived (automatic archiving only)
- Container when the last SFC of the container is archived
- SFC BOM when the last SFC using the BOM is archived
- Shop order BOM when the last SFC in the shop order is archived

Archiving can be applied to SFCs and shop orders with the following statuses:
- Done
- Closed
- Scrapped
- Deleted
- Invalid

During the archiving of an SFC or shop order, the system will process the child records in a batch update for each archive table, to reduce the amount of time taken for archiving. The system limits the number of records that can be batched together via the `archive.children.update.batch.size` setting in the System Setup (SS500) activity.

2.3 High-Level Process Flows
This figure illustrates the primary flow of the Archiving process.

2.4 Best Practices
We recommend that archiving be run during a non-production time, if practical. This will eliminate the potential for system performance impacts during archiving.
3 Archiving Functions

3.1 Manually Archive SFC or Shop Order

The Archive (DM530) activity handles both manual archiving and restoring of SFCs and shop orders. This section of the document covers only archiving.

3.1.1 Description and Applicability

Only one SFC or shop order can be selected at a time to be manually archived. To manually archive an SFC or a shop order:

1. Select which type of object you want to archive (SFC or shop order)
2. Enter or browse and select the specific SFC or shop order
3. Select OK

The selected SFC or shop order must have one of the following status values:
- Done
- Closed
- Scrapped
- Deleted
- Invalid

If a shop order is being archived, all SFCs for that shop order will be archived as well. The following types of information and related ME objects, for the SFCs and shop order, will also be archived:

- Activity Log entries
- Attachment records
- Component Time Log entries
- Container information
- Container instance (if the last SFC in the container is being archived)
- Data Collection information
- Document links
- Earned Standards information
- Engineering Change Order (ECO) information
- Engineering Change Order (if ECO is closed)
- Hold Log entries
- Incident numbers
- Inventory Log entries and information
- Nonconformance information
- Parametric (Data Collection) data
- Production Comments
- Resource Time Log entries
- Router information
- Sample plan information
- Sampling group information
- SFC assembly information
- SFC BOM (if the last SFC using the BOM is being archived)
- SFC Data
- SFC History
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- SFC Router (if the last SFC using the Router is being archived)
- Shop Order BOM (only if the shop order is being archived)
- Shop Order inspection information (only if the shop order is being archived)
- Shop Order Router (only if the shop order is being archived)
- Shop Order Subassembly information (only if the shop order is being archived)
- Tool Log entries
- Transfer data
- Time Sensitive Material information
- Work Instruction Log entries

Once the archive process has completed a success message will be displayed in the POD.

3.1.2 Potential Problems
The following are problems that can occur during manual archiving.

3.1.2.1 Archive GUI Timeout
The manual archive process will time out if it has not completed within the number of minutes specified in the archive.GUI.timeout system setting property, found in the System Setup (SS100) activity.

3.2 Automatically Archive SFCs and Shop Orders

3.2.1 Description and Applicability
Automatic archiving will archive all SFCs which meet the following criteria:
- For the SFC, either the number of days specified in the Days Before Archiving SFC/SO system rule have elapsed or the Archive SFCs When Shop Order Is Closed or Done system rule is True and the status of the owning shop order is Closed or Done.
- The status of the SFC is one of the following:
  - Done
  - Closed
  - Scrapped
  - Deleted
  - Invalid
- For an SFC that is a component (and the Archive Component When Parent Archived system rule is True), the parent SFC is being archived

Automatic archiving will archive all shop orders which meet the following criteria:
- For the shop order, the number of days specified in the Days Before Archiving SFC/SO system rule have elapsed
- The status of the shop order is one of the following:
  - Done
  - Closed
  - Scrapped
  - Deleted
  - Invalid
- The last SFC left in WIP, for the shop order, has been, or is being, archived.
All of the above rules are found in the System Rule Maintenance (SY100) activity. The following types of information and related ME objects, for the SFCs and shop orders, will also be archived:

- Activity Log entries
- Attachment records
- Container information
- Container instance (if the last SFC in the container is being archived)
- Data Collection information
- Document links
- Earned Standards information
- Engineering Change Order (ECO) information
- Engineering Change Order (if ECO is closed)
- Hold Log entries
- Incident numbers
- Inventory Log entries and information
- Nonconformance information
- Parametric (Data Collection) data
- Production Comments
- Router information
- Sample plan information
- Sampling group information
- SFC assembly information
- SFC BOM (if the last SFC using the BOM is being archived)
- SFC Data
- SFC History
- SFC Router (if the last SFC using the Router is being archived)
- Shop Order BOM (only if the shop order is being archived)
- Shop Order inspection information (only if the shop order is being archived)
- Shop Order Router (only if the shop order is being archived)
- Shop Order Subassembly information (only if the shop order is being archived)
- Tool Log entries
- Transfer data
- Time Sensitive Material information
- Work Instruction Log entries

3.2.2 Guidelines for Scheduling Archiving

Automatic archiving should be scheduled for non-production times if practical. This will eliminate the possibility of the archiving process causing any performance issues for the ME production usage.

Automatic archiving should be scheduled based upon the following factors:

- Rate at which new SFCs and shop orders are created and processed
- The availability of non-production time for running archiving

3.2.3 Potential Problems

The following are problems that can occur during automatic archiving.
3.2.3.1 Archive Timeout
The automatic archiving process will timeout if it takes longer than the number of minutes specified in the archive_timeout system setup parameter. This parameter can be changed in the System Setup (SS100) activity.

3.3 Restore (Un-archive) SFCs or Shop Orders
The Archive (DM530) activity handles both manual archiving and restoring of SFCs and shop orders. This section of the document covers only restoring (un-archiving).

3.3.1 Description and Applicability
Only one SFC or shop order can be selected at a time to be manually restored. To manually restore an SFC or a shop order:
1. Select which type of object you want to restore (SFC or shop order)
2. Enter or browse and select the specific SFC or shop order
3. Select OK

Only SFCs and shop orders which are currently stored in the ODS database Archive tables can be restored. If a shop order is selected to be restored, only that shop order will be restored. If an SFC is selected to be restored, the SFC (and the owning shop order, if archived) will be restored.

NOTE: If only some SFCs for a shop are restored, some ME reports will not display the correct totals. The Shop Order Step report will not display totals. Some other shop order reports that add up values from the SFC table will be wrong if all of the SFCs for the shop order are not in WIP.

The types of information and related ME objects, for the SFCs and shop order which will be restored, are the ones listed in section 3.1.1.

3.3.2 Best Practices
We recommend that, after you restore a shop order, you use Shop Order Maintenance to change its status from Done to another status to ensure the system does not archive the shop order again the next time that the automatic archive utility runs.

3.4 Running Archiving Following Long Period without Archiving
If you are going to run archiving for the first time following a long period during which archiving has not been run, the following steps should be followed:
1. Set the Days Before Archiving system rule to the number of days since archiving was last run minus a small number of days
2. Run archiving
3. Reduce the value in the Days Before Archiving system rule by a small number of days
4. Run archiving
5. Repeat steps 3 and 4 until you have archived all of the data that needs to be archived at this time
6. Schedule archiving to run periodically as needed, as described in Automatically Archive SFCs and Shop Orders
5 Archiving Setup

5.1 Archiving Setup Overview

Automatic archiving setup includes the following tasks / functions:

- Define how long (in days) the closed records must remain in the WIP database before the system archives them (see Days Before Archiving SFC/SO).
- Specify if components should only be archived when the parent assembly is archived (see Archive Component When Parent Archived).
- Specify if the Handle columns in the Archive tables have to be expanded for reporting purposes (see Expand Archive Handles). Since this setting affects performance, the system rule value is false by default.
- Specify how often and when the automatic archive program should run (see Background Process Execution).
- You execute automatic archiving either via the command line or using the defined settings in the Background Processing activity (see Executing Automatic Archiving).

If a large number of SFCs or shop orders need to be archived at one time, or if materials have very large BOMs, you may need to modify one or more of the following system setup parameters:

- archive.children.update.batch.size
- archive.GUI.timeout
- archive.handle.expansion.fetch.size
- archive.handle.expansion.update.batch.size
- archive.timeout

See System Setup Parameters for more information.

5.1.1 Background Process Execution

The Background Processing (SY999) activity can be used to schedule automatic archiving on a periodic basis. This is the recommended approach versus using the manual command line method.
Select the checkbox in the Enabled column to turn on automatic archiving via background process execution. The following table provides information regarding the other settings. Time of day is specified using a 24 hour clock (e.g. 1:00 PM is entered as 13:00)

<table>
<thead>
<tr>
<th>Run Every Setting</th>
<th>After (Or Interval)</th>
<th>Automatic archiving will be started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every x Minutes</td>
<td>Interval in minutes</td>
<td>Every x minutes, starting immediately upon Save</td>
</tr>
<tr>
<td>Hourly</td>
<td>Not used</td>
<td>At the top of the hour (n:00) each hour of each day</td>
</tr>
<tr>
<td>Daily</td>
<td>Start time (24 hour clock)</td>
<td>At the specified time every day</td>
</tr>
<tr>
<td>Weekly - &lt;day&gt;</td>
<td>Start time (24 hour clock)</td>
<td>At the specified time, on the selected day, every week</td>
</tr>
</tbody>
</table>

Select the Save button to initiate automatic archiving.

5.1.2 Executing Automatic Archiving from Command Line
You can also run automatic archiving from an operating system command line. For Windows, open a Command Prompt window on the ME server and run the Archive.bat file (typically found in …\SAP\SAPME\Clients\scripts). For Unix, run the Archive.ksh file.

You can also set up a scheduler to run the archive command line file periodically, at the time interval appropriate for your site.

5.1.3 How Data is Batched
Batching, applying multiple database updates together, is used both for moving SFC and shop order child records from WIP tables to the ODS Archive tables and for expanding the handles in ODS Archive tables. Batching is used to speed up the overall archiving process by reducing the number of separate database transactions required. Applying updates to multiple rows in the same database table in a single transaction requires less time and overhead than performing each update as a separate transaction.

5.1.4 Best Practices
We recommend that archiving be run during a non-production time, if practical. This will eliminate the potential for system performance impacts during archiving.
5.2 External Configuration

5.2.1 Installation
Installation instructions are provided in the SAP ME Installation Guide, which can be downloaded from SAP Service Marketplace. See also the Links to Additional Information and Other Reference Material.

5.2.1.1 Creation and configuration of ODS database
The ODS database should be created and configured at the time that the ME system is installed. Instructions for the creation and configuration of the database are included in the SAP ME Installation Guide (see Other Reference Material).

5.3 Maintenance Activities
The use of Archiving can be configured using the system rules and system setup parameters in the following sections.

5.3.1 System Rules
The following rules are found in the System Rule Maintenance (SY100) activity.

5.3.1.1 Archive Component When Parent Archived
The settings and description for this system rule are specified in the following table. The global value can be overridden at the Site level, which can be overridden at the Material level.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>Automatic archiving only archives components when the parent assembly is archived, instead of when the component's status is Done. Change this setting, in the Material Maintenance (PD060) activity system rules, to override other archiving rules for materials that you want to keep in floor stock.</td>
</tr>
<tr>
<td>False (default)</td>
<td>Automatic archiving archives components when their status is Done. This setting results in fewer records in the WIP database at a given time. By the time components are consumed out of finished goods inventory into a top level assembly, their WIP records may have already been archived.</td>
</tr>
</tbody>
</table>

5.3.1.2 Archive SFCs When Shop Order Is Closed or Done
The settings and description for this system rule are specified in the following table. The global value can be overridden at the Site level.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>Automatic archiving archives SFCs belonging to a shop order as soon as the shop order status changes to Done or Closed. This does not apply if SFCs are set up for immediate archiving (see Days Before Archiving SFC/SO) since they will already be archived.</td>
</tr>
<tr>
<td>False (default)</td>
<td>Automatic archiving archives SFCs based upon the other archiving system rules</td>
</tr>
</tbody>
</table>
5.3.1.3 **Days Before Archiving SFC/SO**
This system rule specifies the number of days that a closed shop order or SFC remains in the WIP database before the system automatically archives it. The default value is 365. Enter 0 to allow shop orders and SFCs to be archived immediately after their status is changed to Closed or Done. The global value can be overridden at the Site level.

5.3.1.4 **Expand Archive Handles**
The ME databases contain foreign key values (handles) like SFCBO that contain values for site and SFC number concatenated together. This system rule controls whether foreign keys like this are exploded into multiple columns (like Site and SFC Number) for easier reporting. The settings and description for this system rule are specified in the following table. The global value can be overridden at the Site level.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>ME stores archived handles in an expanded format for easy reporting</td>
</tr>
<tr>
<td>False (default)</td>
<td>ME stores archived handles in their usual concatenated format</td>
</tr>
</tbody>
</table>

5.3.2 **System Setup Parameters**

5.3.2.1 **archive.children.update.batch.size**
This system setup property is the batch size used for moving child records while archiving. It specifies the maximum number of child records that will be moved from WIP tables to the corresponding ODS Archive tables in a batch update. The default is 100 records.

5.3.2.2 **archive.GUI.timeout**
This system setup property is the timeout value, in minutes, for the manual archiving process. The default is 30 minutes.

5.3.2.3 **archive.handle.expansion.fetch.size**
This system setup property is the fetch size used when retrieving records to expand handle columns in the Archive tables. The default is 50 records.

5.3.2.4 **archive.handle.expansion.update.batch.size**
This system setup property is the batch size used for updating records when expanding the handles into separate columns in the Archive tables. The default is 20 records.

5.3.2.5 **archive.timeout**
This system setup property is the timeout value, in minutes, for the automatic archiving process. The default is 30 minutes.

5.3.2.6 **Best Practices**
We recommend leaving the system setup parameters at their default values unless you find a need to change them.
6 Usage Scenario Examples
Not Applicable

7 Links to Additional Information
SAP Service Marketplace

8 Other Reference Material
Installation Guides SAP ME – The installation guide for your version of ME can be downloaded from the SAP Support Portal > Release & Upgrade Info > Installation & Upgrade Guides > SAP Business Suite Applications > SAP Manufacturing > SAP Manufacturing Execution
SAP ME Help

9 Overview of Changes
Not Applicable