SAP S/4HANA
OnPremise Edition

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English

Technical Job Repository

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1. Purpose of Technical Job Repository

The Technical Job Repository in SAP S/4HANA was initially developed to support automatic (technical) background job scheduling in cloud-based SAP S/4HANA systems. SAP needed a mechanism to run certain recurring (=periodic) background jobs automatically in every S/4HANA system, without the need for external intervention or monitoring. Technical Job Repository is also available in the on-Premise Edition of SAP S/4HANA and serves the same purpose there: to automatically schedule so-called technical background jobs which must be running in order to keep the system "healthy". Examples for such background jobs (from SAP NetWeaver software component) are SAP_REORG_SPOOL, which deletes old spool requests, and SAP_REORG_JOBS, which deletes old background jobs.

This paper intends to give a guideline to system administrators of SAP S/4HANA on-Premise Edition with respect to automatic background job scheduling via Technical Job Repository. It introduces briefly the basic concepts of Technical Job Repository, certain runtime aspects (job scheduling, un-scheduling, monitoring) and finally describes options an administrator has to change/enhance background job scheduling via Technical Job Repository.

2. How to create a Technical Job Definition

Technical Job Repository has a design-time component (used by SAP development) which allows to create so-called Technical Job Definitions (in short: Job Definition or Jobdef) which are basically templates for periodic background jobs. These Job Definitions are created by SAP developers as workbench objects, and are transported via a logical transport object (R3TR JOBD <name of job definition>) to all target systems. Customers can create their own Job Definitions in customer namespace or use the change/enhancement options in the monitoring transaction SJOBREPO.

A Job Definition should exist in the same package as the report which is executed via the background job. It consists of two tabstrips, **Overview** and **Execution Terms**.

Overview

A Job Definition always carries the same name as the related background job which will eventually be created from it in a target system, so the content of field *Background Job Name* is identical to the name of the Job Definition.

On the Overview tab, the report which shall be scheduled and optionally a report variant is defined.

With release SAP_BASIS 7.54 and higher, it is possible for customers to assign report variants to Job Definitions in SJOBREPO.

Some special information is necessary for the contents of field *User Name*:

Almost every Job Definition delivered by SAP contains the value (DEFAULT) in field *User Name*. This is a placeholder for the execution user that the run-time component will use when scheduling the background job.

As default behaviour, Technical Job Repository will use the stepuser which is assigned in transaction SJOBREPO_STEPUSER as batch job step user. Note that customers need to assign a default stepuser with the authorizations necessary for the execution of all Job Definitions in the Technical Job Repository in every client where the Technical Job Repository is active. If no such user exists, the Technical Job Repository will use DDIC as a fallback. In clients where no stepuser has been maintained and where DDIC is locked or does not exist, the Technical Job Repository will not be able to schedule the background jobs.

Note: The stepuser handling is described in detail in the Monitor Help in transaction SJOBREPO.

With releases lower than SAP_BASIS 7.51 SP03, there is only the option to create the stepuser manually in SU01 and assign it to the current client via report R_JR_UTIL_1. The relevant SAP Note is 2339022.

With release SAP_BASIS 7.56 and higher, it is possible to locally assign different stepusers for single Job Definitions in transaction SJOBREPO in addition to the default stepuser for all other Job Definitions.

Execution Terms

Run job in

There are two types of clients in which the background jobs can be scheduled: Administration Client (= 000) and Business Client (= all other clients). Programs which perform cross-client tasks usually run only in Administration client, whereas programs which work exclusively on (application or customizing) data defined in the current client, run only in Business client.

Some Job Definitions are designed to run in every client, for example some of the SAP_WORKFLOW* Job Definitions.

Application attributes

Job is scope dependent: A job for to a scope dependent Job Definition will only be scheduled if an entry in table STJR_JOBD_SCOPE exists (containing the name of the current Job Definition) in the current client. This entry can be set in IMG (transaction S_YI3_39000188).

As of release SAP_BASIS 7.56, the Job Definition name and the scope state (on/off) must be set in table STJR_JOBD_SCOPE.

In addition, a scope callback class can be defined by the responsible application. This class can define additional conditions which must be fulfilled for the job to be executed, for example a certain number of entries in a specific table must be exceeded.

Recurrence: Job Definitions can be designed as time based or as event based.

3. Runtime of the Technical Job Repository

Technical Job Repository has a runtime component which is automatically active in every SAP S/4HANA system.
The runtime component is responsible for actual scheduling (or unscheduling) of background jobs as mandated by the set of delivered Technical Job Definitions.

The runtime component is triggered by an hourly action which occurs automatically in an SAP S/4HANA system.

To verify that the runtime component of Job Repository is active in your system, you can check transaction SJOBREPO. The Job Repository can be active, switched off entirely or switched off per client. SJOBREPO header text will inform you about the status.

If the Job Repository is switched off, the jobs will be unscheduled automatically. If it is switched on again, the jobs will be scheduled again.

Important:

As a first step, customers need to assign a stepuser to the Job Repository either in transaction SJOBREPO_STEPUSER or via pushbutton *Create Stepuser* (in newer releases *Maintain Stepuser*) from SJOBREPO menu. Note that this user requires authorizations to execute the reports of all Job Definitions! Without stepuser, the Job Repository jobs will not be executed. Follow the instructions in the stepuser maintenance transaction.

4. Monitoring the Technical Job Repository

Transaction SJOBREPO shows the Technical Job Repository status, and all existing Job Definitions together with the Job Definition status and the Job status in the current client.

Technical Job Repository status shown as header text:

"All Jobs are automatically scheduled by Technical Job Repository"

→ Job Repository is active in the current client

"Automatic Job Scheduling is switched off in this system"

→ Job Repository is switched off completely in all clients

"*Automatic Job Scheduling is not active in this client***"**

→ Job Repository is switched off in the current client

"**Autom. Job Scheduling available in client, but user is locked**"

→ Job Repository is active but the stepuser is locked (check transaction SJOBREPO_STEPUSER)

"**Autom. Job Scheduling available in client, but user does not exist**"

→ Job Repository is active but the stepuser no longer exists (check transaction SJOBREPO_STEPUSER). This usually happens when the stepusers is deleted after it has been assigned in SJOBREPO_STEPUSER.

Job Definition status shown in column *JD Status Reason*:

Not Relevant

→ Job shall not be executed in the current client

Not In Scope

→ Job Definition is scope-dependent, but the job is not executed because the scope is not fulfilled

BTC User Error

→ in a few cases, a Job Definition is delivered with an explicit user set in field *User Name* in SE80 instead of (DEFAULT) and the user does not exist in the current client.

Inconsistency

→ Job Definition has a syntax error (check in SE80).

Job Status shown in column *Job Status*:

 - Job exists in SM37 with status 'released' or 'released/suspended'. This does not mean that the job is actually executed!

 - Job does not exist in SM37.

In addition, the list shows all customizing changes, custom variants, targetservers, email notifications, etc... Select button *Monitor Help* to get more information.

With release SAP_BASIS 7.56, there are two additional views on the Job Repository. If you select one Job Definition from the list and choose button *All clients*, you get an overview of the selected Job Definition details in all clients.

If you choose button *All JDs in all Clients*, you get a cross client view of all Job Definitions.

The menu *Goto* provides some additional overview information, for example the runtime statistics of the jobs and the deactivation history. The deactivation history shows in detail when and how the Job Repository has been switched off and on again.

5.   Customizing the Technical Job Repository

Customers have a lot of options to customize the settings delivered with the original job definitions. Some of the customizing changes can also be included in a transport request. The customizing options are all available as pushbuttons in the menu.

Technical Job Repository

Client	Technical Job Definition	JD Status	JD Status Reason	Package	Background Job Name	Job Status
000	/AIF/ODATA_TRANSFER_TECH_JOB	◇	Not Relevant	/AIF/ODATA_INTEGRATION	/AIF/ODATA_TRANSFER_TECH_JOB	◇
000	/AIF/SAP_AIF_AUTO_REPROCESSING	◇	Not Relevant	/AIF/S4HANA	/AIF/SAP_AIF_AUTO_REPROCESSING	◇
000	/AIF/SAP_AIF_DISPATCH	🟩		/AIF/S4_RESTART	/AIF/SAP_AIF_DISPATCH	🟩
000	/BUILD/REORG	🟩		/BUILD/CORE_MODEL	/BUILD/REORG	🟩
000	/BUILD/STARTER	◇	Not Relevant	/BUILD/CORE	/BUILD/STARTER	◇
000	/IWBEP/QUERY_RESULT_LOG_CLEANUP	◇	Not Relevant	/IWBEP/750_COMMON	/IWBEP/QUERY_RESULT_LOG_CLEANUP	◇

You can change the time period of time-based job definitions with button *Customize*.

You can deactivate a Job Definition in the current client or in all clients, you can add targetservers or targetservergroups if you want a job to be executed on a specific targetserver.
You can add custom variants which will overrule the variant defined in the Job Definition.

You can add email notifications for specific jobs.

You can switch off/on the Job Repository in the current client and check for running jobs via button *Active Jobs*.

As of release SAP_BASIS 7.56 you can add different stepusers for single Job Definitions. The jobs will then be executed by this stepuser (called local stepuser in SJOBREPO) instead of the default stepuser maintained for the Job Repository.

The customizing options are all explained in detail in the Monitor Help and in the F1 Help texts.