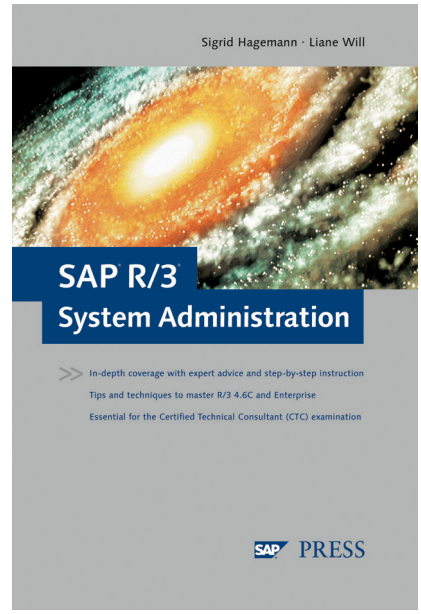
Sigrid Hagemann, Liane Will

# SAP® R/3® System Administration

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# Foreword to the series of books

At SAP, our first priority is to ensure that the SAP software solutions in your enterprise run successfully and at a minimal cost. This "Lowest Cost of Ownership" is achieved with fast and efficient implementation, together with optimal and dependable operation. SAP Active Global Support is actively and consistently there to help you, with the new SAP Solution Management strategy. Throughout the entire lifecycle of a solution, SAP offers customers all necessary services, first-class support, a suitable infrastructure, and the relevant know-how. The new strategy is backed up by three powerful support programs: *Safeguarding*, or, in other words, risk management; *Solution Management Optimization*, which aims to optimize the customer's IT solution; and *Empowering*, which ensures a targeted, effective transfer of knowledge from SAP to the customer.

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Whether you are new to SAP system management or wish to gain further qualifications, you will benefit from the wealth of practical experience and firsthand information contained in these books. With this line of books, SAP also endeavors to help prepare you for qualification as a "Certified Technical Consultant". Please note, however: These books cannot replace, nor do they attempt to replace, personal experience gained from working with the various SAP solutions! Rather, the authors offer suggestions to help in your day-to-day work with the software. Innovation in SAP solutions always brings with it new challenges and solutions for system management. The demands made on the customer's own or external support organizations also increase. The expertise and knowledge of these organizations can be a great help in avoiding problems when using the software. Therefore, one of the core tasks of this series of books is to teach problem-solving skills.

Even in this Internet age, books prove to be an ideal medium for imparting knowledge in a compact form. Furthermore, their content complements the new service and support platform, the SAP Solution Manager, and other new services offered by SAP. The series provides background knowl-

edge on the operation and functioning of new SAP solutions and contributes to customer satisfaction.

**Gerhard Oswald**
Member of the executive board of SAP AG

**Dr. Uwe Hommel**
Senior Vice President at SAP AG
SAP Active Global Support

Rot, October 2003

# Foreword

Almost exactly three years have passed since the first edition of Liane Will's book on R/3 administration, which has become something of a classic. That's a long time in the world of information technology. This book builds on the structure of its predecessor; however, it is more than just a new edition, because of its numerous new developments and enhancements.

If you're an SAP R/3 system administrator who has already traveled on the evolutionary path of Basis administration from SAP R/3 4.0 to the EnjoySAP changes in SAP R/3 4.5, you'll notice that SAP R/3 4.6C has significantly enhanced many approaches-in the Transport Management System and in monitoring, for example. Nevertheless, the design of Basis systems 4.6C and 6.x (SAP Web Application Server) does not essentially differ regarding classic administrative topics, which make up the contents of this book.

If you still want to pursue the topic of Basis administration unencumbered, I'd be pleased if this book helps you to become familiar with this truly complex area and sail around some critical crags.

All the specifications, statements, menu paths, and screenshots in this book are based on SAP R/3 4.6C and SAP Web Application Server 6.20 and 6.30. Unfortunately, I cannot guarantee that what you see in this book won't appear differently in later releases. Therefore, I ask that you factor this into your work. This book would not exist without the support of Roland Mayr, who spent endless hours proofreading it, and contributed many valuable tips from his experience in the administration of complex landscapes, and Karen Hagemann, whose illustrations clarify contexts and backgrounds. Of course, I also wish to thank Liane Will and Florian Zimniak for nudging me forward and for their patience. In addition, I want to mention Günter Lemoine for the translation, and Nancy Etscovitz for editing the book in English.

**Sigrid Hagemann**
SAP Systems Integration AG

Alsbach-Hähnlein, October 2003

# 9 Background Processing

*In addition to dialog mode processing, the R/3 system can also process jobs in the background. This is particularly relevant for long-running programs that do not require any interactive input. This chapter focuses on the management of background jobs. You will learn how to schedule background jobs by time and by event, and how to analyze the flow traces.*

## 9.1 Concepts

**Background processing**

Generally, all programs that don't require explicit user dialog processing can also run in the background. Background processing is most useful when the program you're running is long and resource-intensive, and should therefore run at a time when the system load is low. Online execution would tie up a dialog process for the entire run, thereby indirectly hindering other dialog users.

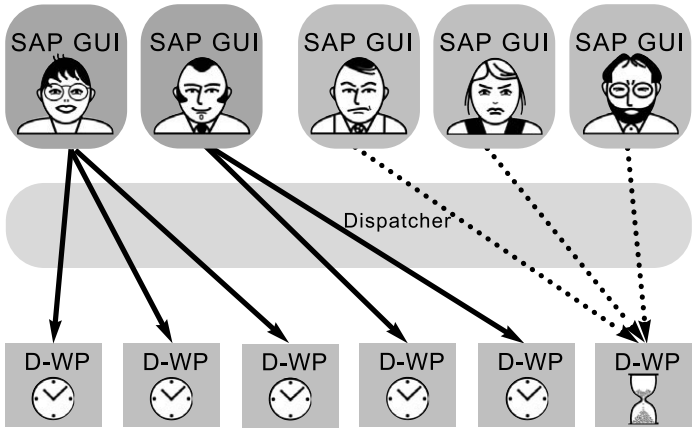


**Figure 9.1** Long-Running Task in Dialog Mode

To prevent users from executing long-running reports interactively (see Figure 9.1), the dialog steps have a runtime limit. This limit is set to 600 seconds by default. Processing is terminated after this period. You can set this limit in the system profile (parameter *rdisp/max_wprun_time*). Background processing has no limits of this type.

Automating periodically required routine tasks is another obvious use for background processing. The R/3 system provides the background service with its background work processes (or simply *background processes*) for

background processing. In contrast to dialog processing, in which the dispatcher assigns each logical unit of work (LUW, see Chapter 1) to the next available dialog process, background processing consists of a fixed connection with one background process during the entire execution. The system administrator or user schedules the start time for the background job. You can choose between time control and event control.

**Time-controlled job scheduler**

In the time-controlled approach, you define a start time when you schedule a job. Each instance of the R/3 system that is configured for background work processes has an active *time-controlled job scheduler*, which checks in defined intervals whether any background jobs are waiting for processing. The descriptions of pending jobs are stored in central tables in the database. This scheduler is an ABAP program that is interpreted and processed within a selected dialog process, which is selected automatically during R/3 system startup. The interval after which the time-controlled job scheduler becomes active is set to 60 seconds by default. The administrator can change this interval to any value in the instance profile by using the parameter *rdisp/btctime*. The time interval between two job scheduler runs can result in delays when starting jobs. Therefore, if these delays are too long for your needs, you can reduce the duration of the interval. Accordingly, if a possible delay is immaterial for starting a job, you can increase the interval. Please note, however, that reducing the run frequency of the time-controlled job schedule has a nearly negligible effect on the system load.

**Event-controlled job scheduler**

In contrast to the time-controlled job scheduler, the *event-controlled job scheduler* reacts to events. It starts the appropriate background job in response to a specific event. The event-controlled job scheduler is also processed by a dialog work process. You define the instance to use with parameter *rdisp/btcname* = <*server_name*> in the standard profile of the R/3 system (*DEFAULT.PFL*).

**System events**

You first have to define the *events* that you want the R/3 system to respond to. Many kinds of events are already defined in the standard R/3 system. You can display an overview in ▶ **Event Maintenance**. The events that are included in the standard system are also called *system events*. System events are frequently used for internal R/3 control; however, they are also available for use by R/3 users.

**User events**

In addition, users can use the same menu path to define their own new events—the *user events*. Initially, the event definition is nothing more than an entry in a table.

There are several different ways in which you can trigger an event: **Triggers**

- Manually for test purposes, with ▶**Trigger Event**
- Using function module BP_EVENT_RAISE from an ABAP program within the R/3 system
- With the external program sapevt

The **sapevt** program allows you to trigger an event in the R/3 system from within an external program. The **sapevt** program is available in the standard SAP directory for executable programs (see Chapter 1). You can use it as follows: **sapevt**

```
sapevt <EventID> [-p <parameter>] [-t]
pf=<profile>|name=<R/3_System_name> nr=<R/3_System_num-
ber>
```

The `-t` option causes the system to write a log file, *dev_evt*, in the **sapevt call directory**. You can use the `-p` option to pass on a parameter that specifies an R/3 module (such as FI). This makes it easier to assign the events to the work areas. This assignment is merely of a descriptive nature and has no other function

Example: The following call:

```
sapevt SAP_TRIGGER_RDDIMPDP name=Q01 nr=00
```

triggers event SAP_TRIGGER_RDDIMPDP in R/3 system Q01.

Event control is used within the R/3 system to transport objects between R/3 systems, for example. Transports performed with **tp**, the transport control program, are executed in several phases. In addition to the actual data import, the individual objects often have to be generated or activated. Accordingly, the **tp** program triggers event SAP_TRIGGER_RDDIMPDP once the data import is complete. In an R/3 system, the scheduling of job RDDIMPDP is always dependent on this event. When event SAP_TRIGGER_RDDIMPDP occurs, job RDDIMPDP is executed automatically in the background.

This technique affords you a lot of flexibility. You can't always predict when actions will be completed, and this makes it almost impossible to create dependencies between background jobs. Event control gives you entirely new perspectives to consider.

## 9.2 Definition of Background Jobs

To configure background jobs, use ▶**Job Definition** (see Figure 9.2).

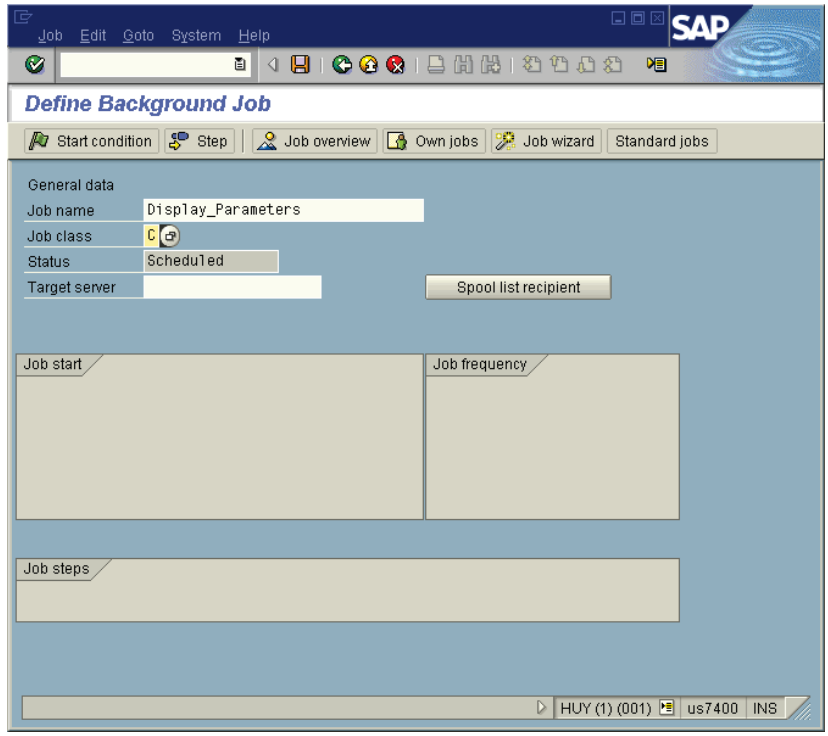


**Figure 9.2** Initial Screen: Job Definition

Frequently, the scheduling of background jobs is integrated directly into the applications—to copy clients, for example, or in the user master comparison. The appearance of the screens can differ, and certain job attributes may be preassigned, depending on the application in use. The basic features and background processing options described in this chapter remain applicable, however, and can also be applied to these special cases.

The definition of background jobs consists of the following three primary attributes:

- General information, such as the job name, job class, and target server
- Information about the start time or assignment of a triggering event
- List of the processing steps

### 9.2.1 General Information

The general information is the first step in defining any background job (see Figure 9.2). You should choose as descriptive a job name as possible, as this name will be used in all logs and overviews that you will have to analyze later. From a technical standpoint, the job name is negligible; it does not have to be unique.

Job class

The priority for executing a job is initially determined from the assignment of that job to a *job class*. The following job classes are defined:

- **A — Highest priority**
  Time-critical jobs that ensure the functionality of R/3
- **B — Medium priority**
  Periodic jobs that ensure the functionality of R/3
- **C — Normal priority**
  Job class C is the usual job class for R/3users

System resources are assigned based on the job class. If many class C jobs are often being processed, which means jobs with classes A and B have to wait for background processes to become available, the system administrator can specify *n* number of background processes to reserve for class A jobs in ▶**Operation Mode Maintenance**. This configuration ensures that *n* background processes are always available for executing class A jobs. Jobs with class B and C have to wait until at least *n+1* processes are available. This configuration is described in Section 14.2 on operation mode maintenance.

Target server

In a distributed R/3 system, you can assign the execution of a job to any R/3 instance with the background service. This R/3 instance is called the *target server* in the background processing context. If you do not explicitly specify a target server, the next available background process at execution time is selected.

The following priorities are defined for processing a request on a defined background server:

1. Job class A, target server is specified
2. Job class A, no target server is specified
3. Job class B, target server is specified
4. Job class B, no target server is specified
5. Job class C, target server is specified
6. Job class C, no target server is specified

If the pending jobs have equal priority according to the above criteria, the waiting time is used.

If a target server is specified, this value is binding. If a target server is not available when the job is started, no background process of another instance will take over the processing. The job remains in the queue until the defined target server starts working again, or processing is explicitly moved to another server.

The output generated by an ABAP program is saved as a spool request in the SAP spool system. You can use **Spool list recipient** to send the output to a user. This technique makes it possible for several people to administer a background job and analyze its results, for example. Because the output can be quite large, we recommend that you use this option with caution. For performance reasons, the length of an output list sent in SAPoffice is restricted to 1,000 lines. You specify the information for the print parameters themselves in the step definition (see Section 9.2.3).

### 9.2.2 Start Time

In the next step, you have to select the parameters to determine the start time. To do so, choose a **Start** condition from the initial screen for the job definition. You can specify the start date as being time- or event-controlled (see Figure 9.3). The time information and time zone used are based on the system time. In addition to specifying the start time directly, time-controlled job scheduling also enables you to schedule jobs periodically—for example, for regular analyses or the maintenance jobs described in Section 9.6. You can choose any repeat interval: a number of minutes, hourly, daily, weekly, and so on. You can use the **Restrictions** button to define exceptions from the usual period, for example, to consider legal holidays in the valid factory calendar. When time-sensitive jobs are involved, you can define the latest possible time for starting the job (**No start after**).

Instead of defining a time control, you can also specify a defined event as a trigger. In particular, operation mode changes (see Chapter 14) and the end of a job are defined as events, which means a background job can also be started as a follow-on job. You can use the **Start status-dependent** option to make the job start, given the successful completion of the previous job. If the previous job terminates, the dependent follow-on job is also set to status *cancelled* and is not executed.

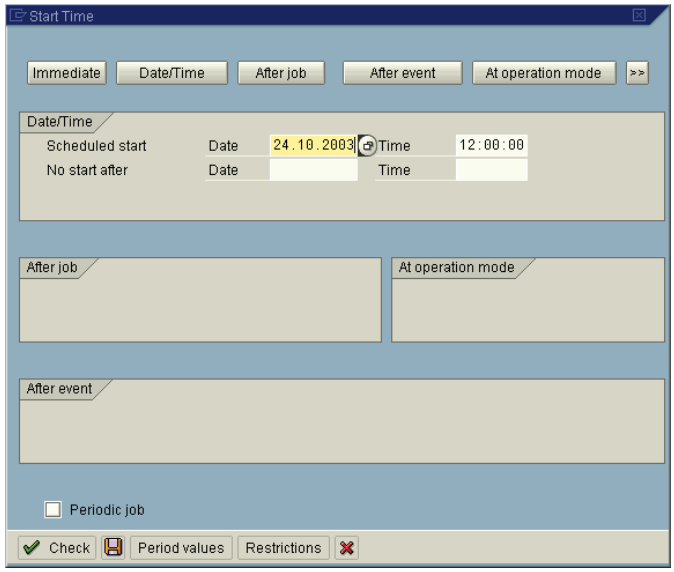


**Figure 9.3** Start Dates for Scheduling Background Jobs

If jobs with start date *After job*, *After event,* or *At operation mode* cannot be started, because no background processes are available when the expected event occurs, they are noted to start immediately, and are then also started by the time-controlled job scheduler as soon as possible.

### 9.2.3 Processing Steps

To complete the definition of a background job, describe the processing steps that comprise the job. A *processing step* is defined as the execution of an independent program, such as an ABAP program or an external program. A background job consists of one or more such processing steps. To define the steps, choose the **Step** function in the job definition transaction (see Figure 9.2). Each processing step can be executed by a user different than the scheduler. The authorization checks are always performed based on the assigned users. This enables you to implement scenarios in which one group of users is responsible (and authorized) for job scheduling, while another group of users is responsible for job analysis. Using explicitly assigned users can also simplify the subsequent analysis of background job results, because the generated lists can be clearly assigned to those users. You can define the background users, which were described in Chapter 8, for this specific purpose.

Steps can be formed from ABAP programs, external commands, or external programs (see Figure 9.4).

**ABAP program**

As mentioned above, all dialog-free ABAP programs can also be executed in the background. To do so, choose the **ABAP program** function (see Figure 9.4). Enter the name of the ABAP program to execute and, if necessary, a language for generating any log that is created. Many ABAP programs are controlled with variables, such as program **RSPFPAR**. This program creates a list of all configured instance parameters. Users can restrict the namespace of the instance parameters to display before execution. To run this type of program in the background, you have to define *variants* for a program. A variant is a fixed set of values for the variables of a program that is saved under a variant name. You define variants in the ▶**ABAP Editor** with **Goto • Variants**. Then, enter the variant name and the required parameter values. Next, you can schedule the defined variant of an ABAP program for background processing. Figure 9.4 shows you the scheduling of ABAP program **RSPFPAR**, for which variant "ALL" has been defined to create a list of all current instance parameters. Generate the list in English. You can configure the print output of the list with the **Print specifications** button.

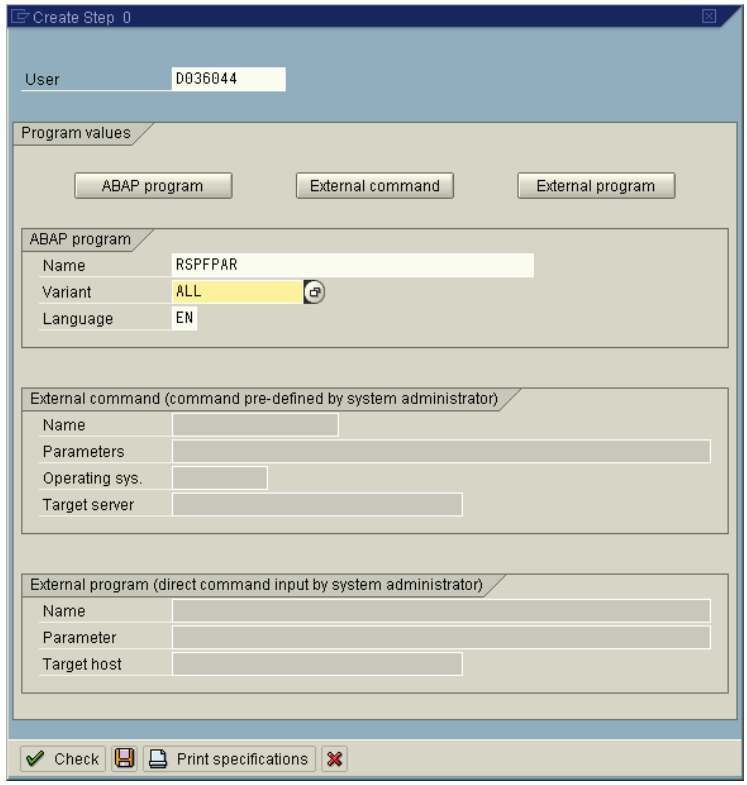


**Figure 9.4** Step Definition

**External programs**

R/3 users with administrator authorization can select **External Program** to run any programs at operating-system level from within the R/3 system. The name of the target server is required; parameters are optional. Routine **SAPXPG** is started on the target server to execute the program, and communicates via RFC with the calling R/3 system, using the ID of special R/3 user **SAPCPIC** (see Chapter 8).

**External commands**

To use the internal R/3 authorization mechanism, but still enable external programs to run in a limited manner, *external commands* are preconfigured to be extendable. An external command consists of a name and an assigned external program, along with possible parameter values that can vary depending on the operating system. Before external commands can be used in background processing, you have to define them first with ▶**Create External Operating System Commands** (see Figure 9.5).

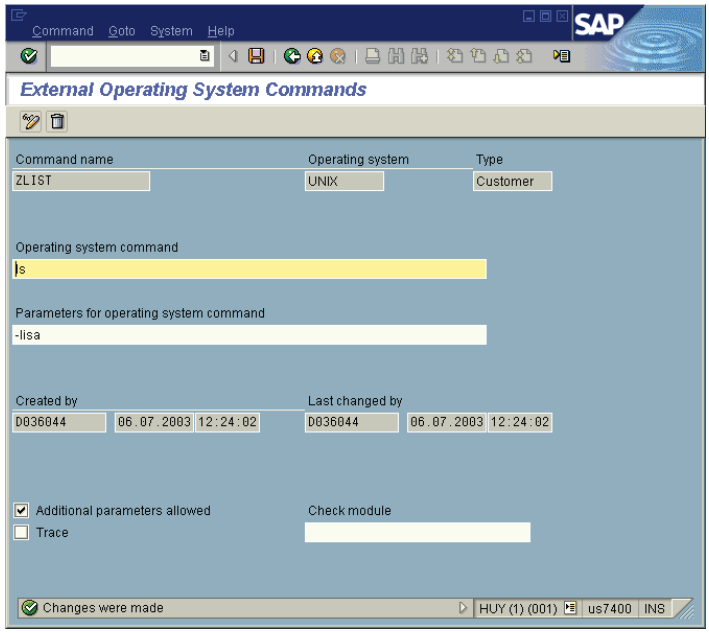


**Figure 9.5** Creating an External Command

The standard R/3 system already contains many external commands. System administrators can define any other command in the customer namespace. Figure 9.5 illustrates this for a `ZLIST` command, which is defined for UNIX systems as the `ls` command with parameter `-lisa`, to display the contents of the current directory.

You could also create an external command with the same name for the Windows NT system, which would call the corresponding program *dir*.

Commands defined in this manner are not only used for specifying background jobs, but can also be executed from within the Computing Center Management System (CCMS). To do so, start ▶**External Operating System Commands**, select the required command, and then choose **Edit Execute**.

You can define a check module to further restrict the use of an external command for security reasons. The check module runs before the command is started. Depending on the result of the check routine, the command is either executed or not. Routine SPXG_DUMMY_COMMAND_CHECK is a model example in the system, which you can use as a template for your own checks.

When you define a step within a background job, the external command to execute is determined from the name, such as `ZLIST`, and the relevant operating system, such as UNIX. You can allow users to add additional parameters to the predefined ones. You always have to specify the target server, as you do with external programs.

If external commands or external programs are used in the step list of a background job, you can use the **Control flags** option in the step definition to define whether the outputs and error messages from the operating system should be recorded in the job log of the step, and whether synchronous or asynchronous processing is needed, to improve integration.

Once you have entered the general information, start time, and individual steps of the background job, its definition is complete. Save your information when you are through.

**Job Wizard** All of the described entries can also be queried step-by-step using the *Job Wizard*. You can call the Job Wizard directly from the ▶**Job Definition**.

**API** R/3 provides an interface (*Application Programming Interface*, API) that allows users to schedule background jobs from customer programs, in addition to the menu-based method described above.

## 9.3 Analysis

You analyze and monitor the background jobs with ▶**Simple Job Selection** or ▶**Extended job selection**. You can filter jobs by various criteria, including scheduling user, period, job period, event, and status (see Figure 9.6). The selection criteria are restricted by the authorization concept. If you have administrator authorization for background processing, you can display the jobs in all clients in the extended job selection. If not, you can only display the jobs in the logon client.

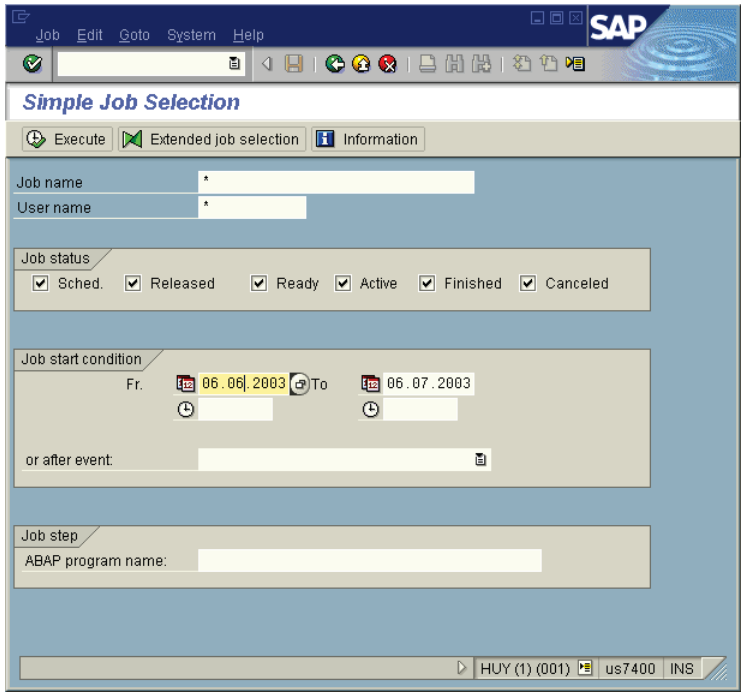


**Figure 9.6** Simple Job Selection

A list of all background jobs that meet the selection criteria is generated (see Figure 9.7).

The status of a job has the following meanings:

- *Sched.*
  The step definitions of the job have been saved; a start time has not been defined yet.
- *Released*
  The job has been scheduled and a start time has been set explicitly, or the job is waiting for an event.
- *Ready*
  The start time has been reached, or the awaited event has occurred; the job is waiting for system resources to start execution.
- *Active*
  The job is currently being processed.
- *Finished*
  The job has been completed successfully.

- *Canceled*
  Processing was terminated due to a problem. The job was not completed successfully.

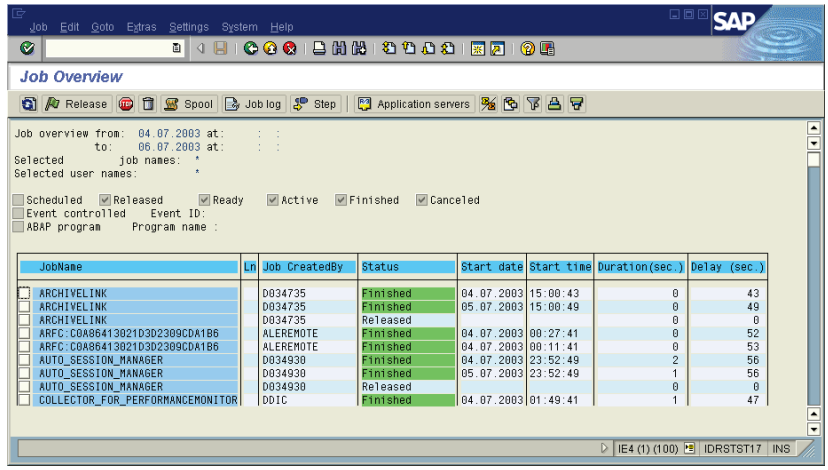


**Figure 9.7** List of Background Jobs

You can double-click on a selected job to display the job log from its execution. In addition to the start and end times, terminated jobs contain valuable information about the termination cause. The job log in Figure 9.8 was created during an attempted data extraction. According to the log, duplicate records in the database caused the termination.

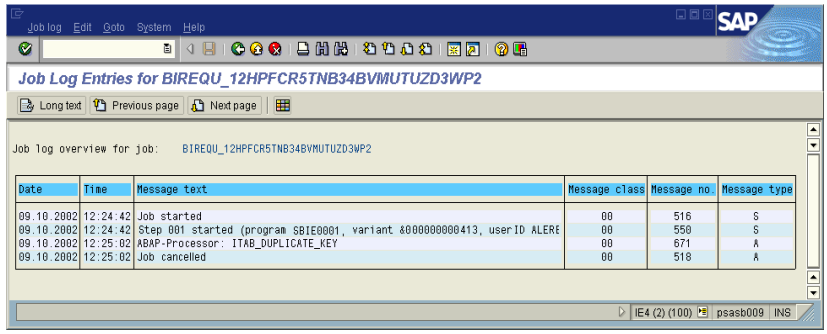


**Figure 9.8** Log of a Termination

The job overview integrates all the major operations used for background jobs. This includes:

- Displaying the scheduling data
- Canceling jobs with *Active* status

- Deleting jobs with status *Sched.*, *Released*, *Finished*, or *Canceled*
- Canceling the release for one or more jobs; the job status changes to *planned*
- Comparing several jobs: you specify the general job information, the step definition, and the start requirements
- Moving to another server
- Interrupting an active job when problems are suspected (long-running tasks): A job that is currently running an ABAP program can be stopped and analyzed with the ABAP debugger. The program continues to run normally when you exit the debugger.
- Checking the status of active jobs (see Section 9.4)
- Copying planned, released, or finished jobs; the new job is set to status *Sched.*

In addition to this list overview, a graphical display is available, which enables you to change and release jobs as well as check active jobs. The graphical monitor is available in the ▶**Job Monitor** (see Figure 9.9). The job status values are displayed in color for faster comprehension.

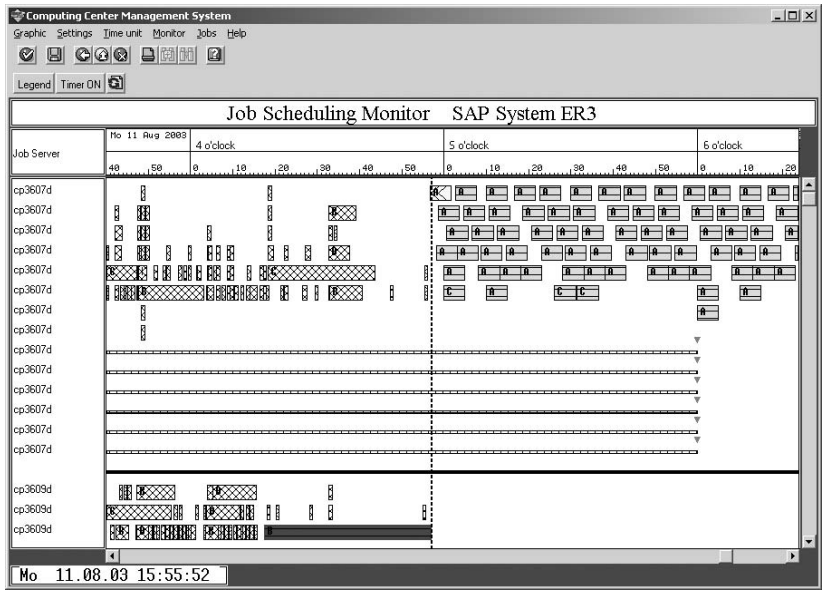


**Figure 9.9** Job Scheduling Monitor

You can also select ▶**Own Jobs** or ▶**Job Definition · Own jobs** to display an overview of your own background jobs.

## 9.4 Analysis Functions

Because a user's problems in background processing—in contrast to dialog processing—are often not even apparent to the users themselves, additional analysis functions are available within the CCMS.

**Runtime analysis**

Up to R/3 Release 4.6B, the ▶**Performance Analysis** function displays a list of all selected background jobs, along with the planned and actual start times and runtimes. Starting in R/3 Release 4.6C, this information is integrated in the ▶**Simple Job Selection.** Large variances between the planned and actual start times indicate a bottleneck in the available background processes, as they indicate that it took a while for a released job to be sent to a background process for processing. If a user can rule out performance bottlenecks during the execution of scheduled background jobs, the administrator should check the resources and increase the number of background processes if necessary (parameter *rdisp/wp_no_btc* in the instance profiles or in profile maintenance; see Chapter 14).

**Zombies**

When you start up an R/3 system, it checks whether jobs with status *ready* or *active* are found, although they are not possible in this situation. Any such jobs that are found are set to status *Sched.* or *canceled*. Such *zombies* can be created when an application server is shut down before the job ends and the status can be updated in the database.

**Status check**

To check whether the displayed status actually agrees with the actual status (or whether an inconsistency exists), you can select the critical jobs in the ▶**Simple Job Selection** and choose **Job status** to find any possible discrepancies. If necessary, you can reset job status to *Sched.* or cancel the jobs themselves.

**Alerts from background processing**

Some background processing parameters have been integrated in the CCMS monitoring architecture. The *Background Processing* monitor provides information about the average load on the background work processes, the server-specific and average length of the wait queue for jobs in *Ready* status (which cannot be started for lack of a background server), and the number of aborted jobs (see Figure 9.10).

**Control object list**

To ensure that the controller in background processing is working properly, use the ▶**Background Control Object Monitor**. This transaction enables you to check important background processing components—such as time-controlled and event-controlled job schedulers, zombie cleanup, start of external programs, and switching operating modes—and analyze them with additional trace outputs.

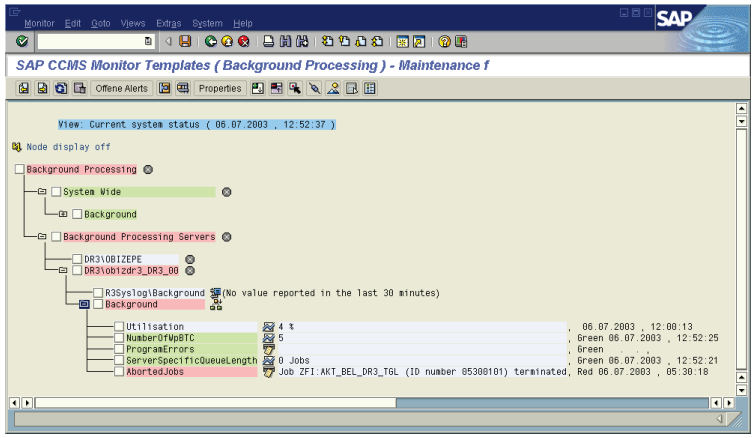


**Figure 9.10** Integration of Background Processing in Alert Monitoring

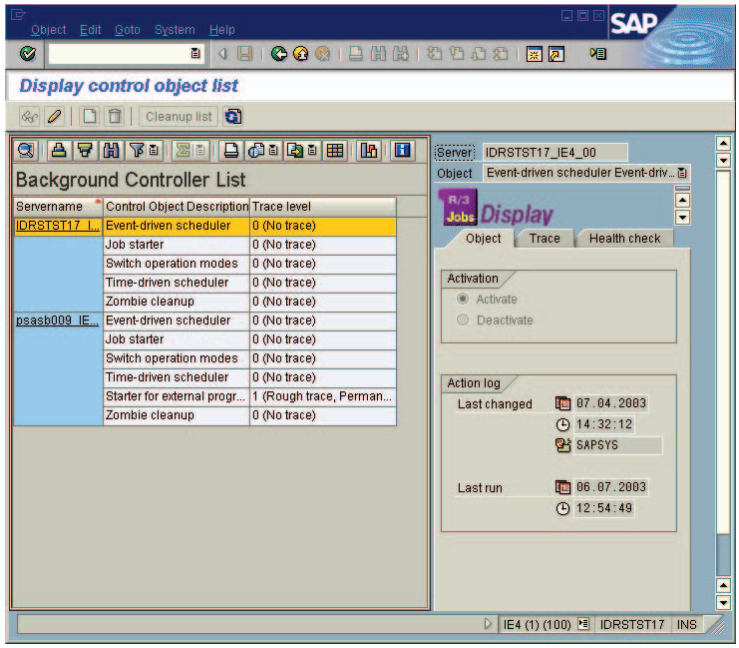


**Figure 9.11** Monitor for Background Control

**Analysis tool for background processing**

You can run a comprehensive analysis of all aspects of background processing with ▶**Analysis of Background Processing**. In particular, this analysis tool enables you to locate and correct inconsistencies in the database

tables for job control. The following listing contains an example of the output from this tool:

**Listing 9.1** Output from the Analysis Tool

```
*******************************************************
*    Analysis tool for background processing
*******************************************************
**   Test: Determine all batch-capable servers
*******************************************************
*    Server name           Host Name
*    psasb009_IE4_00       psasb009
*******************************************************
* Test: Test TemSe functionality
*******************************************************
*    ==> TemSe check ran without errors
*******************************************************
* Test: Check a user's batch authorizations
*******************************************************
*    User to check         = D036044
*    ==> Possesses the following authorizations:
*        Batch administrator    : Yes
*        EarlyWatch: Yes
*        Delete external jobs: Yes
*        Display job logs: Yes
*        Release jobs: Yes
*        Display external jobs: Yes
*******************************************************
* Test: Test environment for starting external programs
*******************************************************
*    ==> User SAPCPIC not defined in client 002
*        External programs cannot be started in
*        this client!
*    ==> User SAPCPIC not defined in client 066
*        External programs cannot be started in
*        this client!
*******************************************************
* Test: Consistency check of database tables
*******************************************************
*    ==> No inconsistencies found!
*    ==> All job contexts are consistent
```

```
************************************************************
* Test: Check profile parameters
************************************************************
* Server = psasb009_IE4_00 , Date = 10/13/2002 ,
* Time = 2:35:46 p.m.
************************************************************
*    rdisp/btctime   = 60
*    rdisp/wp no btc = 6
*    ==> Server is configured correctly for
*        background processing
************************************************************
* Test: Check local host name against message server
************************************************************
* Server = psasb009_IE4_00 , Date = 10/13/2002 ,
* Time = 2:35:46 p.m.
************************************************************
*    Local host name = psasb009
*    ==> Local host name agrees with name on
*        message server
************************************************************
* Test: Determine status of batch work processes
* on a server
************************************************************
* Server = psasb009_IE4_00 , Date = 10/13/2002 ,
* Time = 2:35:46 p.m.
************************************************************
*    ==> Status of batch work processes:
*    WP 1 : waiting
*    WP 2 : waiting
*    WP 3 : waiting
*    WP 4 : waiting
*    WP 5 : waiting
*    WP 6 : waiting
*    Number of reserved class A work processes: 0
************************************************************
* Test: Determine number of requests in batch queue
************************************************************
* Server = psasb009_IE4_00 , Date = 10/13/2002 ,
* Tie = 14:35:46
```

```
*****************************************************
*    ==> Number of requests in batch queue = 0
*****************************************************
```

## 9.5 Authorizations

Authorizations also control which actions a user is allowed to perform in background processing. Table 9.1 lists and describes the most important authorizations in this area. Even without any special authorization, all users are authorized to schedule, cancel, delete, and check the status of their own jobs. Special authorization is required for the following actions:

- Manipulating a job scheduled by a different user
- Displaying the job log
- Displaying a spool request generated by a background job
- Releasing a job for execution
- Using an external command

| Authorization | Description |
|---|---|
| S_BTCH_ADM | Batch administration |
| S_BTCH_JOB | Operations with background jobs, client-dependent<br>Possible values:<br>DELE — Delete other users' jobs<br>LIST — Display other users' spool lists<br>PROT — Display other users' logs<br>RELE — Schedule own jobs and release for execution<br>SHOW — Display other users' job details<br>You can use the "Job Group" field to restrict the authorization to selected job names. |
| S_BTCH_NAM | Use of an explicit background user |
| S_DEVELOP | Interrupt jobs |
| S_LOG_COM | Execute external commands<br>Required parameters:<br>COMMAND — Name of the logical command<br>OPSYSTEM — Operating system<br>HOST — Name of target system |
| S_RZL_ADM | CCMS system administration |
| S_ADMI_FCD | System authorization for special functions |

**Table 9.1** Authorizations for Background Processing

In contrast to dialog mode, no passwords are checked during background processing. The relevant R/3 users merely have to be defined and not locked in the current client.

## 9.6 Maintenance Jobs

The system administrator is responsible for running certain jobs for maintaining the performance and functionality of the R/3 system. These jobs delete unnecessary tables, for example, or collect statistical data for the performance analysis. Table 9.2 lists and describes the most important maintenance jobs. Additional jobs may also be necessary, depending on which applications and proprietary developments you use.

| Recommended Job Name/Description | ABAP | Variant | Interval |
|---|---|---|---|
| SAP_COLLECTOR_FOR_ PERFMONITOR<br>Collects general statistical data for performance analysis in the R/3 system.<br>Cross-client<br>Schedule in client 000 as DDIC. | RSCOLL00 | No | Hourly |
| SAP_COLLECTOR_FOR_ JOBSTATISTIC<br>Collects statistical data to analyze the average runtime of periodically scheduled jobs.<br>Cross-client | RSBPCOLL | No | Daily |
| SAP_REORG_JOBS<br>Deletes all logs of successfully executed jobs. System administrators can use variants to define the number of days to elapse before deleting a log.<br>Cross-client | RSBTCDEL | Yes | Daily |
| SAP_REORG_JOBSTATISTIC<br>Reorganizes the runtime statistics of the background jobs.<br>All objects that are older than the specified date are deleted.<br>Cross-client | RSBPSTDE | Yes | Monthly |

**Table 9.2** Important Maintenance Jobs

| | | | |
|---|---|---|---|
| SAP_REORG_BATCHINPUT<br>Deletes processed batch input sessions and their logs, as well as all logs for which sessions no longer exist.<br>Client-specific | RSBDCREO | Yes | Daily, but only during times where there is no batch input activity |
| SAP_REORG_SPOOL<br>Deletes outdated spool objects.<br>Client-specific | RSPO0041 / RSPO1041 | Yes | Daily |
| No standard name.<br>Deletes spool lists that are relics of terminated background programs.<br>Consistency check of spooler tables<br>Cross-client | RSPO0043 / RSPO1043 | Yes | Daily |
| SAP_REORG_ABAPDUMPS<br>Deletes entries (short dumps) from runtime errors.<br>Cross-client | RSSNAPDL | Yes | Daily |
| SAP_REORG_PRIPARAMS<br>Reorganizes the print parameters.<br>Cross-client | RSBTCPRIDEL | No | Monthly |
| SAP_CCMS_MONI_BATCH_DP<br>System monitoring<br>Client-specific | RSAL_BATCH<br><br>TOOL_DISPATCHING | No | Hourly |
| No standard name.<br>Implements transport requests. | RDDIMPDP | | Event controlled |
| EU_PUT<br>Administration job for updating object lists and navigation indexes.<br>Cross-client | SAPRSLOG | | Daily |
| EU_REORG<br>Administration job for updating object lists after a transport.<br>Cross-client | SAPRSEUT | | Daily |

**Table 9.2** Important Maintenance Jobs (cont.)

For more information on the properties and parameters of these jobs, refer to the documentation of the individual program. You can do so in the ▶**ABAP Editor**. Enter the program name and choose **Documentation • Display**.

In R/3 Release 4.6C and later, you can schedule all of the above jobs individually, or automatically with standard parameters, with ▶**Job Definition • Standard jobs**.

In addition to the Basis-related maintenance jobs, application-specific reorganizations can also improve system performance. One important example is report **SBAL_DELETE**, which deletes the application log.

## 9.7 External Interface

The SAP BC-XBP interface enables you to integrate R/3 background jobs with external job management systems. The following functions are supported:

- Defining jobs
- Changing, editing, and deleting jobs
- Starting jobs
- Terminating active jobs
- Accessing job information (status, log files, and so on)

To display a list of the products certified for this interface, visit the SAP Service Marketplace under alias *background*.

## 9.8 Tips

- **Defining jobs with a target server**
  If you often specify a target server in your job definitions, you must modify the job definitions when your system configuration changes. This is the case, for example, when:
  - You move an application server to other hardware (change of server name)
  - You change the distribution of work processes in the definition of the operation modes
- **Deleting jobs that are no longer current and have status *Sched.***
  When you display the current job queue in the ▶**Simple Job Selection**, the **Job Status: Planned** checkbox is usually not checked, which means the administrator may not notice unnecessary jobs with this status. Another common mistake is to forget the checkbox **Or after event**, which means event-triggered jobs are not displayed.

- **Scheduling jobs under a non-generic user**
  When you schedule periodic jobs that will run over a long period, it makes sense to assign the individual steps to generic background users. This will help you to avoid problems later on if the users who schedule the jobs are deleted.
- **Minimum number of processes**
  You have to configure at least two background work processes for the transport system, even if you do not plan to use background processing actively.
- **Deallocation and rescheduling of all released jobs**
  Report **BTCTRNS1** is used during upgrades in R/3 Release 4.5B and later. It changes the status of all jobs to a status that the job scheduler does not recognize, in order to prevent unwanted starts. After the upgrade, report **BTCTRNS2** is used to change the jobs back to their original status. Of course, you can also use these functions for other purposes.
- **Moving the start times of individual, time-controlled job schedulers**
  If several instances with background processes are used, it may make sense to set parameter *rdisp/btctime* to different values in the instance profiles, in order to achieve better load distribution.
- **Problems with self-planning periodic jobs with a limited start time**
  If you use periodic jobs that schedule themselves again automatically at the end of each run, and you define a time after which such jobs can no longer be started, these jobs may stop running altogether after a long system shutdown. You must monitor these jobs manually.

## 9.9 Transactions and Menu Paths

**ABAP Editor:** SAP Menu • Tools • ABAP Workbench • Development ABAP Editor (SE38)

**Analysis of background processing:** SAP Menu • Tools • CCMS • Jobs • Check Environment (SM65)

**Background control object monitor:** SAP Menu • Tools • CCMS • Jobs • Background Objects (SM61)

**Create external operating system commands:** SAP Menu • Tools • CCMS • Configuration • External Commands (SM69)

**Event maintenance:** SAP Menu • Tools • CCMS • Jobs • Maintain Event (SM62)

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