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**schedulix Server**

## **Command Reference**

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# **Part I**

## **General**



# 1 Introduction

## Introduction

Essentially, this document is divided into three parts. In the BICsuite Scheduling System, there are three types of users (in the broadest sense of the word):

- Users
- Job servers
- Jobs

Each of these users has his own command set at his disposal. These command sets only overlap to a certain extent. For example, for job servers there is the statement **get next job**, which is not valid for either jobs or users. On the other hand, there are forms of the **submit** statement which will only make sense in a job context and which can therefore only be implemented by jobs. Obviously only users are allowed to create objects such as Exit State definitions or job definitions. In contrast, there are also statements such as the **connect** statement which is valid for all types of users.

The structure of this document is oriented to the three types of users. The largest part of this document deals with the user commands, while the two other parts handle job servers and job commands.

For the sake of completeness, the next chapter briefly explains the utility *sdmsh*. This utility is easy to use and is an excellent choice for processing scripts using BICsuite commands.

Since the syntax described here is the only interface to the BICsuite Scheduling Server, all the utilities (and in particular BICsuite!Web) use this web interface.

To simplify the development of proprietary utilities, the server is capable of returning its reactions to statements in various formats. The utility *sdmsh*, for example, uses the **serial** protocol, with which serialised Java objects are transferred. In contrast BICsuite!Web uses the **python** protocol, with which textual representations of Python structures are transferred that can be easily read in using the `eval()` function.

## Syntax diagrams

The syntax diagrams are comprised of different symbols and metasympols. The symbols and metasympols are listed and explained in the table below.

*Syntax diagrams*

| General                             | Introduction  |
|-------------------------------------|---|
| Symbol                              | Meaning   |
| <b>keyword</b>                      | A keyword in the language. These have to be entered as shown. One example is the keyword <b>create</b> .  |
| <i>name</i>                         | A parameter. In many cases, the user can choose a name or a number to be entered here.  |
| NONTERM                             | A non-terminal symbol is represented by small caps. A syntax element that is explained further on in the diagram has to be inserted here.   |
| < <b>all</b>   <b>any</b> >         | This syntax element is an optional choice. One of the syntax elements given in the angle brackets, which can obviously also be non-terminal symbols, has to be selected. In the simplest scenario there are only two choices that can be made here, although frequently there are more. |
| < <u><b>all</b></u>   <b>any</b> >  | This is also an optional choice. Unlike the previous syntax element, the underscore of the first element emphasises that this option is the default choice.   |
| [ <b>or alter</b> ]                 | Optional syntax elements are placed in square brackets.   |
| { <i>statename</i> }                | Syntax elements that are placed in braces are repeated 0 to <i>n</i> times.   |
| JOB.PARAMETER<br>{, JOB.PARAMETER } | Cases where elements occur at least once are far more common and are shown as represented here.   |
|                                     | In lists of possible syntax elements, the single possibilities are separated by a  . Such a list is another way of displaying optional choices. These two different forms of presentation are used for purposes of clarity.   |

Literals

*Literals*      Literals are only required in the language definition for strings, numbers, and dates/times.  
Strings are delimited by single quotes, as in

```
node = 'puma.independit.de'
```

Integers are shown as either unsigned *integer* or signed *signed integer* in the syntax diagrams. A *signed integer* can be prefixed with a + or - sign. Valid unsigned integers lie in the range of numbers between 0 and  $2^{31}-1$ . Signed integers are therefore within the range between  $-2^{31}+1$  and  $2^{31}-1$ . If the syntax diagram contains *id*, an unsigned integer between 0 and  $2^{63}-1$  is expected here.



Much more complicated are dates/times, particularly in statements concerning the time scheduling. These literals are principally shown as strings with a special format. The following syntax is used to comply with the notations based on ISO8601 as given in Table 1.1 :

| <i>String</i> | <i>Meaning</i>     | <i>Range</i> | <i>String</i> | <i>Meaning</i> | <i>Range</i> |
|---------------|--------------------|--------------|---------------|----------------|--------------|
| YYYY          | year               | 1970 .. 9999 | hh            | hour           | 00 .. 23     |
| MM            | month              | 01 .. 12     | mm            | minute         | 00 .. 59     |
| DD            | day (of the month) | 01 .. 31     | ss            | second         | 00 .. 59     |
| ww            | week (of the year) | 01 .. 53     |               |                |              |

- All other strings stand by themselves.
- No differentiation is made between uppercase and lowercase.
- The earliest permissible *point* in time is 1970–01-01T00:00:00 GMT.

Identifier

In the BICsuite Scheduling System, objects are identified by their names. (Strictly speaking, objects can also be identified from their internal ID, which is a number, but this practice is not recommended). Valid names comprise a letter, underscore (.), at sign (@) or hash sign (#) followed by numbers, letters or special characters. Language-specific special characters such as the German umlaut are invalid. Identifiers are treated as being case-insensitive if they are not enclosed in simple quotes. Identifiers enclosed in quotes are case-sensitive. It is therefore not generally recommended to use quotes unless there is a valid reason for doing so. Identifiers that are allowed to be enclosed in single quotes can also contain spaces and several special characters. Again, this practice is not recommended as spaces are normally interpreted as delimiters and therefore errors can easily occur. Spaces aren't allowed at the beginning or end of an identifier. There are a number of keywords in the syntax that cannot be readily used as identifiers. Here it may be practicable to use quotes so that the identifiers are not recognised as keywords. Table 1.2 contains a list of such keywords.

Identifier

There are also a number of synonyms. These are essentially keywords that can be written in more than one way. Only one spelling variation is shown in Table 1.2. The synonyms can be used together arbitrarily. Table 1.3 gives a list of such synonyms.

| Format                          | Example             | Simplified format |
|---------------------------------|---------------------|-------------------|
| YYYY                            | 1990                |                   |
| YYYY–MM                         | 1990–05             | YYYYMM            |
| YYYY–MM–DD                      | 1990–05–02          | YYYYMMDD          |
| YYYY–MM–DDThh                   | 1990–05–02T07       | YYYYMMDDThh       |
| YYYY–MM–DDThh:mm                | 1990–05–02T07:55    | YYYYMMDDThhmm     |
| YYYY–MM–DDThh:mm:ss             | 1990–05–02T07:55:12 | YYYYMMDDThhmmss   |
| –MM                             | –05                 |                   |
| –MM–DD                          | –05–02              | –MMDD             |
| –MM–DDThh                       | –05–02T07           | –MMDDThh          |
| –MM–DDThh:mm                    | –05–02T07:55        | –MMDDThhmm        |
| –MM–DDThh:mm:ss                 | –05–02T07:55:12     | –MMDDThhmmss      |
| --DD                            | --02                |                   |
| --DDThh                         | --02T07             |                   |
| --DDThh:mm                      | --02T07:55          | --DDThhmm         |
| --DDThh:mm:ss                   | --02T07:55:12       | --DDThhmmss       |
| Thh                             | T07                 |                   |
| Thh:mm                          | T07:55              | Thhmm             |
| Thh:mm:ss                       | T07:55:12           | Thhmmss           |
| T–mm                            | T–55                |                   |
| T–mm:ss                         | T–55:12             | T–mmss            |
| T––ss                           | T––12               |                   |
| YYYYY <sub>W</sub> <sub>W</sub> | 1990W18             |                   |
| W <sub>W</sub>                  | W18                 |                   |

Table 1.1: Valid date formats:

As in any language, there are also some reserved words and word combinations. An overview is shown in Table 1.4. A special characteristic of word pairs is that replacing a space with an underscore likewise produces a reserved word. The word **named\_resource** is therefore reserved (but "named#resource" isn't).

## Versions

### Versions

There are three versions of the BICsuite Scheduling System. Since features from later versions are not always present in the earlier versions, the relevant statements or options within the statements are designated accordingly. A letter in the top cor-

ner of the page indicates for which version of the system this statement is available. Deviations from the general statement are shown in the syntax diagram. The symbols have the following meanings:

| Symbol   | Meaning   |
|----------|---|
| <b>B</b> | This symbol indicates a feature in the Basic version and all later versions.                        |
| <b>P</b> | This symbol indicates a feature in the Professional and Enterprise versions and all later versions. |
| <b>E</b> | This symbol indicates a feature in the Enterprise version.  |

|              |              |            |             |             |               |
|--------------|--------------|------------|-------------|-------------|---------------|
| activate     | delay        | group      | milestone   | rawpassword | submitcount   |
| active       | delete       | header     | minute      | read        | submittag     |
| action       | dependency   | history    | mode        | reassure    | submitted     |
| add          | deregister   | hour       | month       | recursive   | sum           |
| after        | dir          | identified | move        | register    | suspend       |
| alter        | disable      | ignore     | multiplier  | rename      | sx            |
| amount       | disconnect   | immediate  | n           | required    | synchronizing |
| and          | distribution | import     | name        | requestable | synctime      |
| avg          | drop         | in         | nicevalue   | rerun       | tag           |
| base         | dump         | inactive   | node        | restartable | test          |
| batch        | duration     | infinite   | noinverse   | restrict    | time          |
| before       | dynamic      | interval   | nomaster    | resume      | timeout       |
| broken       | edit         | inverse    | nomerge     | revoke      | timestamp     |
| by           | embedded     | is         | nonfatal    | rollback    | to            |
| cancel       | enable       | isx        | nosuspend   | run         | touch         |
| cancelled    | endtime      | ix         | notrace     | runnable    | trace         |
| cascade      | environment  | job        | notrunc     | running     | translation   |
| change       | errlog       | kill       | nowarn      | runtime     | tree          |
| check        | error        | killed     | of          | s           | trigger       |
| child        | event        | level      | offline     | sc          | trunc         |
| children     | execute      | liberal    | on          | schedule    | type          |
| childsuspend | expand       | like       | online      | scope       | update        |
| childtag     | expired      | limits     | only        | selection   | unreachable   |
| clear        | factor       | line       | or          | serial      | unresolved    |
| command      | failure      | list       | owner       | server      | usage         |
| comment      | fatal        | local      | parameters  | session     | use           |
| condition    | filter       | lockmode   | password    | set         | user          |
| connect      | final        | logfile    | path        | shutdown    | view          |
| constant     | finish       | loops      | pending     | show        | warn          |
| content      | finished     | map        | performance | sort        | warning       |
| copy         | folder       | maps       | perl        | started     | week          |
| count        | footprint    | mapping    | pid         | starting    | with          |
| create       | for          | master     | pool        | starttime   | workdir       |
| cycle        | force        | master_id  | priority    | static      | x             |
| day          | free_amount  | max        | profile     | status      | xml           |
| default      | from         | min        | protocol    | stop        | year          |
| definition   | get          | merge      | public      | strict      |               |
| defer        | grant        | merged     | python      | submit      |               |

Table 1.2: Keywords that can be used with quotes as identifiers

| Keyword     | Synonym      | Keyword     | Synonym        |
|-------------|--------------|-------------|----------------|
| definition  | definitions  | minute      | minutes        |
| dependency  | dependencies | month       | months         |
| environment | environments | node        | nodes          |
| errlog      | errlogfile   | parameter   | parameters     |
| event       | events       | profile     | profiles       |
| folder      | folders      | resource    | resources      |
| footprint   | footprints   | schedule    | schedules      |
| grant       | grants       | scope       | scopes         |
| group       | groups       | server      | servers        |
| hour        | hours        | session     | sessions       |
| infinite    | infinite     | state       | states, status |
| interval    | intervals    | translation | translations   |
| job         | jobs         | user        | users          |
| mapping     | mappings     | week        | weeks          |
| milestone   | milestones   | year        | years          |

Table 1.3: Keywords and synonyms

|                       |                          |                           |
|-----------------------|--------------------------|---------------------------|
| after final           | exit state translation   | non fatal                 |
| all final             | ext pid                  | requestable amount        |
| backlog handling      | finish child             | resource state            |
| before final          | free amount              | resource state definition |
| begin multicommand    | get next job             | resource state mapping    |
| broken active         | ignore dependency        | resource state profile    |
| broken finished       | immediate local          | resource template         |
| change state          | immediate merge          | resource wait             |
| default mapping       | initial state            | run program               |
| dependency definition | job definition           | rerun program             |
| dependency hierarchy  | job definition hierarchy | scheduled event           |
| dependency mode       | job final                | state profile             |
| dependency wait       | job server               | status mapping            |
| end multicommand      | job state                | suspend limit             |
| error text            | keep final               | submitting user           |
| exec pid              | kill program             | synchronize wait          |
| exit code             | local constant           | to kill                   |
| exit state            | merge mode               | until final               |
| exit state mapping    | merge global             | until finished            |
| exit state definition | merge local              |                           |
| exit state profile    | named resource           |                           |

Table 1.4: Reserved words

General

Introduction

## 2 Utilities

### Starting and stopping the server

#### server-start

##### Introduction

The utility *server-start* is used to start the scheduling server.

*Introduction*

##### Call

The following commands are used to call server-start:

*Call*

**server-start** [ OPTIONS ] *config-file*

OPTIONS:

**-admin**  
| **-protected**

The individual options have the following meanings:

| Option            | Meaning   |
|-------------------|---|
| <b>-admin</b>     | The server starts in Admin mode. This means that user logins are disabled apart from the user <b>SYSTEM</b> .   |
| <b>-protected</b> | Protected mode is similar to Admin mode. The difference here is that the internal threads (TimerThread and SchedulingThread) are not started. This allows administrative tasks to be carried out without concurrent transactions being performed. |

If the server has already been started, the second server either (depending on the configuration) takes over the operation or repeatedly makes an unsuccessful attempt to start.

The server-start utility can be only be used by the user whose ID was used to install the system.

**server-stop****Introduction**

*Introduction*      The *server-stop* utility is used to stop the scheduling server.

**Call**

*Call*      The following command is used to call *server-stop*:

**server-stop**

Initially, an attempt is made to stop the server 'gracefully'. First, all the user connections are terminated to stop all the internal threads.

If this approach fails or it takes too long, the server is stopped using the operating system's mechanisms.

If the server has not been started, the *server-stop* command has no effect.

The *server-stop* utility can be only be used by the user whose ID was used to install the system.

**sdmsh****Introduction**

*Introduction*      The *sdmsh* utility is a small program that enables the user to interactively work with the scheduling server. In contrast to the BICsuite!Web front end, for instance, this working method is text-oriented. This means it is possible to write scripts and execute them using *sdmsh*. The *sdmsh* executable is a small script or batch file that encapsulates the call of the required Java program. Of course, there is no reason why this Java program should not be called manually. It is only there for convenience's sake.

**Call**

*Call*      The following commands are used to call *sdmsh*:

```
sdmsh [ OPTIONS ] [ username [ password [ host [ port ] ] ] ]
```

OPTIONS:

```
    < --host | -h > hostname
|   < --port | -p > portnumber
|   < --user | -u > username
|   < --pass | -w > password
|   < --jid | -j > jobid
|   < --key | -k > jobkey
```



```

| < --[ no ]silent | -[ no ]s >
| < --[ no ]verbose | -[ no ]v >
| < --ini | -ini > inifile
| < --[ no ]tls | -[ no ]tls >
| --[ no ]help
| --info sessioninfo
| -[ no ]S
| --timeout timeout

```

The individual options have the following meanings:

| Option                            | Meaning   |
|-----------------------------------|---|
| < --host   -h > <i>hostname</i>   | BICsuite!Server Host  |
| < --port   -p > <i>portnumber</i> | BICsuite!Server port  |
| < --user   -u > <i>username</i>   | User name (user or jid has to be specified)   |
| < --pass   -w > <i>password</i>   | Password (is used in combination with the option --user)  |
| < --jid   -j > <i>jobid</i>       | Job ID (user or jid has to be specified)  |
| < --key   -k > <i>jobkey</i>      | Job key (is used in combination with the option --jid)  |
| < --[ no ]silent   -[ no ]s >     | (Error) Messages are not returned   |
| < --[ no ]verbose   -[ no ]v >    | [ No ] Commands, feedback and additional messages are returned  |
| < --ini   -ini > <i>inifile</i>   | Use the specified configuration file to set options   |
| < --[ no ]tls   -[ no ]tls >      | Use access via TLS/SSL [ not ]  |
| --[ no ]help                      | Return a help text  |
| --info <i>sessioninfo</i>         | Set the accompanying information as descriptive information about the session                         |
| -[ no ]S                          | Silent option. This option is obsolete and exists for reasons of backward compatibility               |
| --timeout <i>timeout</i>          | The number of seconds after which the server terminates an idle session. The value 0 means no timeout |

*sdmsh* obviously requires information to connect to the correct BICsuite Scheduling System. The necessary data can be specified in the command line or by using an options file. Missing values for the user name and password are queried by *sdmsh*. If values for the host and port are not given, the default values "localhost" and 2506 are used. It is not advisable to specify the password in the command line because this information can frequently be easily read out by other users.

## Options file

*Options file* The options file has the same format as a Java property file. Please refer to the official Java documentation for details of the precise syntax specification.

The following option files play a role:

- `$SDMSCONFIG/sdmshrc`
- `$HOME/.sdmshrc`
- Optionally, a file specified in the command line

The files are valuated in the given order. If options are present in several files, the value in the last valuated file "wins". Options that are specified in the command line take precedence over all the other specifications.

The following keywords are recognised:

| Keyword         | Meaning  |
|-----------------|--|
| <b>User</b>     | The user's name  |
| <b>Password</b> | The user's password  |
| <b>Host</b>     | Name or IP address of the host                             |
| <b>Info</b>     | Additional information for identifying a connection is set |
| <b>Port</b>     | Port number of the scheduling server (default: 2506)       |
| <b>Silent</b>   | (Error) messages are not returned                          |
| <b>Timeout</b>  | Timeout value for the session (0 means no timeout)         |
| <b>TLS</b>      | Use an SSL/TLS connection                                  |
| <b>Verbose</b>  | Commands, feedback and additional messages are returned    |

Since the user's password is shown in plain text in this file, careful consideration needs to be taken when assigning the access privileges for this file. It is, of course, possible to not specify the password and to enter it every time *sdmsh* is started.

Only the following keywords can be used in configuration files:

| Keyword                   | Meaning                              |
|---------------------------|--------------------------------------|
| <b>KeyStore</b>           | Keystore for TLS/SSL communication   |
| <b>TrustStore</b>         | Truststore for TLS/SSL communication |
| <b>KeyStorePassword</b>   | Keystore password                    |
| <b>TrustStorePassword</b> | Truststore password                  |

## Internal commands

Apart from the BICsuite commands described in the following chapters, *sdmsh* also knows a few simple commands of its own. These are briefly described below. Internal commands do not have to be closed with a semicolon.

*Internal  
commands*

**disconnect** The disconnect command is used to exit *sdmsh*. Because different commands are commonly used to exit a tool in different work environments, an attempt was made here to incorporate many varying formulations. The syntax for the disconnect command is:

< **disconnect** | **bye** | **exit** | **quit** >

**EXAMPLE** Here is an example of the disconnect command.

```
ronald@jaguarundi:~$ sdmsh
Connect

CONNECT_TIME : 23 Aug 2007 07:13:30 GMT

Connected

[system@localhost:2506] SDMS> disconnect
ronald@jaguarundi:~$
```

**echo** If *sdmsh* is being used interactively, it is visually evident which command has just been entered. This is not the case in batch mode, i.e. when processing a script. The echo command can be used to enable and disable the rendering of the entered statement. This is enabled by default. The syntax for the echo command is:

**echo** < on | off >

**EXAMPLE** The effect of these two options is shown below. Following the command **echo on**

```
[system@localhost:2506] SDMS> echo on
End of Output

[system@localhost:2506] SDMS> show session;
show session;

Session

      THIS :  *
SESSIONID : 1001
START    : Tue Aug 23 11:47:34 GMT+01:00 2007
USER     : SYSTEM
```

## General

## sdmsh

```

UID : 0
IP : 127.0.0.1
TXID : 136448
IDLE : 0
TIMEOUT : 0
STATEMENT : show session

```

Session shown

```
[system@localhost:2506] SDMS> echo off
```

End of Output

```
[system@localhost:2506] SDMS> show session;
```

Session

```

      THIS : *
SESSIONID : 1001
START : Tue Aug 23 11:47:34 GMT+01:00 2007
USER : SYSTEM
UID : 0
IP : 127.0.0.1
TXID : 136457
IDLE : 0
TIMEOUT : 0
STATEMENT : show session

```

Session shown

```
[system@localhost:2506] SDMS>
```

**help** The help command opens a condensed help text about the internal *sdmsh* commands.

The syntax for the help command is:

### help

EXAMPLE The help command only returns a condensed help text about the syntax for the internal *sdmsh* commands. This is shown in the example below. (The lines have been wrapped for this document and so the actual output may differ to what is written here).

```

[fontsize=\small]
[system@localhost:2506] SDMS> help
Condensed Help Feature
-----
Internal sdmsh Commands:
disconnect|bye|exit|quit      -- leaves the tool
echo on|off                   -- controls whether the statement text is
                                printed or not

```

```

help                                -- gives this output
include '<filespec>'                -- reads sdms(h) commands from the given
                                   file
prompt '<somestring>'              -- sets to prompt to the specified value
                                   %H = hostname, %P = port, %U = user,
                                   %% = %
timing on|off                        -- controls whether the actual time is
                                   printed or not
whenever error
continue|disconnect <integer>      -- specifies the behaviour of the program
                                   in case of an error
!<shellcommand>                    -- executes the specified command. sdmsh
                                   has no intelligence
                                   at all regarding terminal I/O

End of Output
[system@localhost:2506] SDMS>

```

**include** Files can be integrated into BICsuite statements using the include command.

The syntax for the include command is:

**include** '*filespec*'

**EXAMPLE** In the following example, a file only containing the command "show session;" is inserted.

```

[system@localhost:2506] SDMS> include '/tmp/show.sdms'
Session

      THIS :  *
SESSIONID : 1001
START : Tue Aug 23 11:47:34 GMT+01:00 2007
USER : SYSTEM
UID : 0
IP : 127.0.0.1
TXID : 136493
IDLE : 0
TIMEOUT : 0
STATEMENT : show session

Session shown

[system@localhost:2506] SDMS>

```

**prompt** The prompt command can be used to specify an arbitrary prompt. There are a number of variable values that can be inserted automatically by the program. The codes for the individual variables are shown in the table below:

| Code | Meaning                         |
|------|---------------------------------|
| %H   | Hostname des Scheduling Servers |
| %P   | TCP/IP Port                     |
| %U   | Username                        |
| %%   | Percent character (%)           |

The default prompt has the following definition: [%U@%H:%P] SDMS>.

The syntax for the prompt command is:

**prompt** *'somestring'*

**EXAMPLE** In the following example, an empty prompt is defined first. A BICsuite statement is then executed to make the effect more clearly visible. A simple string is then selected as a prompt, and finally the variables are used.

```
[system@localhost:2506] SDMS> prompt ''
End of Output

show session;
show session;

Session

      THIS : *
SESSIONID : 1001
START    : Tue Aug 23 11:47:34 GMT+01:00 2007
USER     : SYSTEM
UID      : 0
IP       : 127.0.0.1
TXID     : 136532
IDLE     : 0
TIMEOUT  : 0
STATEMENT : show session

Session shown

prompt 'hello world '

End of Output

hello world prompt "[%U@%H:%P] please enter your wish! > '

End of Output

[system@localhost:2506] please enter your wish! >
```

**timing** The timing command provides information about the execution time for a statement. Normally, this option is disabled and so no information about the

execution time is given. The time is stated in milliseconds.  
The syntax for the timing command is:

**timing** < off | **on** >

**EXAMPLE** The following example shows the timing information for a simple BIC-suite statement. The execution time for the statements and the time that was required to output the result is shown.

```
[system@localhost:2506] SDMS> timing on
End of Output

[system@localhost:2506] SDMS> show session;
Execution Time: 63
show session;

Session

      THIS :  *
SESSIONID : 1002
START : Tue Aug 23 11:53:15 GMT+01:00 2007
USER : SYSTEM
UID : 0
IP : 127.0.0.1
TXID : 136559
IDLE : 0
TIMEOUT : 0
STATEMENT : show session

Session shown

[system@localhost:2506] SDMS>
Render Time : 143
```

**whenever** An error handling routine is absolutely essential particularly when *sdmsh* is being used to execute scripts. The *whenever* statement tells *sdmsh* how to deal with errors. By default errors are ignored, which also corresponds to the desired behaviour for interactive working. The syntax for the *whenever* command is:

**whenever error** < continue | **disconnect** *integer* >

**EXAMPLE** The example below shows the behaviour of both the **continue** option and the **disconnect** option. The Exit Code for a process that was started by the Bourne shell (and other Unix shells as well) can be shown by outputting the variable `$?`.

```
[system@localhost:2506] SDMS> whenever error continue
End of Output
```

## General

## sdms-auto\_restart

```
[system@localhost:2506] SDMS> show exit state definition does_not_exist;
show exit state definition does_not_exist;
```

```
ERROR:03201292040, DOES_NOT_EXIST not found
```

```
[system@localhost:2506] SDMS> whenever error disconnect 17
```

End of Output

```
[system@localhost:2506] SDMS> show exit state definition does_not_exist;
show exit state definition does_not_exist;
```

```
ERROR:03201292040, DOES_NOT_EXIST not found
```

```
[system@localhost:2506] SDMS>
ronald@jaguarundi:~$ echo $?
17
ronald@jaguarundi:~$
```

**Shell call** It frequently happens that a shell command has to be quickly executed, for instance to see what the file that is to be run (using **include**) is called. If no special capabilities are required of the terminal, such as is the case when calling an editor, a shell command can be executed by prefixing it with an exclamation mark. The syntax for a shell call is:

*!shellcommand*

**EXAMPLE** In the following example, a short list of all the *sdmsh* scripts in the */tmp* directory is outputted.

```
[system@localhost:2506] SDMS> !ls -l /tmp/*.sdms
-rw-r--r-- 1 ronald ronald 15 2007-08-23 09:30 /tmp/ls.sdms
End of Output
```

```
[system@localhost:2506] SDMS>
```

## sdms-auto\_restart

### Introduction

*Introduction* The utility *sdms-auto\_restart* is used to automatically restart jobs that have failed. A number of simple conditions have to be met to do this. Probably the most important condition is that the job defines a parameter **AUTORESTART** with the value **TRUE**. This parameter can naturally also be set at a higher level. The following parameters influence the behaviour of the autorestart utilities:



| Parameter         | Effect  |
|-------------------|---|
| AUTORESTART       | The autorestart only functions if this parameter is set to "TRUE" |
| AUTORESTART_MAX   | Defines the maximum number of automatic restarts if set           |
| AUTORESTART_COUNT | Is set by the aurorestart utility to count the number of restarts |
| AUTORESTART_DELAY | The time in minutes before a job is restarted                     |

The autorestart utility can be defined as a trigger. The trigger types IMMEDIATE.LOCAL and FINISH.CHILD can be used.

The logic of the option files that applies for the sdmsh utility is also used for sdms-auto\_restart.

## Call

The following commands are used to call sdms-auto\_restart:

*Call*

```
sdms-auto_restart [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --user | -u > username
< --pass | -w > password < --failed | -f > jobid
```

OPTIONS:

```
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --delay | -d > seconds
< --max | -m > number
< --warn | -W >
```

The individual options have the following meanings:

## General

## sdms-get\_variable

| Option  | Meaning  |
|---|--|
| < <b>--host</b>   <b>-h</b> > <i>hostname</i>   | Host name of the scheduling server   |
| < <b>--port</b>   <b>-p</b> > <i>portnumber</i> | Port of the scheduling server  |
| < <b>--user</b>   <b>-u</b> > <i>username</i>   | User name for the login  |
| < <b>--pass</b>   <b>-w</b> > <i>password</i>   | Password for the login   |
| < <b>--failed</b>   <b>-f</b> > <i>jobid</i>    | Job ID of the job that is to be restarted                                    |
| < <b>--silent</b>   <b>-s</b> >                 | Reduces the number of messages that are returned                             |
| < <b>--verbose</b>   <b>-v</b> >                | Increases the number of messages that are returned                           |
| < <b>--timeout</b>   <b>-t</b> > <i>minutes</i> | Number of minutes for attempting to get a server connection                  |
| < <b>--cycle</b>   <b>-c</b> > <i>minutes</i>   | Number of minutes for the delay between two attempts                         |
| < <b>--help</b>   <b>-h</b> >                   | Returns a condensed help   |
| < <b>--delay</b>   <b>-d</b> > <i>minutes</i>   | Number of minutes for the delay until the job is restarted                   |
| < <b>--max</b>   <b>-m</b> > <i>number</i>      | Maximum number of automatic restarts   |
| < <b>--warn</b>   <b>-W</b> >                   | The warning flag is set when the maximum number of restarts has been reached |

## sdms-get\_variable

### Introduction

*Introduction* The utility *sdms-get\_variable* offers a simple way of reading out job parameters from the scheduling system. The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-get\_variable*.

### Call

*Call* The following commands are used to call *sdmsh-get\_variable*:

```
sdms-get_variable [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --jid | -j > jobid
< --name | -n > parametername
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
```

```

< --key | -k > jobkey
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --mode | -m > mode

```

The individual options have the following meanings:

| Option                            | Meaning  |
|-----------------------------------|--|
| < --host   -h > <i>hostname</i>   | Host name of the scheduling server   |
| < --port   -p > <i>portnumber</i> | Port of the scheduling server  |
| < --user   -u > <i>username</i>   | User name for the login  |
| < --pass   -w > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < --key   -k > <i>jobkey</i>      | for the login (for a connection as job)  |
| < --silent   -s >                 | Reduces the number of messages that are returned                                   |
| < --verbose   -v >                | Increases the number of messages that are returned                                 |
| < --timeout   -t > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < --cycle   -c > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < --help   -h >                   | Returns a condensed help text about calling the utility                            |
| < --mode   -m > <i>mode</i>       | Mode for determining the parameter (liberal, warn, strict)                         |

## Example

The example below shows how to get the variable value of the variable RESPONSE of job 5175119. *Example*

```

ronald@cheetah:~$ sdms-get_variable -h localhost -p 2506 \
-j 5175119 -u donald -w duck -n RESPONSE

```

## sdms-rerun

### Introduction

*Introduction* The utility *sdms-rerun* is used to rerun a job in a restartable state from a script or program.

The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-rerun*.

### Call

*Call* The following commands are used to call *sdms-rerun*:

```
sdms-rerun [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --jid | -j > jobid
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
< --key | -k > jobkey
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --suspend | -S >
< --delay | -D > delay
< --unit | -U > unit
< --at | -A > at
```

The individual options have the following meanings:

| Option  | Meaning  |
|---|--|
| < <b>--host</b>   <b>-h</b> > <i>hostname</i>   | Host name of the scheduling server   |
| < <b>--port</b>   <b>-p</b> > <i>portnumber</i> | Port of the scheduling server  |
| < <b>--user</b>   <b>-u</b> > <i>username</i>   | User name for the login  |
| < <b>--pass</b>   <b>-w</b> > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < <b>--silent</b>   <b>-s</b> >                 | Reduces the number of messages that are returned                                   |
| < <b>--verbose</b>   <b>-v</b> >                | Increases the number of messages that are returned                                 |
| < <b>--timeout</b>   <b>-t</b> > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < <b>--cycle</b>   <b>-c</b> > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < <b>--help</b>   <b>-h</b> >                   | Returns a condensed help text about calling the utility                            |
| < <b>--suspend</b>   <b>-S</b> >                | The job is suspended   |
| < <b>--delay</b>   <b>-D</b> > <i>delay</i>     | The job is automatically resumed after <i>delay</i> units                          |
| < <b>--unit</b>   <b>-U</b> > <i>unit</i>       | Unit for the delay option (default MINUTE)   |
| < <b>--at</b>   <b>-A</b> > <i>at</i>           | Automatic resume at the specified time   |

## sdms-set.state

### Introduction

The utility *sdms-set.state* offers a simple way of setting the state of a job in the scheduling system. *Introduction*

The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-set.state*.

### Call

The following commands are used to call *sdmsh-set.state*:

*Call*

```
sdms-set.state [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --jid | -j > jobid
< --state | -S > statename
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
```

```

< --key | -k > jobkey
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --force | -f >

```

The individual options have the following meanings:

| Option                            | Meaning  |
|-----------------------------------|--|
| < --host   -h > <i>hostname</i>   | Host name of the scheduling server   |
| < --port   -p > <i>portnumber</i> | Port of the scheduling server  |
| < --user   -u > <i>username</i>   | User name for the login  |
| < --pass   -w > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < --key   -k > <i>jobkey</i>      | for the login (for a connection as job)  |
| < --silent   -s >                 | Reduces the number of messages that are returned                                   |
| < --verbose   -v >                | Increases the number of messages that are returned                                 |
| < --timeout   -t > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < --cycle   -c > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < --help   -h >                   | Returns a condensed help text about calling the utility                            |
| < --force   -f >                  | Force if job does not define a mapping for the specified state                     |

## sdms-set\_variable

### Introduction

*Introduction* The utility *sdms-set\_variable* offers a simple way of setting job parameters in the scheduling system.

The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-set\_variable*.

**Call**

The following commands are used to call sdms-set\_variable:

*Call*

```
sdms-set_variable [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --jid | -j > jobid
parametername value { parametername value }
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
< --key | -k > jobkey
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --case | -C >
```

The individual options have the following meanings:

| Option  | Meaning  |
|---|--|
| < <b>--host</b>   <b>-h</b> > <i>hostname</i>   | Host name of the scheduling server   |
| < <b>--port</b>   <b>-p</b> > <i>portnumber</i> | Port of the scheduling server  |
| < <b>--user</b>   <b>-u</b> > <i>username</i>   | User name for the login  |
| < <b>--pass</b>   <b>-w</b> > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < <b>--key</b>   <b>-k</b> > <i>jobkey</i>      | for the login (for a connection as job)  |
| < <b>--silent</b>   <b>-s</b> >                 | Reduces the number of messages that are returned                                   |
| < <b>--verbose</b>   <b>-v</b> >                | Increases the number of messages that are returned                                 |
| < <b>--timeout</b>   <b>-t</b> > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < <b>--cycle</b>   <b>-c</b> > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < <b>--help</b>   <b>-h</b> >                   | Returns a condensed help text about calling the utility                            |
| < <b>--case</b>   <b>-C</b> >                   | Names are case-sensitive   |

## sdms-set\_warning

### Introduction

*Introduction* The utility *sdms-set\_warning* is used to set the warning flag for a job. A text can be optionally specified. The warning flag can be set for a job by users who have been granted the Operate privilege. A job can set the warning flag for itself.

The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-set\_warning*.

### Call

*Call* The following commands are used to call *sdms-set\_warning*:

```
sdms-set_warning [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --jid | -j > jobid
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
< --key | -k > jobkey
< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --warning | -m > warning
```

The individual options have the following meanings:



| Option  | Meaning  |
|---|--|
| < <b>--host</b>   <b>-h</b> > <i>hostname</i>   | Host name of the scheduling server   |
| < <b>--port</b>   <b>-p</b> > <i>portnumber</i> | Port of the scheduling server  |
| < <b>--user</b>   <b>-u</b> > <i>username</i>   | User name for the login  |
| < <b>--pass</b>   <b>-w</b> > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < <b>--key</b>   <b>-k</b> > <i>jobkey</i>      | for the login (for a connection as job)  |
| < <b>--silent</b>   <b>-s</b> >                 | Reduces the number of messages that are returned                                   |
| < <b>--verbose</b>   <b>-v</b> >                | Increases the number of messages that are returned                                 |
| < <b>--timeout</b>   <b>-t</b> > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < <b>--cycle</b>   <b>-c</b> > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < <b>--help</b>   <b>-h</b> >                   | Returns a condensed help text about calling the utility                            |
| < <b>--warning</b>   <b>-m</b> > <i>warning</i> | Warning text   |

## sdms-submit

### Introduction

The utility *sdms-submit* is used to start jobs or batches. These can be started as a standalone workflow or also as a child of an existing job. In the latter case, if it is defined in the parent-child hierarchy an alias can be specified to identify the job or batch that is to be submitted.

The logic of the option files that applies for the *sdmsh* utility is also used for *sdms-submit*.

*Introduction*

### Call

The following commands are used to call *sdms-submit*:

*Call*

```
sdms-submit [ OPTIONS ] < --host | -h > hostname
< --port | -p > portnumber < --job | -J > jobname
```

OPTIONS:

```
< --user | -u > username
< --pass | -w > password
< --jid | -j > jobid
< --key | -k > jobkey
```

```

< --silent | -s >
< --verbose | -v >
< --timeout | -t > minutes
< --cycle | -c > minutes
< --help | -h >
< --tag | -T > tag
< --master | -M >
< --suspend | -S >
< --delay | -D > delay
< --unit | -U > unit
< --at | -A > at

```

The individual options have the following meanings:

| Option                            | Meaning  |
|-----------------------------------|--|
| < --host   -h > <i>hostname</i>   | Host name of the scheduling server   |
| < --port   -p > <i>portnumber</i> | Port of the scheduling server  |
| < --user   -u > <i>username</i>   | User name for the login  |
| < --pass   -w > <i>password</i>   | Password for the login (for a connection as user)                                  |
| < --key   -k > <i>jobkey</i>      | for the login (for a connection as job)  |
| < --silent   -s >                 | Reduces the number of messages that are returned                                   |
| < --verbose   -v >                | Increases the number of messages that are returned                                 |
| < --timeout   -t > <i>minutes</i> | Number of minutes for attempting to get a server connection                        |
| < --cycle   -c > <i>minutes</i>   | Number of minutes for the delay between two attempts to set up a server connection |
| < --help   -h >                   | Returns a condensed help text about calling the utility                            |
| < --tag   -T > <i>tag</i>         | Tag for dynamic submits  |
| < --master   -M >                 | Submit for a master, no child  |
| < --suspend   -S >                | The job is suspended   |
| < --delay   -D > <i>delay</i>     | The job is automatically resumed after <i>delay</i> units                          |
| < --unit   -U > <i>unit</i>       | Unit for the delay option (default MINUTE)   |
| < --at   -A > <i>at</i>           | Automatic resume at the specified time   |

## **Part II**

# **User Commands**



## 3 alter commands

## alter comment

### Purpose

*Purpose* The purpose of the alter comment statement is to change the comment for the specified object.

### Syntax

*Syntax* The syntax for the alter comment statement is

```
alter [ existing ] comment on OBJECTURL
with < text | url > = string
```

OBJECTURL:

```
distribution distributionname for pool resourcepath in serverpath
| environment environmentname
| exit state definition statename
| exit state mapping mappingname
| exit state profile profilename
| event eventname
| resource resourcepath in folderpath
| folder folderpath
| footprint footprintname
| group groupname
| interval intervalname
| job definition folderpath
| job jobid
| named resource resourcepath
| parameter parametername of PARAM_LOC
| resource state definition statename
| resource state mapping mappingname
| resource state profile profilename
| scheduled event schedulepath . eventname
| schedule schedulepath
| resource resourcepath in serverpath
| < scope serverpath | job server serverpath >
| trigger triggername on TRIGGEROBJECT
| user username
```

PARAM\_LOC:

```
folder folderpath
| job definition folderpath
| < scope serverpath | job server serverpath >
```

```
TRIGGEROBJECT:  
  resource resourcepath in folderpath  
  | job definition folderpath  
  | object monitor objecttypename  
  | resource resourcepath in serverpath
```

Description

The alter comment command is used to change the condensed description or URL of the description of the object in question. Of course, the type of information can be changed as well. The comment is versioned. This means that comments are not overwritten. When the commented object is displayed, the displayed comment is the one that matches the version of the displayed object.  
The optional **existing** keyword is used to prevent error messages from being displayed and the current operation from being terminated. This is particularly useful in conjunction with multicommands.

Description

Output

This statement returns a confirmation of a successful operation

Output

## alter environment

### Purpose

*Purpose* The purpose of the alter environment statement is to alter the properties of the specified environment.

### Syntax

*Syntax* The syntax for the alter environment statement is

```

alter [ existing ] environment environmentname
with ENV_WITH_ITEM

alter [ existing ] environment environmentname
add ( ENV_RESOURCE {, ENV_RESOURCE} )

alter [ existing ] environment environmentname
delete ( resourcepath {, resourcepath} )

ENV_WITH_ITEM:
    resource = none
    | resource = ( ENV_RESOURCE {, ENV_RESOURCE} )

ENV_RESOURCE:
    resourcepath [ < condition = string | condition = none > ]

```

### Description

*Description* The alter environment statement is used to change the resource requests that are defined in this environment. Running jobs are not affected. The "**with resource =**" form of the statement replaces the existing group of resource requests. The other types either add the specified requests or deletes them. It is considered an error to delete a request that is not part of the environment or to add a request for an already required resource. Only administrators are authorised to perform this action.

### Output

*Output* This statement returns a confirmation of a successful operation



## alter event

### Purpose

The purpose of the alter event statement is to change properties of the specified event. *Purpose*

### Syntax

The syntax for the alter event statement is

*Syntax*

```
alter [ existing ] event eventname
with EVENT_WITHITEM {, EVENT_WITHITEM}

EVENT_WITHITEM:
    action =
        submit folderpath [ with parameter = ( PARAM {, PARAM} ) ]
    | group = groupname

PARAM:
    parametername = < string | number >
```

### Description

The alter event statement is used to change the properties of an event. A parameter for a job submit can be specified using the **with parameter** clause. For a detailed description of these options, refer to the create event statement on page 81. *Description*

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter exit state mapping

### Purpose

*Purpose*      The purpose of the alter exist state mapping statement is to change properties of the specified mapping.

### Syntax

*Syntax*      The syntax for the alter exit state mapping statement is

```
alter [ existing ] exit state mapping mappingname
with map = ( statename { , signed_integer , statename } )
```

### Description

*Description*      The alter exit state mapping statement defines the mapping of the Exit Codes for logical Exit States. The simplest form of this statement only specifies one Exit State. This means that the job acquires this Exit State when it finishes regardless of its Exit Code. More complex definitions specify more than one Exit State and at least one delimitation.  
A statement like

```
alter exit state mapping example1
with map = (   failure,
              0, success,
              1, warning,
              4, failure);
```

defines the following mapping:

| Exit code<br>range from | Exit code<br>range until | Resulting<br>exit state |
|-------------------------|--------------------------|-------------------------|
| $-\infty$               | -1                       | failure                 |
| 0                       | 0                        | success                 |
| 1                       | 3                        | warning                 |
| 4                       | $\infty$                 | failure                 |

### Output

*Output*      This statement returns a confirmation of a successful operation

## alter exit state profile

### Purpose

The purpose of the alter exit state profile statement is to change properties of the specified profile. *Purpose*

### Syntax

The syntax for the alter exit state profile statement is

*Syntax*

```
alter [ existing ] exit state profile profilename
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
    default mapping = < none | mappingname >
    | force
    | state = ( ESP_STATE {, ESP_STATE} )
```

ESP\_STATE:

```
statename < final | restartable | pending > [ OPTION { OPTION } ]
```

OPTION:

```
< unreachable | broken | batch default | dependency default >
```

### Description

The alter exit state profile statement is used to add Exit States to the profile or delete them, as well as to define the default Exit State Mapping. For a detailed description of these options, refer to the create exit state profile statement on page 84. *Description*

**force** The **force** option labels the Exit State Profiles as being invalid, which only means that the integrity still has to be verified. The label is removed after a successful verification. The verification is carried out by submitting a job definition that uses the Exit State Profiles. The purpose of the **force** flag is to be capable of changing several Exit State Profiles (and perhaps some other objects) without the need for a consistent state after each change.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter folder

### Purpose

*Purpose*      The purpose of the alter folder statement is to alter the properties of a folder.

### Syntax

*Syntax*      The syntax for the alter folder statement is

```
alter [ existing ] folder folderpath
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
environment = < none | environmentname >
| group = groupname [ cascade ]
| inherit grant = none
| inherit grant = ( PRIVILEGE {, PRIVILEGE} )
| parameter = none
| parameter = ( parametername = string {, parametername = string} )
```

PRIVILEGE:

```
create content
| drop
| edit
| execute
| monitor
| operate
| resource
| submit
| use
| view
```

### Description

*Description*      The alter folder statement changes the properties of a folder. For a detailed description of these options, refer to the create folder statement on page [86](#).

If the optional **existing** keyword has been specified, no error is created if the specified folder does not exist.

Although the folder SYSTEM cannot be created, dropped or renamed, it can be altered to some extent. It is not possible to change the owning group, but it is possible to specify an environment or to create parameters.

alter folder

User Commands

**Output**

This statement returns a confirmation of a successful operation

*Output*

## alter footprint

### Purpose

*Purpose* The purpose of the alter footprint statement is to change the properties of the specified footprint.

### Syntax

*Syntax* The syntax for the alter footprint statement is

```

alter [ existing ] footprint footprintname
with resource = ( requirement {, requirement} )

alter [ existing ] footprint footprintname
add resource = ( requirement {, requirement} )

alter [ existing ] footprint footprintname
delete resource = ( resourcepath {, resourcepath} )

requirement:
  item { item}

item:
  amount = integer
  | < nokeep | keep | keep final >
  | resourcepath

```

### Description

*Description* The alter footprint command changes the list of resource requests. There are three kinds of this statement.

- The first one determines all the resource requests.
- The second one adds resource requests to the request list.
- The third kind removes requests from the list.

For a detailed description of these options, refer to the create footprint statement on page 88.

### Output

*Output* This statement returns a confirmation of a successful operation

## alter group

### Purpose

The purpose of the alter group statement is to alter the user to group assignments. *Purpose*

### Syntax

The syntax for the alter group statement is

*Syntax*

```
alter [ existing ] group groupname
with WITHITEM

alter [ existing ] group groupname
ADD_DELITEM {, ADD_DELITEM}

WITHITEM:
    user = none
    | user = ( username {, username} )

ADD_DELITEM:
    < add | delete > user = ( username {, username} )
```

### Description

The alter group command is used to define which users belong to the group. *Description*  
There are two kinds of this statement:

- The first one defines the list of users who belong to the group.
- The second one adds users to the group or deletes them.

In all cases, deleting users from their default group is considered to be an error.

It is not possible to delete users from the PUBLIC group.

If a user does not belong to a group, any attempt made to delete the user from this group is ignored.

If the **existing** keyword has been specified, it is not considered to be an error if the group does not exist.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter interval

### Purpose

*Purpose* The purpose of the alter interval statement is to change properties of the specified interval.

### Syntax

*Syntax* The syntax for the alter interval statement is

```
alter [ existing ] interval intervalname
with WITHITEM {, WITHITEM}

WITHITEM:
    base = < none | period >
    | duration = < none | period >
    | embedded = < none | intervalname >
    | endtime = < none | datetime >
    | filter = none
    | filter = ( intervalname {, intervalname} )
    | < noinverse | inverse >
    | selection = none
    | selection = ( IVAL_SELITEM {, IVAL_SELITEM} )
    | starttime = < none | datetime >
    | synctime = datetime
    | group = groupname

IVAL_SELITEM:
    < signed_integer | datetime | datetime - datetime >
```

### Description

*Description* The alter interval command is used to change an interval definition. For a detailed description of these options, refer to the create interval statement on page 91.

If the **existing** keyword has been specified, it is not considered to be an error if the interval does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation



## alter job

### Purpose

The purpose of the alter job statement is to change properties of the specified job. *Purpose*  
This statement is used by job administrators, jobserver, and by the job itself.

### Syntax

The syntax for the alter job statement is

*Syntax*

```

alter job jobid
with WITHITEM {, WITHITEM}

alter job
with WITHITEM {, WITHITEM}

WITHITEM:
    cancel
    | clear warning
    | comment = string
    | error text = string
    | exec pid = pid
    | exit code = signed_integer
    | exit state = statename [ force ]
    | ext pid = pid
    | ignore resource = ( id {, id} )
    | ignore dependency = ( jobid [ recursive ] {, jobid [ recursive ] } )
    | kill
    | nicevalue = signed_integer
    | priority = integer
    | renice = signed_integer
    | rerun [ recursive ]
    | resume
    | < noresume | resume in period | resume at datetime >
    | run = integer
    | state = JOBSTATE
    | suspend
    | timestamp = string
    | warning = string

```

JOBSTATE:

```

    broken active
    | broken finished
    | dependency wait

```

|  |                         |
|--|-------------------------|
|  | <b>error</b>            |
|  | <b>finished</b>         |
|  | <b>resource wait</b>    |
|  | <b>running</b>          |
|  | <b>started</b>          |
|  | <b>starting</b>         |
|  | <b>synchronize wait</b> |

## Description

### *Description*

The alter job command is used for several purposes. Firstly, job servers use this command to document the progress of a job. All the state transitions a job undergoes during the time when the job is the responsibility of a job server are performed using the alter job command.

Secondly, some changes such as ignoring dependencies or resources, as well as changing the priority of a job, are carried out manually by an administrator.

The Exit State of a job in a Pending State can be set by the job itself or by a process that knows the job ID and key of the job that is to be changed.

**cancel** The cancel option is used to cancel the addressed job and all non-Final Children. A job can only be cancelled if neither the job itself nor one of its children is active. Cancelling a running job will set the job in a cancelling state. The effective cancel is postponed until the job is finished

If a Scheduling Entity is dependent upon the cancelled job, it can become unreachable. In this case the dependent job does not acquire the Unreachable Exit State defined in the Exit State Profiles, but is set as having the Job State "Unreachable". It is the operator's task to restore this job back to the job state "Dependency Wait" by ignoring dependencies or even to cancel it.

Cancelled jobs are considered to be just like Final Jobs without a Final Exit. This means that the parents of a cancelled job become final without taking into consideration the Exit State of the cancelled job. In this case the dependent jobs of the parents continue running normally.

The cancel option can only be used by users.

**comment** The comment option is used to document an action or to add a comment to the job. Comments can have a maximum length of 1024 characters. Any number of comments can be saved for a job.

Some comments are saved automatically. For example, if a job attains a Restartable State, a log is written to document this fact.

**error text** The error text option is used to write error information about a job. This can be done by the responsible job server or a user. The server can write this text itself as well.

This option is normally used if the job server cannot start the corresponding process. Possible cases are where it is not possible to switch to the defined working directory, if the executable program cannot be found, or when opening the error log file triggers an error.

**exec pid** The exec pid option is used exclusively by the job server to set the process ID of the control process within the server.

**exit code** The exit code option is used by the job server to tell the repository server with which Exit Code the process has finished. The repository server now calculates the matching Exit State from the Exit State Mapping that was used.

**exit state** The exit state option is used by jobs in a pending state to set their state to another value. This is usually a Restartable or Final State.

Alternatively, this option can be used by administrators to set the state of a non-final job.

If the Force Flag is not being used, the only states that can be set are those which are theoretically attainable by applying the Exit State Mapping to any Exit Code. The set state must exist in the Exit State Profile.

**ext pid** The ext pid option is used exclusively by the job server to set the process ID of the started user process.

**ignore resource** The ignore resource option is used to revoke individual Resource Requests. The ignored resource is then no longer requested.

If the parameters of a resource are being referenced, that resource cannot be ignored.

If invalid IDs have been specified, it is skipped. All other specified resources are ignored. Invalid IDs in this context are the IDs of resources that are not requested by the job.

The ignoring of resources is logged.

**ignore dependency** The ignore dependency option is used to ignore defined dependencies. If the **recursive** flag is used, not only do the job or batch ignore the dependencies, but its children do so as well.

**kill** The kill option is used to submit the defined Kill Job. If no Kill Job has been defined, it is not possible to forcibly terminate the job from within BICsuite. The job obviously has to be active, that means it must be **running**, **killed** or **broken.active**.

The last two states are not regular cases. When a Kill Job has been submitted, the Job State is **to\_kill**. After the Kill Job has terminated, the Job State of the killed job is set to **killed** unless it has been completed, in which case it is **finished** or **final**. This means that the job with the Job State **killed** is always still running and that at least one attempt has been made to terminate it.

**nicevalue** The nicevalue option is used to change the priority or the nicevalue of a job or batch and all of its children. If a child has several parents, any changes you make can, but do not necessarily have to, affect the priority of the child in the nicevalue of one of the parents. Where there are several parents, the maximum nicevalue is searched for.

This means that if Job C has three Parents P1, P2 and P3, whereby P1 sets a nice value of 0, P2 sets a nicevalue of 10 and P3 a nicevalue of -10, the effective nicevalue is -10. (The lower the nicevalue the better). If the nicevalue for P2 is changed to -5, nothing happens because the -10 of P3 is better than -5. If the nicevalue of P3 falls to 0, the new effective nicevalue for Job C is -5.

The nicevalues can have values between -100 and 100. Values that exceed this range are tacitly adjusted.

**priority** The priority option is used to change the (static) priority of a job. Because batches and milestones are not executed, priorities are irrelevant to them.

Changing the priority only affects the changed job. Valid values lie between 0 and 100. In this case, 100 corresponds to the lowest priority and 0 is the highest priority. When calculating the dynamic priority of a job, the scheduler begins with the static priority and adjusts it according to how long the job has already been waiting. If more than one job has the same dynamic priority, the job with the lowest job ID is scheduled first.

**renice** The renice option is similar to the nicevalue option with the difference that the renice option functions relatively while the nicevalue option functions absolutely. If some batches have a nicevalue of 10, a renice of -5 causes the nicevalue to rise to 5. (It rises because the lower the number, the higher the priority).

**rerun** The rerun option is used to restart a job in a Restartable State. If you attempt to restart a job that is not restartable, an error message is displayed. A job is restartable if it is in a Restartable State or it has the Job State **error** or **broken\_finished**.

If the **recursive** flag has been specified, the job itself and all its direct and indirect children that are in a Restartable State are restarted. If the job itself is final, this is not considered to be an error. It is therefore possible to recursively restart batches.

**resume** The resume option is used to reactivate a suspended job or batch. There are two ways to do this. The suspended job or batch can either be reactivated immediately or a delay can be set.

A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.

For details about specifying a time, refer to the overview on page 6. The resume option can be used together with the suspend option. Here, the job is suspended and then resumed again after (or at) a specified time.

**run** The run option is used by the job server to ensure that the modified job matches the current version.

Theoretically, the computer could crash after a job has been started by a job server. To complete the work, the job is manually restarted from another job server. After the first system has been booted, the job server can attempt to change the job state to `broken.finished` without knowing anything about what happened after the crash. Using the run option then prevents the wrong state from being set.

**state** The state option is mainly used by job servers, but it can also be used by administrators. It is not recommended to do so unless you know exactly what you are doing.

The usual procedure is that the job server sets the state of a job from **starting** to **started**, from **started** to **running**, and from **running** to

**finished**. In the event of a crash or any other problems, it is possible for the job server to set the job state to **broken\_active** or **broken\_finished**. This means that the Exit Code of the process is not available and the Exit State has to be set manually.

**suspend** The suspend option is used to suspend a batch or job. It always functions recursively. If a parent is suspended, its children are all suspended as well. The resume option is used to reverse the situation.

**timestamp** The timestamp option is used by the job server to set the timestamps of the state transition in keeping with the local time from the perspective of job server.

## Output

This statement returns a confirmation of a successful operation

*Output*

## alter job definition

### Purpose

*Purpose* The purpose of the alter job definition statement is to change properties of the specified job definition.

### Syntax

*Syntax* The syntax for the alter job definition statement is

```

alter [ existing ] job definition folderpath . jobname
with WITHITEM {, WITHITEM}

alter [ existing ] job definition folderpath . jobname
AJD-ADD-DEL-ITEM {, AJD-ADD-DEL-ITEM}

WITHITEM:
  children = none
  | children = ( JOB-CHILDDDEF {, JOB-CHILDDDEF} )
  | dependency mode = < all | any >
  | environment = environmentname
  | errlog = < none | filespec [ < notrunc | trunc > ] >
  | footprint = < none | footprintname >
  | inherit grant = none
  | inherit grant = ( PRIVILEGE {, PRIVILEGE} )
  | kill program = < none | string >
  | logfile = < none | filespec [ < notrunc | trunc > ] >
  | mapping = < none | mappingname >
  | < nomaster | master >
  | nicevalue = < none | signed_integer >
  | parameter = none
  | parameter = ( JOB-PARAMETER {, JOB-PARAMETER} )
  | priority = < none | signed_integer >
  | profile = profilename
  | required = none
  | required = ( JOB-REQUIRED {, JOB-REQUIRED} )
  | rerun program = < none | string >
  | resource = none
  | resource = ( REQUIREMENT {, REQUIREMENT} )
  | < noresume | resume in period | resume at datetime >
  | runtime = integer
  | runtime final = integer
  | run program = < none | string >
  | < nosuspend | suspend >

```

```

| timeout = none
| timeout = period state statename
| type = < job | milestone | batch >
| group = groupname
| workdir = < none | string >

```

AJD\_ADD\_DEL\_ITEM:

```

| add [ or alter ] children = ( JOB_CHILDDDEF { , JOB_CHILDDDEF } )
| add [ or alter ] parameter = ( JOB_PARAMETER { , JOB_PARAMETER } )
| add [ or alter ] required = ( JOB_REQUIRED { , JOB_REQUIRED } )
| add [ or alter ] resource = ( REQUIREMENT { , REQUIREMENT } )
| alter [ existing ] children = ( JOB_CHILDDDEF { , JOB_CHILDDDEF } )
| alter [ existing ] parameter = ( JOB_PARAMETER { , JOB_PARAMETER } )
| alter [ existing ] required = ( JOB_REQUIRED { , JOB_REQUIRED } )
| alter [ existing ] resource = ( REQUIREMENT { , REQUIREMENT } )
| delete [ existing ] children = ( folderpath { , folderpath } )
| delete [ existing ] parameter = ( parmlist )
| delete [ existing ] required = ( folderpath { , folderpath } )
| delete [ existing ] resource = ( resourcepath { , resourcepath } )

```

JOB\_CHILDDDEF:

JCD\_ITEM { JCD\_ITEM }

PRIVILEGE:

```

| create content
| drop
| edit
| execute
| monitor
| operate
| resource
| submit
| use
| view

```

JOB\_PARAMETER:

*parametername* < [ **JP\_WITHITEM** ] [ **default** = *string* ] | **JP\_NONDEFWITH** > [ **local** ]

JOB\_REQUIRED:

JRQ\_ITEM { JRQ\_ITEM }

REQUIREMENT:

JRD\_ITEM { JRD\_ITEM }

JCD\_ITEM:

```

| alias = < none | aliasname >
| folderpath . jobname

```

```

| ignore dependency = none
| ignore dependency = ( dependencyname {, dependencyname} )
| < childsuspend | suspend | nosuspend >
| merge mode = < nomerge | merge local | merge global | failure >
| nicevalue = < none | signed_integer >
| priority = < none | signed_integer >
| < noresume | resume in period | resume at datetime >
| < static | dynamic >

```

JP\_WITHITEM:

```

| import
| parameter
| reference child folderpath ( parametername )
| reference folderpath ( parametername )
| reference resource resourcepath ( parametername )
| result

```

JP\_NONDEFWITH:

```

| constant = string
| JP_AGGFUNCTION ( parametername )

```

JRQ\_ITEM:

```

| dependency dependencyname
| folderpath . jobname
| mode = < all final | job final >
| state = none
| state = ( JRQ_REQ_STATE {, JRQ_REQ_STATE} )
| state = all reachable
| state = default
| state = unreachable
| unresolved = < error | ignore | suspend | defer >

```

JRD\_ITEM:

```

| amount = integer
| expired = < none | signed_period >
| < nokeep | keep | keep final >
| lockmode = LOCKMODE
| nosticky
| resourcepath
| state = none
| state = ( statename {, statename} )
| state mapping = < none | rsmname >
| sticky [ ( < identifier | folderpath | identifier , folderpath | folderpath , identifier > ) ]

```

JP\_AGGFUNCTION:



```

    avg
  | count
  | max
  | min
  | sum

JRQ_REQ_STATE:
  statename [ < condition = string | condition = none > ]

LOCKMODE:
    n
  | s
  | sc
  | sx
  | x
```

Description

The alter job definition command has two different variants.

Description

- The first is similar to the create job definition statement and is used to re-define the job definition. All the affected options are overwritten. All the unaddressed options remain as they are.
- The second variant is used to add, edit or delete entries from the lists of children, resource requests, dependencies or parameters.

The options are described in detail in the create job definition command on page 95. This also applies for the options in the child, resource request, dependency and parameter definitions.

If the **existing** keyword is being used, an error is not triggered if the addressed job definition does not exist. The same applies if the **existing** keyword is being used while the list entries are being deleted or edited.

Output

This statement returns a confirmation of a successful operation

Output

## alter named resource

### Purpose

*Purpose* The purpose of the alter named resource statement is to change its properties.

### Syntax

*Syntax* The syntax for the alter named resource statement is

```
alter [ existing ] named resource resourcepath
with WITHITEM {, WITHITEM}

WITHITEM:
    group = groupname [ cascade ]
    | inherit grant = none
    | inherit grant = ( PRIVILEGE {, PRIVILEGE} )
    | parameter = none
    | parameter = ( PARAMETER {, PARAMETER} )
    | state profile = < none | rspname >

PRIVILEGE:
    create content
    | drop
    | edit
    | execute
    | monitor
    | operate
    | resource
    | submit
    | use
    | view

PARAMETER:
    parametername constant = string
    | parametername local constant [ = string ]
    | parametername parameter [ = string ]
```

### Description

*Description* The alter named resource statement is used to change the properties of the Named Resource. For a detailed description of the options, refer to the description of the create named resource statement on page [112](#).

alter named resource

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If the **existing** keyword has been specified, attempting to modify a non-existent Named Resource will not trigger an error.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter resource

### Purpose

*Purpose* The purpose of the alter resource statement is to change properties of resources.

### Syntax

*Syntax* The syntax for the alter resource statement is

```

alter [ existing ] RESOURCE_URL
with WITHITEM {, WITHITEM}

RESOURCE_URL:
    resource resourcepath in folderpath
    | resource resourcepath in serverpath

WITHITEM:
    amount = < infinite | integer >
    | < online | offline >
    | parameter = none
    | parameter = ( PARAMETER {, PARAMETER} )
    | requestable amount = < infinite | integer >
    | state = statename
    | touch [ = datetime ]
    | group = groupname

PARAMETER:
    parametername = < string | default >

```

### Description

*Description* The alter resource statement is used to change the properties of resources. For a detailed description of the options, refer to the description of the create resource statement on page 115. If the **existing** keyword has been specified, attempting to modify a non-existent resource will not trigger an error.

### Output

*Output* This statement returns a confirmation of a successful operation

## alter resource state mapping

### Purpose

The purpose of the alter resource state mapping statement is to change properties of the mapping. *Purpose*

### Syntax

The syntax for the alter resource state mapping statement is

*Syntax*

```
alter [ existing ] resource state mapping mappingname
with map = ( WITHITEM {, WITHITEM} )
```

**WITHITEM**:

```
statename maps < statename | any > to statename
```

### Description

The alter resource state mapping statement is used to change the properties of the Resource State Mapping. For a detailed description of the options, refer to the description of the create resource state mapping statement on page 119. *Description*

If the **existing** keyword has been specified, attempting to modify a non-existent Resource State Mapping will not trigger an error.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter resource state profile

### Purpose

*Purpose* The purpose of the alter resource state profile statement is to change properties of the specified resource state profile.

### Syntax

*Syntax* The syntax for the alter resource state profile statement is

```
alter [ existing ] resource state profile profilename
with WITHITEM {, WITHITEM}

WITHITEM:
    initial state = statename
    | state = ( statename {, statename} )
```

### Description

*Description* The alter resource state profile statement is used to change the properties of the Resource State Profile. For a detailed description of the options, refer to the description of the Resource State Profile statement on page [120](#). If the **existing** keyword has been specified, attempting to modify a non-existent Resource State Profile does not return an error.

### Output

*Output* This statement returns a confirmation of a successful operation

## alter schedule

### Purpose

The purpose of the alter schedule statement is to change properties of the specified schedule. *Purpose*

### Syntax

The syntax for the alter schedule statement is

*Syntax*

```

alter [ existing ] schedule schedulepath
with WITHITEM {, WITHITEM}

WITHITEM:
    < active | inactive >
    | inherit grant = none
    | inherit grant = ( PRIVILEGE {, PRIVILEGE} )
    | interval = < none | intervalname >
    | time zone = string
    | group = groupname

PRIVILEGE:
    create content
    | drop
    | edit
    | execute
    | monitor
    | operate
    | resource
    | submit
    | use
    | view

```

### Description

The alter schedule statement is used to change the properties of a schedule. For a detailed description of the options for the create schedule statement, refer to page [121](#). *Description*

If the **existing** keyword has been specified, attempting to modify a non-existent schedule will not trigger an error.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter scheduled event

### Purpose

*Purpose* The purpose of the alter scheduled event statement is to change properties of the specified scheduled event.

### Syntax

*Syntax* The syntax for the alter scheduled event statement is

```
alter [ existing ] scheduled event schedulepath . eventname
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
    < active | inactive >
  | backlog handling = < last | all | none >
  | calendar = < active | inactive >
  | horizon = < none | integer >
  | suspend limit = < default | period >
  | group = groupname
```

### Description

*Description* The alter scheduled event statement is used to change the properties of a specified Scheduled Event. For a detailed description of the options for the create scheduled event statement, refer to page [123](#).  
If the **existing** keyword has been specified, attempting to modify a non-existent Scheduled Event does not return an error.

### Output

*Output* This statement returns a confirmation of a successful operation



## alter scope

### Purpose

The purpose of the alter scope statement is to change the properties of the specified scope. *Purpose*

### Syntax

The syntax for the alter scope statement is

*Syntax*

```
alter [ existing ] < scope serverpath | job server serverpath >
with JS_WITHITEM {, JS_WITHITEM}
```

```
alter [ existing ] job server
with < fatal | nonfatal > error text = string
```

```
alter [ existing ] job server
with dynamic PARAMETERS
```

JS\_WITHITEM:

```
    config = none
    | config = ( CONFIGITEM {, CONFIGITEM} )
    | < enable | disable >
    | error text = < none | string >
    | group = groupname [ cascade ]
    | inherit grant = none
    | inherit grant = ( PRIVILEGE {, PRIVILEGE} )
    | node = nodename
    | parameter = none
    | parameter = ( PARAMETERITEM {, PARAMETERITEM} )
    | password = string
    | rawpassword = string [ SALT = string ]
```

PARAMETERS:

```
    parameter = none
    | parameter = ( PARAMETERSPEC {, PARAMETERSPEC} )
```

CONFIGITEM:

```
    parametername = none
    | parametername = ( PARAMETERSPEC {, PARAMETERSPEC} )
    | parametername = < string | number >
```

PRIVILEGE:

```
    create content
    | drop
```

- | **edit**
- | **execute**
- | **monitor**
- | **operate**
- | **resource**
- | **submit**
- | **use**
- | **view**

PARAMETERITEM:  
    *parametername* = **dynamic**  
|   *parametername* = < *string* | *number* >

PARAMETERSPEC:  
    *parametername* = < *string* | *number* >

**Description**

Description

The alter scope command is a user command. This command is used to modify the configuration or other properties of a scope.

**Output**

Output

This statement returns a confirmation of a successful operation

## alter server

### Purpose

The purpose of the alter server statement is to enable or disable user connections, or to define the trace level. *Purpose*

### Syntax

The syntax for the alter server statement is

*Syntax*

**alter server with < enable | disable > connect**

**alter server with schedule**

**alter server with trace level = *integer***

### Description

The alter server command can be used to turn the function for connecting to the server on and off. If this function has been disabled, only the user "System" can connect to the server. *Description*

The alter server command is also used to define the logged types of server messages. The following information types are defined:

| Type    | Meaning  |
|---------|--|
| Fatal   | A fatal error has occurred. The server is run down.                      |
| Error   | An error has occurred.   |
| Info    | An important informational message that was not written due to an error. |
| Warning | A warning.   |
| Message | An informative message.  |
| Debug   | Messages that can be used for troubleshooting.                           |

Fatal messages, error messages and info messages are always written to the server log file. Warnings are written if the trace level is 1 or higher, normal messages are written if the trace level is 2 or higher. Debug messages provide a lot of output and are returned for trace level 3.

### Output

This statement returns a confirmation of a successful operation

*Output*

## alter session

### Purpose

*Purpose* The purpose of the alter session statement is to specify the used protocol, the session timeout value or the trace level for the specified session.

### Syntax

*Syntax* The syntax for the alter session statement is

```
alter session [ sid ]
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
command = ( sdms-command )
| protocol = PROTOCOL
| session = string
| timeout = integer
| < trace | notrace >
| trace level = integer
```

PROTOCOL:

```
line
| perl
| python
| serial
| xml
```

### Description

*Description* The alter session command can be used to enable and disable the trace. If the trace is enabled, all the issued commands are logged in the log file. A communication protocol can also be selected. An overview of the currently defined protocols is shown in the table below.

| Protokoll | Meaning   |
|-----------|---|
| Line      | Plain ASCII output  |
| Perl      | The output is offered as a Perl structure that can be easily evaluated by the Perl script using eval. |
| Python    | Like Perl, but this is a Python structure.  |
| Serial    | Serialized Java objects.  |
| Xml       | Outputs an xml structure.   |

The timeout parameter for the session can be set as a last resort. A timeout of 0 means that no timeout is active. Any number greater than 0 indicates the number of seconds after which a session is automatically disconnected.

**Output**

This statement returns a confirmation of a successful operation

*Output*

## alter trigger

### Purpose

*Purpose* The purpose of the alter trigger statement is to change properties of the specified trigger.

### Syntax

*Syntax* The syntax for the alter trigger statement is

```
alter [ existing ] trigger triggername on TRIGGEROBJECT
with WITHITEM {, WITHITEM}
```

TRIGGEROBJECT:

```
    resource resourcepath in folderpath
  | job definition folderpath
  | object monitor objecttypename
  | resource resourcepath in serverpath
```

WITHITEM:

```
    < active | inactive >
  | < nowarn | warn >
  | < nomaster | master >
  | rerun
  | < noresume | resume in period | resume at datetime >
  | state = none
  | state = ( < statename {, statename} |
    CT_RSCSTATUSITEM {, CT_RSCSTATUSITEM} > )
  | submit folderpath
  | submitcount = integer
  | < nosuspend | suspend >
  | [ type = ] CT_TRIGGERTYPE
  | group = groupname
```

CT.EVENT:

```
< create | change | delete >
```

CT\_RSCSTATUSITEM:

```
< statename any | statename statename | any statename >
```

CT\_TRIGGERTYPE:

```
    before final
  | immediate local
  | immediate merge
  | warning
```

**Description**

The alter trigger statement is used to change the properties of a defined trigger. If the **existing** keyword has been specified, changing an existing trigger will not return an error.

*Description*

For a detailed description of these options, refer to the create trigger statement on page [128](#).

**Output**

This statement returns a confirmation of a successful operation

*Output*

## alter user

### Purpose

*Purpose* The purpose of the alter user statement is to change properties of the specified user.

### Syntax

*Syntax* The syntax for the alter user statement is

```

alter [ existing ] user username
with WITHITEM {, WITHITEM}

alter [ existing ] user username
ADD_DELITEM {, ADD_DELITEM}

WITHITEM:
    default group = groupname
    | < enable | disable >
    | group = ( groupname {, groupname} )
    | password = string
    | rawpassword = string [ SALT = string ]

```

```

ADD_DELITEM:
    < add | delete > group = ( groupname {, groupname} )

```

### Description

*Description* The alter user statement is used to change the properties of a defined user. If the **existing** keyword has been specified, attempting to modify a non-existent user will not trigger an error. For a detailed description of these options, refer to the create user statement on page 137. The second variant of the statement is used to delete or add the user from or to the specified groups.

### Output

*Output* This statement returns a confirmation of a successful operation



## **4 connect commands**

## connect

### Purpose

*Purpose* The purpose of the connect statement is to authenticate a user to the server.

### Syntax

*Syntax* The syntax for the connect statement is

```
connect username identified by string
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
    command = ( sdms-command )
    | protocol = PROTOCOL
    | session = string
    | timeout = integer
    | < trace | notrace >
    | trace level = integer
```

PROTOCOL:

```
    line
    | perl
    | python
    | serial
    | xml
```

### Description

*Description* The connect command is used to authenticate the connected process on the server to. A communication protocol can be optionally specified. The default protocol is **line**.

The selected protocol defines the output format. All protocols except for **serial** return ASCII output. The protocol **serial** returns a serialized Java object.

An executable command can also be returned when the connection is established. In this case, the output of the accompanying command is used as the output for the connect command. If the command fails, but the connect was successful, the connection remains active.

An example for all protocols except the **serial** protocol is given below.

**The line protocol** The line protocol only returns an ASCII text as the result from a command.

```
connect donald identified by 'duck' with protocol = line;
```

```
Connect
```

```
CONNECT_TIME : 19 Jan 2005 11:12:43 GMT
```

```
Connected
```

```
SDMS>
```

**The XML protocol** The XML protocol returns an XML structure as the result from a command.

```
connect donald identified by 'duck' with protocol = xml;
<OUTPUT>
<DATA>
<TITLE>Connect</TITLE>
<RECORD>
<CONNECT_TIME>19 Jan 2005 11:15:16 GMT</CONNECT_TIME></RECORD>
</DATA>
<FEEDBACK>Connected</FEEDBACK>
</OUTPUT>
```

**The python protocol** The python protocol returns a Python structure that can be valuated using the Python eval function.

```
connect donald identified by 'duck' with protocol = python;
{
  'DATA' :
  {
    'TITLE' : 'Connect',
    'DESC' : [
      'CONNECT_TIME'
    ],
    'RECORD' : {
      'CONNECT_TIME' : '19 Jan 2005 11:16:08 GMT'
    }
  },
  'FEEDBACK' : 'Connected'
}
```

**The perl protocol** The perl protocol returns a Perl structure that can be valuated using the Perl eval function.

```
connect donald identified by 'duck' with protocol = perl;
{
  'DATA' =>
  {
    'TITLE' => 'Connect',
    'DESC' => [
      'CONNECT_TIME'
    ],

```

## User Commands

## connect

```
'RECORD' => {  
'CONNECT_TIME' => '19 Jan 2005 11:19:19 GMT'}  
}  
, 'FEEDBACK' => 'Connected'  
}
```

## Output

*Output*      This statement returns a confirmation of a successful operation

## **5 copy commands**

## copy folder

### Purpose

*Purpose* The purpose of the copy folder statement is to copy a folder including all contents to some other place in the folder hierarchy.

### Syntax

*Syntax* The syntax for the copy folder statement is

```
copy FOLDER_OR_JOB {, FOLDER_OR_JOB} to folderpath
copy folder folderpath to foldername
```

```
FOLDER_OR_JOB:
    folder folderpath
    | job definition folderpath
```

### Description

*Description* If a folder has been copied, every object in the folder is copied as well. If there are any relationships between objects that were copied as the result of a folder copy operation (e.g. dependencies, children, triggers, etc.), these are changed accordingly and mapped to the resulting objects from the copy.

For example, if a folder SYSTEM.X.F containing two jobs A and B, and with SYSTEM.X.F.B dependent upon SYSTEM.X.F.A, is copied to the folder SYSTEM.Y, the newly created job SYSTEM.Y.F.B will be dependent upon the newly created job SYSTEM.Y.F.A.

Note that if the jobs were copied using a copy job definition command, the new job SYSTEM.Y.F.B would still be dependent upon SYSTEM.X.F.A. This may not correspond to the user's view.

### Output

*Output* This statement returns a confirmation of a successful operation

# copy named resource

## Purpose

The purpose of the copy named resource statement is to copy a named resource into another category.

Purpose

## Syntax

The syntax for the copy named resource statement is

Syntax

```
copy named resource resourcepath to resourcepath
copy named resource resourcepath to resourcename
```

## Description

The copy named resource command is used to save a copy of a Named Resource or an entire category.  
If the specified target resourcepath already exists as a category, a Named Resource or category with the same name as the source object is created within this category.  
If the specified target resourcepath already exists as a Named Resource, this is regarded as an error.

Description

## Output

This statement returns a confirmation of a successful operation

Output

## copy scope

### Purpose

*Purpose* The purpose of the copy scope statement is to copy a scope including all contents to some other place within the scope hierarchy.

### Syntax

*Syntax* The syntax for the copy scope statement is

```
copy < scope serverpath | job server serverpath > to serverpath
copy < scope serverpath | job server serverpath > to scopename
```

### Description

*Description* The copy named resource command is used to save a copy of entire scopes. This copy also includes the resource and parameter definitions.  
 If the specified target servicepath already exists as a scope, a scope with the same name as the source object is created within this category.  
 If the specified target serverpath already exists as a job server, this is regarded as an error.  
 Since a job server is only regarded as a special type of scope, it is possible to copy job servers using this command. In this case, this command is identical to the copy job server command.

### Output

*Output* This statement returns a confirmation of a successful operation



## 6 create commands

## create comment

### Purpose

*Purpose* The purpose of the create comment statement is to store a comment for the specified object.

### Syntax

*Syntax* The syntax for the create comment statement is

```
create [ or alter ] comment on OBJECTURL
with < text | url > = string
```

OBJECTURL:

```
distribution distributionname for pool resourcepath in serverpath
| environment environmentname
| exit state definition statename
| exit state mapping mappingname
| exit state profile profilename
| event eventname
| resource resourcepath in folderpath
| folder folderpath
| footprint footprintname
| group groupname
| interval intervalname
| job definition folderpath
| job jobid
| named resource resourcepath
| parameter parametername of PARAM_LOC
| resource state definition statename
| resource state mapping mappingname
| resource state profile profilename
| scheduled event schedulepath . eventname
| schedule schedulepath
| resource resourcepath in serverpath
| < scope serverpath | job server serverpath >
| trigger triggername on TRIGGEROBJECT
| user username
```

PARAM\_LOC:

```
folder folderpath
| job definition folderpath
| < scope serverpath | job server serverpath >
```

```
TRIGGEROBJECT:  
  resource resourcepath in folderpath  
  | job definition folderpath  
  | object monitor objecttypename  
  | resource resourcepath in serverpath
```

Description

The create comment statement is used to create the condensed description or the URL of the description for the object to be commented on. *Description*  
The optional keyword **or alter** is used to update the comment (if one exists). If it is not specified, the presence of a comment will trigger an error.

Output

This statement returns a confirmation of a successful operation *Output*

## create environment

### Purpose

*Purpose* The purpose of the create environment statement is to define a set of static named resources which are needed in the scope a job wants to run.

### Syntax

*Syntax* The syntax for the create environment statement is

```
create [ or alter ] environment environmentname
[ with ENV_WITH_ITEM ]

ENV_WITH_ITEM:
    resource = none
    | resource = ( ENV_RESOURCE {, ENV_RESOURCE} )

ENV_RESOURCE:
    resourcepath [ < condition = string | condition = none > ]
```

### Description

*Description* The create environment statement is used to define a series of Static Resource Requests which describe the requisite environment that a job needs. Since the environments cannot be created by ordinary users, and jobs have to describe the environment that they require to run, environments can be used to force jobs to use a specific job server.

**Resources** The Resources clause is used to specify the Required (Static) Resources. Specified resources that are not static will trigger an error. Since only static resources are specified, no further information is required. It is permissible to specify an empty environment (an environment without resource requests). This is not advisable, though, because it means a loss of control.

### Output

*Output* This statement returns a confirmation of a successful operation

## create event

### Purpose

The purpose of the create event statement is to define an action which can be executed by the time scheduling engine. *Purpose*

### Syntax

The syntax for the create event statement is

*Syntax*

```
create [ or alter ] event eventname
with EVENT_WITHITEM {, EVENT_WITHITEM}

EVENT_WITHITEM:
    action =
        submit folderpath [ with parameter = ( PARAM {, PARAM} ) ]
    | group = groupname

PARAM:
    parametername = < string | number >
```

### Description

The create event statement is used to define an action that can be scheduled by the Time Scheduling module. The defined action is the submission of a master submittable job or batch. *Description*

**action** The submit part of the statement is a restricted variant of the submit command (see page 346).

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

### Output

This statement returns a confirmation of a successful operation

*Output*

## create exit state definition

### Purpose

*Purpose* The purpose of the create exit state definition statement is to create a symbolic name for the state of a job.

### Syntax

*Syntax* The syntax for the create exit state definition statement is

```
create [ or alter ] exit state definition statename
```

### Description

*Description* The create exit state definition statement is used to create a symbolic name for the Exit State of a job, milestone or batch. The optional keyword **or alter** is used to prevent error messages from being triggered and the current transaction from being aborted if an Exit State Definition already exists. This is particularly useful in conjunction with multicommands. If it is not specified, the existence of an Exit State Definition with the specified name will trigger an error.

### Output

*Output* This statement returns a confirmation of a successful operation

### Example

*Example* In the following examples, symbolic names have been created for Job States.

```
create exit state definition success;
create exit state definition error;
create exit state definition reached;
create exit state definition warning;
create exit state definition wait;
create exit state definition skip;
create exit state definition unreachable;
```

create exit state mapping

Purpose

The purpose of the create exit state mapping statement is to create a mapping between the numerical exit code of a process and a symbolic exit state.

Purpose

Syntax

The syntax for the create exit state mapping statement is

Syntax

```
create [ or alter ] exit state mapping mappingname
with map = ( statename { , signed_integer , statename } )
```

Description

The create exit state mapping statement defines the mapping of Exit Codes to logical Exit States. The simplest form of this statement only specifies one Exit State. This means that the job automatically reaches this Exit State after it has finished regardless of its Exit Code. More complex definitions specify more than one Exit State and at least one delimitation.

Description

Output

This statement returns a confirmation of a successful operation

Output

Example

The example below shows a relatively simple, yet realistic mapping of Exit Codes to logical Exit States.

Example

The statement

```
create exit state mapping example1
with map = ( error,
            0, success,
            1, warning,
            4, error);
```

defines the following mapping:

| Exit Code<br>Range from | Exit Code<br>Range to | Resultant<br>Exit State |
|-------------------------|-----------------------|-------------------------|
| $-\infty$               | -1                    | error                   |
| 0                       | 0                     | success                 |
| 1                       | 3                     | warning                 |
| 4                       | $\infty$              | error                   |

## create exit state profile

### Purpose

*Purpose* The purpose of the create exit state profile statement is to define a set of valid exit states.

### Syntax

*Syntax* The syntax for the create exit state profile statement is

```
create [ or alter ] exit state profile profilename
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
default mapping = < none | mappingname >
| force
| state = ( ESP_STATE {, ESP_STATE} )
```

ESP\_STATE:

```
statename < final | restartable | pending > [ OPTION { OPTION} ]
```

OPTION:

```
< unreachable | broken | batch default | dependency default >
```

### Description

*Description* The create exit state profile statement is used to define a quantity of valid Exit States for a job, milestone or batch.

**default mapping** With the **default mapping** clause it is possible to define which Exit State Mapping is to be used if no other mapping has been specified. This makes it considerably easier to create jobs.

**force** While an Exit State Profile is being created, the force option has no effect and is ignored. If **or alter** is specified and the Exit State Profile that you want to create already exists, the force option delays the integrity check until later.

**state** The **state** clause defines which Exit State Profiles are valid within this definition. Each Exit State Definition must be classified as being **final**, **restartable** or **pending**. If a job has reached the **final** state it can no longer be started, which means that the state can no longer change. If a job has reached the **restartable** state, it can be started again. This means that the state of such a job can change as well. **pending** means that a job cannot be restarted, but it is not final either. The state must be set externally.



The order in which the Exit States are defined is relevant. The first specified Exit State has the highest preference, while the most recently specified Exit State has the lowest preference. Normally, **final** states are specified later than **restartable** states. A state's preference is used to decide which state is visible when several different Exit States of children are merged.

Just one Exit State can be declared as being an **unreachable** state. This means that a job, batch or milestone with this profile is mapped to the specified state as soon as it has become unreachable. This Exit State must be **final**.

A maximum of one Exit State within a profile can be designated as being a **broken** state. This means that a job will reach this state as soon as it has switched to the **error** or **broken finished** state. This can be handled using a trigger. The Exit State that is defined as being a **broken** state must be **restartable**.

A maximum of one state can be declared as being a **batch default** state. An empty batch assumes this status. This allows for an explicit deviation from the standard behaviour. If no status is designated as being **batch default**, an empty batch will automatically assume the final status with the lowest preference that is not designated as being **unreachable**. If such a status does not exist, the **unreachable** state is also considered a candidate.

Any number of Final States can be designated as **dependency default** states. Dependencies that define a default dependency are fulfilled if the required job assumes one of the states designated as **dependency default**.

## Output

This statement returns a confirmation of a successful operation

*Output*

## Example

These examples show how the Exit State Profiles `example_1` and `example_2` are created.

*Example*

In the first, very simple example, the Exit State of `success` is to be a Final State.

```
create exit state profile example_1
with
    state = ( success final );
```

In the second example, the Exit State `failure` is defined as being restartable. This state has a higher priority than the (final) state `success` and must therefore be listed as the first state.

```
create exit state profile example_2
with
    state = ( failure restartable,
              success final
            );
```

## create folder

### Purpose

*Purpose* The purpose of the create folder statement is to create a container for job definitions and/or other folders.

### Syntax

*Syntax* The syntax for the create folder statement is

```
create [ or alter ] folder folderpath
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
environment = < none | environmentname >
| group = groupname [ cascade ]
| inherit grant = none
| inherit grant = ( PRIVILEGE {, PRIVILEGE} )
| parameter = none
| parameter = ( parametername = string {, parametername = string} )
```

PRIVILEGE:

```
create content
| drop
| edit
| execute
| monitor
| operate
| resource
| submit
| use
| view
```

### Description

*Description* This command creates a folder and has the following options:

**environment option** If an environment has been assigned to a folder, every job in the folder and its subfolders will inherit all the Resource Requests from the Environment Definition.

**group option** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**parameter option** The parameter option can be used to define key/value pairs for the folder. The complete list of parameters must be specified within a command.

**inherit grant option** The **inherit grants** clause allows you to define which privileges are to be inherited through the hierarchy. If this clause is not specified, all privileges are inherited by default.

## Output

This statement returns a confirmation of a successful operation

*Output*

## create footprint

### Purpose

*Purpose* The purpose of the create footprint statement is to create a set of often used system resource requirements.

### Syntax

*Syntax* The syntax for the create footprint statement is

```
create [ or alter ] footprint footprintname
with resource = ( REQUIREMENT {, REQUIREMENT} )
```

REQUIREMENT:

ITEM { ITEM }

ITEM:

```
amount = integer
| < nokeep | keep | keep final >
| resourcepath
```

### Description

*Description* The create footprint command creates a set of Resource Requests which can be re-used. The Required Resources are all System Resources. The Required Resources are described by their names, a set with zero by default, and optionally a keep option.

**keep** The keep option in a Resource Request defines the time when the resource is released. The keep option is valid for both System and Synchronizing Resources. There are three possible values. Their meanings are explained in the table below:

| Value             | Meaning  |
|-------------------|--|
| <b>nokeep</b>     | The resource is released at the end of the job. This is the default behaviour. |
| <b>keep</b>       | The resource is released as soon as the job has reached the Final State.       |
| <b>keep final</b> | The resource is released when the job and all its children are final.          |

**amount** The amount option is only valid with requests for Named Resources of the type "System" or "Synchronizing". The amount in a Resource Request expresses how many units of the Required Resource are allocated.

create footprint

User Commands

**Output**

This statement returns a confirmation of a successful operation

*Output*

## create group

### Purpose

*Purpose* The purpose of the create group statement is to create an object to which privileges can be granted.

### Syntax

*Syntax* The syntax for the create group statement is

```
create [ or alter ] group groupname
[ with WITHITEM ]

WITHITEM:
    user = none
    | user = ( username { , username } )
```

### Description

*Description* The create group statement is used to create a group. If the **or alter** keyword has been specified, an already existing group is changed. Otherwise, an already existing group is considered an error.

**user** The **user** clause is used to specify which users are group members.

### Output

*Output* This statement returns a confirmation of a successful operation

## create interval

### Purpose

The purpose of the create interval statement is to define a periodic or aperiodic pattern at which events can, must not, be triggered. *Purpose*

### Syntax

The syntax for the create interval statement is

*Syntax*

```
create [ or alter ] interval intervalname
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
base = < none | period >
| duration = < none | period >
| embedded = < none | intervalname >
| endtime = < none | datetime >
| filter = none
| filter = ( intervalname {, intervalname} )
| < noinverse | inverse >
| selection = none
| selection = ( IVAL_SELITEM {, IVAL_SELITEM} )
| starttime = < none | datetime >
| synctime = datetime
| group = groupname
```

IVAL\_SELITEM:

```
< signed.integer | datetime | datetime - datetime >
```

### Description

The intervals are the core of the Time Scheduling. They can be regarded as block patterns. These patterns can be periodic or non-periodic. Within a **period (Base)** which, in the case of a non-periodic interval, has a length infinity ( $\infty$ ), there are blocks of a predetermined length **Duration**. The last block may be incomplete if the period length is not an integer multiple of the duration. The duration can also have a length  $\infty$ .

. This means that the blocks have the same length as the periods.

It is not necessary for all of the blocks to be actually present. You can choose which blocks are present. This **choice** can be made by specifying the block number relative to the beginning or end of a period (1, 2, 3 or -1, -2, -3) or by stating "from - to" (all days between 3.4. and 7.6.).

This results in complex patterns as shown in Figure 6.2.

*Description*

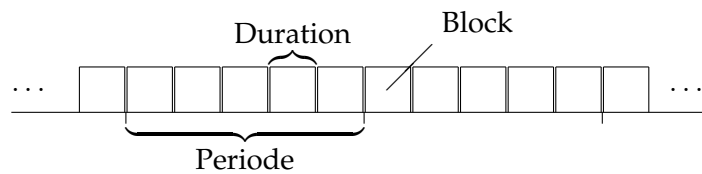


Figure 6.1: How periods and blocks are displayed

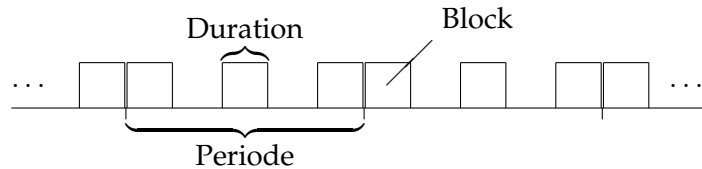


Figure 6.2: A more complex pattern

The selection is 1-based, i.e. the first block has the number 1. The last block is addressed with the number -1. This means that a block 0 does not exist.

Essentially, an interval can be described using the following parameters: Base frequency (period length), duration and selection. Since an interval does not necessarily always have to be valid, a start and end time can still be specified.

**Infinite intervals** With a non-periodic interval without a duration (infinity), the start time plays a special role: it then defines the only positive edge of this interval. Similarly, an end time defines the only negative edge.

When a selection is made, this respectively results in blocks being created. The selection "-0315T18:40" creates a block from 18:40 to 18:41 every year on March 15. Selecting blocks using the position (first, second, etc.) is, of course, nonsense. This is also ignored for infinite intervals.

**Inverse** If, for example, the time between Christmas and New Year has been positively defined for a particular purpose, at the moment there is no way to easily define the complementary time. In this example this is not a serious problem, but with more complex patterns this incapability will result in complex and error-prone dual definitions.

For this reason, an **Inverse** flag has been implemented which causes the specified selection list to be interpreted complementarily, i.e. only those blocks that would not have been chosen without a set invert flag are selected. In the case of the last working day of the month, the inverse flag is set on all working days except for the last working day of that month.

**Filter** The selection of blocks can be restricted even further. For example, if you have defined an interval "day of the month" (i.e. the base is one month, the dura-



tion is one day) and then selected the second block, such an interval would have a block on the respective second day of a month. If you want to define this only for the odd months (January, March, May, etc.), that would not be possible without a filter function because of the leap years.

The solution to the problem is to define a further interval (month of the year) with the selection 1, 3, 5, 7, 9, 11. This interval is then specified as a filter for the first interval.

Here, the first interval only shows a block if the second interval also shows a block at that "time".

If several intervals have been specified as a filter, it is sufficient for one of these intervals to have a block at the required time (OR). To map an AND relationship between the filter intervals, the filter intervals are created as a chain (A filters B C filters, etc.). The order of the filters is not important.

**Embedded** Unfortunately, the world is not always so simple. In particular, it is not inconsequential whether you first perform an operation and then make a selection, or if you have to choose first and then perform the operation. In other words, there is a big difference if you

talking about the last day of the month - if this is a working day - or about the last working day of the month.

We obviously also want to include this possibility for making a differentiation in our model. An **embedding** functionality has been implemented for this purpose.

Here, we begin by taking over all the parameters for the embedded interval. This is followed by an evaluation of the selection list. Although it is allowed, selecting a "from - to" period is obviously senseless since this functionality can also be achieved with simple multiplication. Much more interesting is the possibility of making a relative selection. If the working days in a month are embedded and then the day -1 is selected, for instance, overall we now have an interval that defines the last working day of each month. If, on the other hand, the interval with the working days in a month is multiplied by an interval that returns the last day of a month, we will only get a hit if the last day of the month is a working day.

Embedding can therefore also be understood as follows: When selecting the blocks, not *all* of the embedded blocks are considered (and above all counted), but only the *active* blocks.

**Synchronisation** What have still not been taken into consideration are those situations involving multiple single periods. A period of 40 days, for example, could have its rising edge at midnight (00:00) on any day. That is why a synchronisation time (**synctime**) has been implemented which selects the earliest edge that is  $\geq$  this point in time. If no such time has been explicitly specified, the date when the definition was created (*create*) is used.

Fundamentally, the first block of a period initially starts at its beginning. In cases where this is not possible (period =  $\infty$ , duration > period, Period XOR Duration

User Commands

`create interval`

have the unit "week"), the beginning of the period is used as the synchronisation time. If this is not possible either ( $\text{period} = \infty$ ), the normal synchronisation time is used. The result of this approach is that the *first* block of a period may be incomplete as well (and is then *never* active).

### Output

*Output*      This statement returns a confirmation of a successful operation

## create job definition

### Purpose

The purpose of the create job definition statement is to create a scheduling entity object which can be submitted, standalone or as part of a larger hierarchy. *Purpose*

### Syntax

The syntax for the create job definition statement is

*Syntax*

```
create [ or alter ] job definition folderpath . jobname
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
  children = none
| children = ( JOB_CHILDDDEF {, JOB_CHILDDDEF} )
| dependency mode = < all | any >
| environment = environmentname
| errlog = < none | filespec [ < notrunc | trunc > ] >
| footprint = < none | footprintname >
| inherit grant = none
| inherit grant = ( PRIVILEGE {, PRIVILEGE} )
| kill program = < none | string >
| logfile = < none | filespec [ < notrunc | trunc > ] >
| mapping = < none | mappingname >
| < nomaster | master >
| nicevalue = < none | signed_integer >
| parameter = none
| parameter = ( JOB_PARAMETER {, JOB_PARAMETER} )
| priority = < none | signed_integer >
| profile = profilename
| required = none
| required = ( JOB_REQUIRED {, JOB_REQUIRED} )
| rerun program = < none | string >
| resource = none
| resource = ( REQUIREMENT {, REQUIREMENT} )
| < noresume | resume in period | resume at datetime >
| runtime = integer
| runtime final = integer
| run program = < none | string >
| < nosuspend | suspend >
| timeout = none
| timeout = period state statename
```

```

| type = < job | milestone | batch >
| group = groupname
| workdir = < none | string >

```

JOB\_CHILDDDEF:

```
JCD_ITEM { JCD_ITEM }
```

PRIVILEGE:

```

| create content
| drop
| edit
| execute
| monitor
| operate
| resource
| submit
| use
| view

```

JOB\_PARAMETER:

```
parametername < [ JP_WITHITEM ] [ default = string ] | JP_NONDEFWITH > [ local ]
```

JOB\_REQUIRED:

```
JRQ_ITEM { JRQ_ITEM }
```

REQUIREMENT:

```
JRD_ITEM { JRD_ITEM }
```

JCD\_ITEM:

```

| alias = < none | aliasname >
| folderpath . jobname
| ignore dependency = none
| ignore dependency = ( dependencyname { , dependencyname } )
| < childsuspend | suspend | nosuspend >
| merge mode = < nomerge | merge local | merge global | failure >
| nicevalue = < none | signed_integer >
| priority = < none | signed_integer >
| < noresume | resume in period | resume at datetime >
| < static | dynamic >

```

JP\_WITHITEM:

```

| import
| parameter
| reference child folderpath ( parametername )
| reference folderpath ( parametername )

```

```
| reference resource resourcepath ( parametername )
```

```
| result
```

JP\_NONDEFWITH:

```
    constant = string
```

```
| JP_AGGFUNCTION ( parametername )
```

JRQ\_ITEM:

```
    dependency dependencyname
```

```
| folderpath . jobname
```

```
| mode = < all final | job final >
```

```
| state = none
```

```
| state = ( JRQ_REQ_STATE {, JRQ_REQ_STATE} )
```

```
| state = all reachable
```

```
| state = default
```

```
| state = unreachable
```

```
| unresolved = < error | ignore | suspend | defer >
```

JRD\_ITEM:

```
    amount = integer
```

```
| expired = < none | signed_period >
```

```
| < nokeep | keep | keep final >
```

```
| lockmode = LOCKMODE
```

```
| nosticky
```

```
| resourcepath
```

```
| state = none
```

```
| state = ( statename {, statename} )
```

```
| state mapping = < none | rsmname >
```

```
| sticky [ ( < identifier | folderpath | identifier , folderpath | folderpath , identifier > ) ]
```

JP\_AGGFUNCTION:

```
    avg
```

```
| count
```

```
| max
```

```
| min
```

```
| sum
```

JRQ\_REQ\_STATE:

```
statename [ < condition = string | condition = none > ]
```

LOCKMODE:

```
    n
```

```
| s
```

```
| sc
```

```
| sx
```

```
| x
```

## Description

*Description* This command creates or optionally modifies job, batch or milestone definitions. Since jobs, batches and milestones have a lot in common, in the following we have mainly used the general technical term "Scheduling Entity" whenever the behaviour is the same for all three types of job definitions. The expressions "job", "batch" and "milestone" are used for Scheduling Entities of the corresponding type Job, Milestone and Batch.

If the "or alter" modifier is being used, the command (if a Scheduling Entity of the same name already exists) changes it according to the specified options.

**aging** The aging describes how quickly the priority is upgraded.

**children** The Children section of a job definition statement defines a list of child objects and is used to build up a hierarchy that enables the modelling of complex job structures.

Whenever a Scheduling Entity is submitted, all the static children are recursively submitted.

In addition, children that are not static can be submitted during the execution be a Running Job or Trigger.

The children are then specified using a comma-separated list of Scheduling Entity path names and additional properties.

The properties of the Child Definitions are described below:

ALIAS This option allows the implementation of the submitted jobs to be kept independent of the folder structure, and it will function regardless of whether objects are moved within the folder structure.

The alias for a Child Definition is only used when jobs submit dynamic children.

IGNORE DEPENDENCY Dependencies of parent jobs are normally inherited by their children. In some rare situations this is undesirable. In this case the **ignore dependency** option can be used to ignore such dependencies.

MERGE MODE A single Scheduling Entity can be used as a child of more than one Parent Scheduling Entity. If two or more such parents are part of a Master Run, the same children are repeatedly instantiated within this Master Run. This is not always a desirable situation. Setting the Merge Mode controls how the system handles this scenario.

The following table gives an overview of the possible Merge Modes and their meanings:

| merge mode   | Description   |
|--------------|---|
| nomerge      | A duplicate instance of the Scheduling Entity is created. This is the default behaviour.  |
| merge global | A duplicate instance is not created. A link is created between the Parent Submitted Entity and the already existing Child Submitted Entity. |
| merge local  | Like Merge Global, but only Submitted Entities that were created in a single submit are merged.   |
| failure      | The submit attempting to create a duplicate Submitted Entity fails.   |

NICEVALUE The nicevalue defines an offset of the priority used to calculate the priorities of the child and its children. Values between -100 and 100 are permitted.

PRIORITY The specified priority in a Child Definition overwrites the priority of the Child Scheduling Entity Definition. Values between 0 (high priority) and 100 (low priority) are permitted.

TRANSLATION Setting the Exit State Translation for a child results in the Exit State of the child being translated to an Exit State which is merged in the resultant Exit State of the Parent Submitted Entity.

If no translation is specified, a Child State that is not at the same time a valid Parent State is ignored.

If a translation has been specified, all the Child States have to translated to a valid Parent State.

SUSPEND CLAUSE The child suspend clause defines whether a new Submitted Job is suspended in the context of this Child Definition.

The table below shows the possible values and their meaning regarding the suspend clause:

| suspend clause | Description   |
|----------------|---|
| suspend        | The child is suspended regardless of the value of the suspend flag specified in the Child Scheduling Entities.                |
| nosuspend      | The child is not suspended regardless of the value of the suspend flag specified in the Child Scheduling Entities Definition. |
| childsuspend   | The child is suspended if the suspended flag has been set in the Child Scheduling Entity.                                     |

If **suspend** has been specified, a resume clause can optionally be given as well which triggers an automatic resume at the specified time or at the end of the specified interval.

The submit time is taken as the reference for partially qualified points in time. T16:00 means, therefore, that if the submit time 15:00 has been set, the job will start after about an hour. If the submit time is later than 16:00, however, the job will wait until the next day.

**DYNAMIC CLAUSE** The child dynamic clause defines whether the child is always automatically submitted by the system when the parent is submitted as well.

Dynamic children are used by Running Jobs in the context of Trigger Definitions and programmatic submits. To be able to submit a child, this child must be defined as a dynamic child.

The table below shows the possible values in the dynamic clause and their meanings.

| dynamic clause | Description   |
|----------------|---|
| static         | The child is automatically submitted with the parent.     |
| dynamic        | The child is not automatically submitted with the parent. |

Milestones use different semantics for their children. Whenever a Scheduling Entity is dynamically submitted in a Master Run that is also a child of a milestone in the same Master Run, the Submitted Scheduling Entity is bound to this milestone as a child. This means that a milestone can only be final if its dependencies have been fulfilled and all its children are final. In other words, a Milestone collects child instances that are dynamically submitted by other Submitted Entities and waits until these Submitted Entities have finished. For this to function correctly, a dependency of the Submitted Scheduling Entity should be defined.

**dependency mode** The dependency mode defines which Required Submitted Entities have to achieve a Final State before the dependent Submitted Entity can exit the 'Dependency Wait' System State.

The table below shows the possible Dependency Modes and their meanings.

| dependency mode | Description  |
|-----------------|--|
| all             | The Submitted Entity exits the Dependency Wait State after all the dependencies have been fulfilled.   |
| any             | The Submitted Entity exits the Dependency Wait State after at least one dependency has been fulfilled. |

**environment** Each job has to define which environment is needed to execute the job.

The job can only be executed by job servers that fulfil all the Static Resource requirements listed in the Environment Definition.

The environment option only applies for jobs.



**errlog** The `errlog` option defines the file where error outputs (stderr) from the process to be executed are written.

If the file name is relative, the file is created relative to the working directory of the job.

This option is only valid for jobs.

**footprint** Footprints are sets of requirements for System Resources. If several jobs are defined with similar requirements, this is made that much easier by using footprints.

The job can only be executed by job servers that fulfil all the Static Resource requirements listed in the Footprint Definition.

The footprint option only applies for jobs.

**group** The `group` option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**inherit grant** The `inherit grants` clause allows you to define which privileges are to be inherited through the hierarchy. If this clause is not specified, all privileges are inherited by default.

**kill program** This option is used to create the possibility for prematurely terminating running processes from within the Scheduling System.

Usually, the `kill` program contains the PID of the Running Job as a parameter (e.g. `kill -9 ${PID}`).

For details about command line parsing, variants and parameter substitutions, refer to the “run program” option on page 110.

**logfile** The `logfile` option defines the file where the standard output (stdout) from the process to be executed is written.

If the file name is relative, the file is created relative to the working directory of the job.

This option is only valid for jobs.

**mapping** The `mapping` option defines the Exit State Mapping that is used to translate operating system Exit Codes of an executable program to an Exit State. If a job does not have a mapping, the default Exit State Mapping of the job’s Exit State Profile is used.

For a detailed description of the Exit State Mapping, refer to the “create exit state mapping” command on page 83.

**nicevalue** The nicevalue option defines a correction that is used for the calculation of the priorities for the job and its children. Values between -100 and 100 are permitted.

**parameter** The parameters section defines which parameters and input values are required by a job and how the job exchanges data with other jobs and the scheduling system.

The parameters can be used in the specification of the Run program, Rerun program, Kill program, working directory, log file and error log file, as well as in triggers and Dependency Conditions.

A job can also query or set parameters at runtime. Variables that have been defined at runtime and not by the job definition are only visible to the job itself and cannot be referenced. The same is also true, of course, for all variables that are defined as **local** as well as for the system variables mentioned below.

Occasionally, however, it is necessary to make one or more of the (e.g.) system variables known externally. This can be easily done by means of a small trick. If the value of a parameter contains a character string in the form `$something` (i.e. the characters `$` followed by a name), this is interpreted as being the name of a variable, and an attempt is made to resolve this variable *in the scope of the object that delivered the original value for the parameter*.

This is how, for example, a job `SYSTEM.A` can define a constant called `MYJOBNAME` with `$JOBNAME` as its content. If the constant `MYJOBNAME` is now addressed from outside the system via a reference, the delivered result is the value `SYSTEM.A`.

A number of system variables are always defined for each job. These are set by the system and can be read by the job.

These system variables are:

| Name     | Description   |
|----------|---|
| JOBID    | Submitted entity id for the job   |
| MASTERID | Submitted entity id for the Master Job or Batch   |
| KEY      | "Password" of the job for connecting to the scheduling system as a job with "JOBID"       |
| PID      | The operating system process id of the job. This parameter is only set for Kill programs. |
| LOGFILE  | Name of the log file (stdout)   |
| ERRORLOG | Name of the error log file (stderr)   |
| SDMSHOST | Host name of the scheduling server  |
| SDMSPORT | Listen port of the scheduling server  |
| JOBNAME  | Name of the job   |
| JOBTAG   | Child tag for the job is given if the job is being dynamically submitted                  |

*Continued on next page*

| <i>Continued from previous page</i> |   |
|-------------------------------------|---|
| Name                                | Description   |
| TRIGGERNAME                         | Name of the trigger   |
| TRIGGERTYPE                         | Type of trigger (JOB_DEFINITION or NAMED_RESOURCE)  |
| TRIGGERBASE                         | Name of the triggering object that activates the trigger                                    |
| TRIGGERBASEID                       | ID of the triggering Object Definition that activates the trigger                           |
| TRIGGERBASEJOBID                    | ID of the triggering object that activates the trigger                                      |
| TRIGGERORIGIN                       | Name of the triggering object that defines the trigger                                      |
| TRIGGERORIGINID                     | ID of the triggering Object Definition that defines the trigger                             |
| TRIGGERORIGINJOBID                  | ID of the triggering object that defines the trigger  |
| TRIGGERREASON                       | Name of the triggering object that directly or indirectly activates the trigger             |
| TRIGGERREASONID                     | ID of the triggering Object Definition that directly or indirectly activates the trigger    |
| TRIGGERREASONJOBID                  | ID of the triggering object that directly or indirectly activates the trigger               |
| TRIGGERSEQNO                        | Number of times the trigger was activated   |
| TRIGGEROLDSTATE                     | The old state of the object caused by the trigger for Resource Trigger                      |
| TRIGGERNEWSTATE                     | (New) status of the object that causes the trigger to be activated                          |
| SUBMITTIME                          | Submit time   |
| STARTTIME                           | Start time  |
| EXPRUNTIME                          | Expected runtime  |
| JOBSTATE                            | Exit State of the job   |
| MERGEDSTATE                         | Merged Exit State of the job  |
| PARENTID                            | ID of the Parent Job (submission tree)  |
| STATE                               | Current state of the job (Running, Finished, etc.)  |
| ISRESTARTABLE                       | Is the job restartable? 1 = yes, 0 = no   |
| SYNCTIME                            | Time of the transition to Synchronize Wait  |
| RESOURCETIME                        | Time of the transition to Resource Wait   |
| RUNNABLETIME                        | Time of the transition to Enable  |
| FINISHTIME                          | Finish time   |
| SYSDATE                             | Current date  |
| SEID                                | ID of the job definition  |
| TRIGGERWARNING                      | Text in the warning that activated this trigger   |
| LAST_WARNING                        | Text in the last issued warning. If no current warning is present, this parameter is empty. |
| RERUNSEQ                            | The number of reruns until now  |
| SCOPENAME                           | Name of the scope (job server) in which the job is running or last ran                      |
| <i>Continued on next page</i>       |   |

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| Name | Description |
|------|-------------|
|------|-------------|

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Table 6.1: List of System Variables

The TRIGGER... system variables are only populated if the job was submitted by a trigger. For a more detailed description of the TRIGGER... system variables, refer to the create trigger statement on page 128.

When a job is executed, the parameters used in commands, workdir and file specifications are resolved conform to the sequence given below:

1. System variable
2. The job's own address space
3. The address space of the job and submitting parents, from bottom to top
4. The address space of the job server executing the job
5. The address space of the parent scopes of the job server executing the job, from bottom to top
6. The job definition's parent folders, from bottom to top
7. The parent folders of the parent jobs, from bottom to top

If the configuration parameter 'ParameterHandling' for the server has been set to 'strict' (default), accessing variables that are not defined in the job definition will trigger an error message unless it is a system variable.

If the contents of a variable includes a reference to a another parameter, this parameter is evaluated and replaced in the context of the defining job.

The different parameter types and their semantics are described below:

**IMPORT** Import-type parameters are used to hand over the data for a Job Scheduling Environment to another job. This type is almost like the parameter type, although import type parameters cannot be handed over like parameters when a job is submitted. Import-type parameters can have a default value, which is used if no value can be acquired from the scheduling environment.

**PARAMETER** Parameter-type parameters are used to hand over the data from a Job Scheduling Environment to another job. This type is almost like the import type, but parameter-type parameters can be handed over as parameters when a job is submitted. Parameter-type parameters can have a default value, which is used if no value can be acquired from the scheduling environment.

**REFERENCE** Reference-type parameters are normally used to hand over results from one job to another.

The fully qualified name of the job definition and the name of the referencing parameter are required to create a reference. The Submitted Entity with the closest

match to the job definition of the reference is sought to resolve the reference. If this allocation cannot be made clearly enough, this triggers an error message. If a matching Submitted Entity could not be found, the default value (if defined) is returned.

**REFERENCE CHILD** Child Reference parameters are used to refer to the parameters of direct or indirect children. This can be useful for reporting purposes, for example. A Child Reference parameter is defined using a fully qualified job definition name together with the name of the parameter to be qualified. When resolving the parameter, the Submission Hierarchy is searched downwards instead of upwards as is the case with Reference Parameters. The behaviour for the resolution is otherwise identical to the resolution of Reference Parameters.

**REFERENCE RESOURCE** Resource Reference-type parameters are used to refer to parameters of allocated resources.

This parameter type requires the fully qualified name of a Named Resource together with an additional parameter name to specify the default reference. The prerequisite for using a Resource Reference parameter is that the resource is also requested. The value is determined in the context of the allocated resource.

**RESULT** Result-type parameters can acquire a value from the job (using the API). As long as this value has not been set, the optional default value is returned when the value is queried.

**CONSTANT** Constant-type parameters are parameters that have a value specified in the definition. This value can therefore not change during runtime.

**LOCAL** These variables are only visible from the perspective of the defining job.

**priority** The priority of a job determines the order in which jobs are executed. Values between 0 (high priority) and 100 (low priority) are permitted. The priority option only applies for jobs.

**profile** The profile defines the Exit State Profile that describes the valid Exit State of the Scheduling Entity.

For a detailed description of the Exit State Profile, refer to the "create exit state profile" command on page 84.

**required** The 'required' section defines the dependencies of other submitted entities in a Master Run which must be fulfilled until the Submitted Entity is capable of carrying on running.

Whether all the dependencies have to be fulfilled or just one of them is defined by the 'dependency' mode'.

Dependencies are defined in a comma-separated list of fully qualified names of Scheduling Entities (including folder path names).

Dependencies only apply between the Submitted Entities of the Master Run. Synchronizing Resources have to be used to synchronise the Submitted Entities from different Master Runs.

After the Submitted Entity instances of the Submitted Scheduling Entity hierarchy have been created, the system searches for the dependencies as follows: Beginning with the parent of the dependent Submitted Entity, all the children are searched for an instance of the Required Scheduling Entity whereby the branch with the dependent Submitted Entity is obviously ignored. If no instance is found, the search continues in the Submit Hierarchy Parents until precisely one instance has been found. If an instance can still not be found, the property 'unresolved' defines how this situation is handled by the system. If more than one Submitted Entity is found, the submit fails with an 'ambiguous dependency resolution' error.

During the execution of a Master Run, a Scheduling Entity can attain an 'unreachable' state because the dependencies can no longer be fulfilled. This can happen if a Required Scheduling Entity reaches a Final State that is not entered in the list of required states for dependencies or by cancelling a Submitted Entity that is required by another Submitted Entity. These two cases are handled differently.

If the unreachable situation is caused by a Submitted Entity that finishes with an unsuitable Exit State, the system determines the Exit State Profile of the dependent Submitted Entity and sets the Exit State to the state that is marked as being 'unreachable' in the profile.

If none of the Profile States is marked as an unreachable state or the unreachable state was caused by a Submitted Entity being cancelled, the dependent Submitted Entity is set to the unreachable state, which can only be resolved by an operator ignoring the dependency or cancelling the dependent entity.

All the direct or indirect children of a job or batch inherit all the parent's dependencies. This means that no child of a job or batch can exit the dependency wait state as long as the parent itself is in this state. Children of milestones do not inherit the dependencies from their parent.

The properties of the dependency definitions are described below:

CONDITION It is possible to stipulate a condition for a dependency. The dependency is only fulfilled if the evaluation of the condition returns the truth value "true". If no condition is specified, the condition is always deemed to have been fulfilled.

DEPENDENCY NAME A name can be optionally specified for the dependency when defining a function. Children (both direct and indirect) can refer to the name in order to ignore this dependency.

MODE The mode property is only relevant if the required Scheduling Entity is a job with children. In this case, the Dependency Mode defines the time when the dependency is fulfilled.

The table below shows the possible values and their meanings.

| dependency mode | Description   |
|-----------------|---|
| all_final       | The required job and all its children must have reached a Final State.                            |
| job_final       | Only the required job itself has to reach a Final State, the state of the children is irrelevant. |

**STATE** The state property of a dependency defines a list of Final States that the required Scheduling Entity can achieve to fulfil the dependency.

Without this option, the dependency is fulfilled if the required Scheduling Entity reaches a Final State.

It is also possible to stipulate a condition for a state. If a condition has been specified, the dependency is only deemed to have been fulfilled if the condition is fulfilled as well. The syntactic rules for specifying conditions are the same as those that apply to triggers. For more details, refer to the create trigger statement on page 128. Several implicit definitions are also available as options:

- **default** — The dependency is fulfilled if the predecessor has reached one of the states that are defined in its profile as being a default dependency.
- **all reachable** — The dependency is fulfilled if the predecessor has reached one of the states that are not defined as being unreachable.
- **reachable** — The dependency is fulfilled if the predecessor has reached the state defined as being unreachable.

**UNRESOLVED** The unresolved property specifies how the system should handle a situation where no Submitted Entity instance could be found during a Submit Operation for a required Scheduling Entity.

The possible behavioural patterns are described in the table below:

| unresolved | Description   |
|------------|---|
| error      | The submit operation fails with an error message  |
| ignore     | The dependency is tacitly ignored   |
| suspend    | The dependency is ignored, but the dependent Submitted Entity is placed in a 'suspended' state and requires a user action to continue |

**rerun program** If a rerun program command line has been defined for a job, this is executed instead of the run command line when the job is restarted after a failure. For details about command line parsing, variants and the substitution parameter, refer to the "run program" option on page 110.

**resource** The "resource" section of a job definition defines resource requirements in addition to those requirements indirectly defined by the "environment" and "footprint" options.

If the same Named Resource as in the footprint is required here, the requirement in the Resource Section overwrites the requirement in the footprint.

Since environments only require Named Resources with the usage "static" and footprints only require Named Resources with the usage "system", the Resource Section in a job definition is the only place where resource requirements for Named Resources with the usage "synchronizing" can be defined.

Resource requirements are defined by the fully qualified path name to a Named Resource defined with the following additional requirement options:

AMOUNT The amount option is only valid with requests for Named Resources of the type "System" or "Synchronizing". The amount in a Resource Request expresses how many units of the Required Resource are allocated.

EXPIRED The expired option is only valid for Synchronizing Resources with a defined Resource State Profile. If the expired option is specified, the time to which the Resource State of the resource has been set cannot be less recent than the time given by the expire option. A negative Expire value means that a resource must be at least as old as given here. The Resource State can only be set by the old resource command (see page

56) or automatically when defining a Resource State Mapping which converts the Exit State and Resource State into a new Resource State. Even if, in such a case, the new Resource State is the same as the old Resource State, the Resource State is considered to have been set.

LOCKMODE The lockmode option in a resource requirement is only valid for Synchronizing Resources. Five possible lockmodes are defined:

| Name      | Meaning                |
|-----------|------------------------|
| <b>X</b>  | Exclusive lock         |
| <b>S</b>  | Shared lock            |
| <b>SX</b> | Shared exclusive lock  |
| <b>SC</b> | Shared compatible lock |
| <b>N</b>  | Nolock                 |

The important aspect here is the compatibility matrix:

|    | X | S | SX | SC | N |
|----|---|---|----|----|---|
| X  | N | N | N  | N  | Y |
| S  | N | Y | N  | Y  | Y |
| SX | N | N | Y  | Y  | Y |
| SC | N | Y | Y  | Y  | Y |
| N  | Y | Y | Y  | Y  | Y |



The purpose of the exclusive lock is to have exclusive access to the resource to be able to set the Resource State and possibly parameter values. A common example of where the exclusive lock is used is when reloading a database table.

The purpose of the shared lock is to allow other users to use the resource in the same way while preventing them from making any changes. The most frequent scenario for using shared locks is for a large-scale ongoing reading of a database table. Other read processes can simply be tolerated, but no write transactions are allowed.

The purpose of the shared exclusive lock is to have a second shared lock which is not compatible with the normal shared lock. If we use the normal use shared lock for large read transactions, then we use the shared exclusive lock for small write transactions. Small write transactions can easily run in parallel, but if they create a large read transaction when doing so, they will almost certainly cause a "snapshot too old" or other similar problems.

The purpose of the shared compatible lock is to have a shared lock that is compatible with both the shared and exclusive locks. This lock type is intended for short read transactions which do not conflict with small write transactions or large read transactions. Small read transactions obviously don't conflict with other small read transactions. Running small read and large write transactions in parallel may cause problems.

The purpose of the nolock is to ensure that the resource exists and that all the other properties of the resource cover requirements. The resource is not locked and anything can happen, including state changes.

**STATE** The state option is only valid for Synchronizing Resources with a Resource State Profile. It is used to specify valid Resource States for this job. A resource can only be allocated if it is in one of the required states.

**STATE MAPPING** The state mapping option is only valid for Synchronizing Resources that specify a Resource State Profile and are requested with an "exclusive" lock-mode. The mapping defines a function that maps the combinations of Exit States and Resource States in a new Resource State. For more detailed information about resource state mappings, refer to the create resource state mapping statement on page 119.

**KEEP** The keep option in a Resource Request defines the time when the resource is released. The keep option is valid for both System and Synchronizing Resources. There are three possible values. Their meanings are explained in the table below:

| Value             | Meaning  |
|-------------------|--|
| <b>nokeep</b>     | The resource is released at the end of the job. This is the default behaviour. |
| <b>keep</b>       | The resource is released as soon as the job has reached the Final State.       |
| <b>keep final</b> | The resource is released when the job and all its children are final.          |

**STICKY** The sticky option is only valid for Synchronizing Resources. If sticky is specified, the resource is allocated by the master batch (this is called a MASTER\_RESERVATION) for as long as other jobs in the batch that require the "sticky" resource. The amount and lockmode for the Master Reservation are derived from all the sticky requirements of all the children. The amount is the maximum needed by any job.

The lockmode is exclusive as long as at least two jobs exist which request the resource with a lockmode other than nolock. An exception is the combination of Shared and Shared Compatible lock requests. This combination results in lockmode Shared.

An attempt is made to fulfil all the requirements from the Master Reservation.

A name can be optionally assigned for the sticky allocation. As a basic principle, only those requests with the same name are taken into account for the previously described method. That's why a master batch can have several MASTER\_RESERVATIONS at the same time. Several separate critical regions can be realised within a sequence with the aid of the names.

A parent job or batch can be specified in addition to, or even instead of, the name. The corresponding instance of the parent is then determined at runtime from the submission hierarchy. The sticky request is only valid from the parent downwards. In principle, this can be interpreted as if the parent's ID represents a part of the name of the sticky request. This mechanism allows separate critical regions to be easily implemented in dynamically submitted sub-workflows.

**runtime** The runtime option is used to define the estimated runtime of a job. This time can be valuated when activating triggers.

**run program** The run program command line is mandatory for jobs because it specifies the command that is to be executed for this job.

The command line is separated by whitespace characters in a command and a list of arguments. The first element in the command line is regarded as the name of the executable program that is to be run, and the rest are the parameters for the program.

Whether the job server uses the PATH environment variable when searching for the executable file is a characteristic of the job server.

System and job parameters can be addressed with \$ Notation.

Quoting can be used to forward whitespace characters and \$ characters as part of the command line. The quoting complies with Unix Bourne shell rules. This means that double quotes prevent whitespace characters from being interpreted as separators. Single quotes also prevent variables from being resolved. Backticks can be used for quoting. The parts of the command line that have been quoted in backticks are regarded as having been single quoted, but the backticks remain a part of the argument. Other quotes are removed.

Example:

The run command line `'sh -c ''example.sh ${JOBID} \${HOME}' ' '$SHELL''` will execute the program `'sh'` with the parameters `'-c', 'example.sh 4711 $HOME'` and `'$SHELL'` (assuming that the Submitted Entity has the ID 4711).

If the executable program (the first element of the command line) is a valid integer, the command line is not run by the job server. Instead, the job is treated as if it had completed itself with the integer as the Exit Code. Dummy jobs with `'true'` or `'false'` as the program can now be implemented as `'0'` instead of `'true'` or `'1'` instead of `'false'` and are therefore processed much more efficiently and quickly by the system.

Should it really be necessary to run an executable with a number as the name, this can be achieved by using a path prefix (`'./42'` instead of `'42'`).

**suspend** The suspend option defines whether a Submitted Entity is suspended at the submit time.

If the suspend option is specified, the resume clause can be optionally used. This can then trigger an automatic resume at or after the specified time.

If the resume time is specified by the incomplete date format (see also page 6), the resume takes place at the first suitable time after the submit time.

If a submit takes place at 16:00, for example, and T17:30 is entered as the resume time, the resume will take place on the same day at 17:30. But if T15:55 is specified as the resume time, the job will have to wait until the next day at 15:55.

**timeout** The timeout clause of a job definition defines the maximum time for which the job waits until its resource requirements are fulfilled.

When the timeout condition is reached, the job gets the Exit State specified in the timeout clause. This Exit State must be an element of the Exit State Profile.

If no timeout option is given, the job will wait until all the requirements have been fulfilled.

**type** The type option specifies the Scheduling Entity type that is being created or modified.

**workdir** The workdir of a Scheduling Entity-type job defines the directory where the run, rerun or kill program is executed.

**master** The master option defines whether this Scheduling Entity can be submitted in order to create a Master Run.

## Output

This statement returns a confirmation of a successful operation

*Output*

## create named resource

### Purpose

*Purpose* The purpose of the create named resource statement is to define a class of resources.

### Syntax

*Syntax* The syntax for the create named resource statement is

```
create [ or alter ] named resource resourcepath
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
    group = groupname [ cascade ]
    | inherit grant = none
    | inherit grant = ( PRIVILEGE {, PRIVILEGE} )
    | parameter = none
    | parameter = ( PARAMETER {, PARAMETER} )
    | state profile = < none | rspname >
    | usage = RESOURCE_USAGE
```

PRIVILEGE:

```
    create content
    | drop
    | edit
    | execute
    | monitor
    | operate
    | resource
    | submit
    | use
    | view
```

PARAMETER:

```
    parametername constant = string
    | parametername local constant [ = string ]
    | parametername parameter [ = string ]
```

RESOURCE\_USAGE:

```
    category
    | static
    | synchronizing
    | system
```

## Description

The create named resource statement is used to define classes of resources. These classes define the name, the usage type and optionally the utilised Resource State Profile as well as the parameters.

*Description*

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**parameter** It may be useful to use its parameters in conjunction with allocating resources. For example, a resource like RESOURCE.TEMP\_SPACE could have a parameter called LOCATION. This would allow a job to use a resource and allocate temporary storage space somewhere dependent upon the current instance of the Named Resource.

There are three types of parameters in a resource context:

| Typ                   | Bedeutung  |
|-----------------------|--|
| <b>constant</b>       | This parameter type defines the value that is constant for all resources.  |
| <b>local constant</b> | This parameter type defines a non-variable parameter whose value can deviate between instances of the same Named Resource. |
| <b>parameter</b>      | The value of such a parameter can be changed by jobs that have exclusively locked this resource.                           |

Table 6.2: Named Resource parameter types

**state profile** A State Resource Profile can be specified in the case of Synchronizing Resources. This allows jobs to request the resource in a particular state. Resource State changes can be used to activate triggers.

**usage** The usage of the Named Resource can be one of the following:

| Usage                | Meaning   |
|----------------------|---|
| <b>category</b>      | Categories behave like folders and can be used to arrange the Named Resources in a clearly organised hierarchy.   |
| <b>static</b>        | Static resources are resources which, if requested, must be present in the scope in which the job is running but which cannot be used up. Possible examples of Static Resources are a particular operating system, shared libraries for DBMS access operations or the presence of a C compiler.   |
| <b>system</b>        | System Resources are resources that can be counted. Possible examples are the number of processes, the capacity of the temporary memory or the availability of (a number of) tape drives.   |
| <b>synchronizing</b> | Synchronizing Resources are the most complex resources and are used to synchronise multiple access operations. One possible example is a database table. Multiple access operations may be tolerated or not depending on the type of access (large read transactions, large write transactions, multiple small write transactions, etc.). |
| <b>pool</b>          | pool-type Named Resources are used to create so-called Resource Pools. These pools allow the distribution of amounts for System Resources to be regulated centrally and flexibly.   |

Table 6.3: Named Resource usage

**factor** When creating a Named Resource, the factor by which the specified amounts in a resource request are multiplied can be specified. The default factor is 1. This factor can be overwritten for each instance of this Named Resource (i.e. for each resource).

**inherit grant** The **inherit grants** clause allows you to define which privileges are to be inherited through the hierarchy. If this clause is not specified, all privileges are inherited by default.

### Output

*Output* This statement returns a confirmation of a successful operation

## create resource

### Purpose

The purpose of the create resource statement is to create an instance of a named resource within a scope, folder or job definition. *Purpose*

### Syntax

The syntax for the create resource statement is

*Syntax*

```
create [ or alter ] resource resourcepath in < serverpath | folderpath >
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
    amount = < infinite | integer >
    | < online | offline >
    | parameter = none
    | parameter = ( PARAMETER {, PARAMETER } )
    | requestable amount = < infinite | integer >
    | state = statename
    | touch [ = datetime ]
    | group = groupname
```

PARAMETER:

```
parametername = < string | default >
```

### Description

The create resource statement is used to instantiate Named Resources within scopes, folders or job definitions. In the latter case, only a template is created which is materialised as soon as the job is submitted and automatically destroyed as soon as the Master Run is Final or Cancelled.

*Description*

If the **or alter** option is specified, an existing resource is changed; otherwise, it is considered to be an error if the resource already exists.

**amount** The **amount** clause defines the Available Amount for this resource. The amount option is not specified in the case of static resources.

**base multiplier** The base multiplier is only relevant if the Resource Tracing is being used. The base multiplier determines the multiplication factor for **trace base**. If the trace base is designated as being  $B$  and the trace multiplier as being  $M$ , the mean allocation is determined for the periods  $B * M^0$ ,  $B * M^1$  and  $B * M^2$ . The default value is 600 (10 minutes) so that the values for  $B$ ,  $10B$  and  $100B$  (in minutes) are determined.

**factor** A Resource Factor has been implemented to allow resource requirements for jobs to be adjusted externally. This can be set in both the Named Resource and individually in the resource. Whether a job can be allocated a particular resource is determined by comparing the original request with the Requestable Amount. However, the actual allocation is taken from

$$\text{ceil}(\text{Requirement} * \text{Factor})$$

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**online** The **online** clause defines whether the resource is online or offline. A resource is not available if it is offline. This means that a job that requires this resource cannot run within this scope. But since the resource can be set to online, the job will wait and will not be set to an error state. This also applies to static resources.

**parameter** The **parameter** clause is used to set the values of the parameters that have been defined for the Named Resource.

Parameters that are declared as a constant at Named Resource Level are not permitted here. All the other parameters can be specified, although this is not mandatory. If a parameter or a default value for this parameter has not been specified at Named Resource Level, the resolution returns an empty string.

If parameter name = default is specified when changing the resource, the parameter takes on the default value analogue to the Named Resource.

If the parameter is changed on the Named Resource level, this is visible on the Resource level for all the parameters that have been set to the default value.

A number of system variables are always defined for each resource. These are set by the system and are available to jobs which allocate the resource for read access using "RESSOURCEREFERENCES".

These system variables are:

| Name               | Description   |
|--------------------|---|
| STATE              | The Resource State of a "synchronizing" resource with a state model |
| AMOUNT             | The total amount of available resources                             |
| FREE_AMOUNT        | The total amount of available free resources                        |
| REQUESTABLE_AMOUNT | The maximum amount that can be allocated by a job                   |

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| Name             | Description  |
|------------------|--|
| REQUESTED_AMOUNT | The amount requested by the job                                      |
| TIMESTAMP        | The touch timestamp of a "synchronizing" resource with a state model |

---

Table 6.4: List of System Variables

**requestable amount** The **requestable amount** clause defines the amount of this resource that can be requested by a single job. This does not have to be the same as the available amount. If the requested amount is smaller than the amount, it is certain that a job cannot allocate all the available resources. If the Requestable Amount is greater than the amount, jobs can request more than the available amount without triggering a "cannot run in any scope" error.

If the Requestable Amount is not specified, it is the same as the amount.

The requestable amount option is not specified in the case of static resources.

**state** The **state** clause defines the resource's state.

This option is only valid for Synchronizing Resources with a Resource State Profile.

**tag** To facilitate evaluating the trace table, resources and pools can now be marked with a tag. This tag should be unique within the resources and pools (i.e. the use of a tag for both a resource and a pool is prohibited as well).

**touch** The **touch** clause defines the last time when the status of the resource (of a job) was changed. This timestamp is not set if a Resource State has been set manually.

This option is only valid for Synchronizing Resources with a Resource State Profile.

**trace base** Tracing is deactivated if the trace base is **none**. Otherwise it is the basis for the valuation period.

**trace interval** The trace interval is the minimum time in seconds between when Trace Records are written. Tracing is deactivated if the trace interval is **none**.

## Output

This statement returns a confirmation of a successful operation

*Output*

## create resource state definition

### Purpose

*Purpose* The purpose of the create resource state definition statement is to create a symbolic name for a state of a resource.

### Syntax

*Syntax* The syntax for the create resource state definition statement is

```
create [ or alter ] resource state definition statename
```

### Description

*Description* The create resource state definition statement is used to define a symbolic name for a Resource State.

The optional keyword **or alter** is used to prevent error messages from being triggered and the current transaction from being aborted if a Resource State Definition already exists. If it is not specified, the existence of a Resource State Definition with the specified name will trigger an error.

### Output

*Output* This statement returns a confirmation of a successful operation

### Example

*Example* A number of names for Resource States are defined in these examples.

```
create resource state definition empty;
create resource state definition valid;
create resource state definition invalid;
create resource state definition stage1;
create resource state definition stage2;
create resource state definition stage3;
```

# create resource state mapping

## Purpose

The purpose of the create resource state mapping statement is to define a mapping between the exit states of a job and the resulting resource state of a resource.

Purpose

## Syntax

The syntax for the create resource state mapping statement is

Syntax

```
create [ or alter ] resource state mapping mappingname
with map = ( WITHITEM {, WITHITEM} )
```

```
WITHITEM:
    statename maps < statename | any > to statename
```

## Description

The create resource state mapping statement defines the mapping of Exit States in combination with Resource States to create new Resource States. The first state name must be an Exit State. The second and third state have to each be a Resource State. If a job terminates with the given Exit State, the resource state is set to the new state if the current state matches the first named state. If **any** is specified as the initial state, any Resource State is mapped to the new one. If both a specific mapping and a general mapping have been specified, the specific mapping has the highest priority.

Description

## Output

This statement returns a confirmation of a successful operation

Output

## Example

Example

## create resource state profile

### Purpose

*Purpose* The purpose of the create resource state profile statement is to create a set of valid resource states.

### Syntax

*Syntax* The syntax for the create resource state profile statement is

```
create [ or alter ] resource state profile profilename
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
initial state = statename
| state = ( statename {, statename} )
```

### Description

*Description* The create resource state profile statement is used to define a set of valid Resource States for a (Named) Resource.

**state** The **state** clause defines which Resource State Definitions are valid within this profile.

**initial state** The initial state clause determines the initial state of a resource with this profile. The initial state does not have to be present in the list of states from the **state** clause. This allows a resource to be created without it immediately playing an active role in the system.

### Output

*Output* This statement returns a confirmation of a successful operation

### Example

*Example* In this example, the Exit State is to become invalid if it is empty.

```
create resource state profile example1
with
  state = (empty);
```

## create schedule

### Purpose

The purpose of the create schedule statement is to create an active container for scheduled events. *Purpose*

### Syntax

The syntax for the create schedule statement is

*Syntax*

```
create [ or alter ] schedule schedulepath
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
< active | inactive >
| inherit grant = none
| inherit grant = ( PRIVILEGE {, PRIVILEGE} )
| interval = < none | intervalname >
| time zone = string
| group = groupname
```

PRIVILEGE:

```
create content
| drop
| edit
| execute
| monitor
| operate
| resource
| submit
| use
| view
```

### Description

With the create schedule statement, complex schedules can be created for jobs and batches using simple definitions. *Description*

**active** The **active** option causes the schedule to always trigger events in step with the specified interval (assuming that any events have been defined). The **inactive** option, on the other hand, prevents the schedule from triggering events in step with the specified interval. A hierarchical arrangement of schedules thus allows exception periods (such as downtimes) to be defined, for example.

User Commands

create schedule

**Group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**Interval** The given interval acts as a 'clock' for the schedule. If an event is linked to the schedule, this event is triggered in rhythm with the interval.

**inherit grant** The **inherit grants** clause allows you to define which privileges are to be inherited through the hierarchy. If this clause is not specified, all privileges are inherited by default.

### Output

*Output* This statement returns a confirmation of a successful operation

create scheduled event

Purpose

The purpose of the create scheduled event is to define a connection between a schedule and an event.

Purpose

Syntax

The syntax for the create scheduled event statement is

Syntax

```
create [ or alter ] scheduled event schedulepath . eventname
[ with WITHITEM {, WITHITEM} ]
```

```
WITHITEM:
    < active | inactive >
    | backlog handling = < last | all | none >
    | calendar = < active | inactive >
    | horizon = < none | integer >
    | suspend limit = < default | period >
    | group = groupname
```

Description

Scheduled Events represent a link between events (what is to be done) and schedules (when should it be done).

Description

**cwbacklog handling** The backlog handling function indicates how events that happened during a server downtime are to be handled. The three possible actions are shown in the table below:

| Action | Meaning  |
|--------|--|
| last   | Only the last event is triggered                               |
| all    | All the events that happened in the meantime are triggered     |
| none   | None of the events that happened in the meantime are triggered |

**Group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**active** Scheduled Events can be marked as being **active** or **inactive**. If they are marked as being active, events are triggered. Correspondingly, events are not triggered if the Scheduled Event is marked as being inactive. This option can be used to deactivate Scheduled Events without the definition being lost.

User Commands

create scheduled event

**suspend limit** The suspend limit defines the length of the delay before a job belonging to an event is automatically submitted with the suspend option. A delay can arise if, for whatever reason, the Scheduling Server goes offline. After the server has booted up again, events that have happened during the downtime are triggered dependent upon the **backlog handling** option. This means that the execution time is later than the scheduled execution time.

### Output

*Output* This statement returns a confirmation of a successful operation



## create scope

### Purpose

The purpose of the create scope statement is to create a scope within the scope hierarchy. *Purpose*

### Syntax

The syntax for the create scope statement is

*Syntax*

```
create [ or alter ] < scope serverpath | job server serverpath >
[ with JS_WITHITEM {, JS_WITHITEM} ]
```

JS\_WITHITEM:

```
    config = none
|   config = ( CONFIGITEM {, CONFIGITEM} )
|   < enable | disable >
|   error text = < none | string >
|   group = groupname [ cascade ]
|   inherit grant = none
|   inherit grant = ( PRIVILEGE {, PRIVILEGE} )
|   node = nodename
|   parameter = none
|   parameter = ( PARAMETERITEM {, PARAMETERITEM} )
|   password = string
|   rawpassword = string [ SALT = string ]
```

CONFIGITEM:

```
    parametername = none
|   parametername = ( PARAMETERSPEC {, PARAMETERSPEC} )
|   parametername = < string | number >
```

PRIVILEGE:

```
    create content
|   drop
|   edit
|   execute
|   monitor
|   operate
|   resource
|   submit
|   use
|   view
```

PARAMETERITEM:

```
parametername = dynamic
| parametername = < string | number >
```

PARAMETERSPEC:

```
parametername = < string | number >
```

## Description

*Description* The create scope command is used to define a scope or job server and its properties.

**Config** The config option allows a job server to be configured using key/value pairs.

The configuration is inherited downwards so that general configuration parameters can be set at scope level. This means that they are valid for all the job servers created below this level provided that the parameters at the lower level are not overwritten. When the job server logs onto the scheduling server, the server is given the list with the configuration parameters.

**Enable** The enable option allows the job server to connect to the repository server. This option is not valid for scopes and is tacitly ignored if it is specified.

**Disable** The disable option forbids the job server from connecting to the repository server. This option is not valid for scopes and is tacitly ignored if it is specified.

**Group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**Node** The node specifies the computer on which the job server is running. This field has a purely documentary character.

**Parameter** Parameters can be used for communication and data transfer purposes between jobs. They are available for use with the jobs and programs that are executed within the jobs.

The parameters of scopes and job servers can be used to specify information about a job's runtime environment.

A Dynamic Parameter is fulfilled after the job server has logged on from within its own process environment. If the process environment of a job server is changed, attention has to be paid to this Dynamic Variable because otherwise race conditions can easily arise.

create scope

User Commands

**Password** The password option is used to set the password for the job server. This option is not valid for scopes and is tacitly ignored if it is specified.

### Output

This statement returns a confirmation of a successful operation

*Output*

## create trigger

### Purpose

*Purpose* The purpose of the create trigger statement is to create an object which submits a job dynamically when a certain condition is met.

### Syntax

*Syntax* The syntax for the create trigger statement is

```
create [ or alter ] trigger triggername on CT_OBJECT
with WITHITEM {, WITHITEM}
```

CT\_OBJECT:

```
job definition folderpath
```

WITHITEM:

```
< active | inactive >
| < nowarn | warn >
| < nomaster | master >
| rerun
| < noresume | resume in period | resume at datetime >
| state = none
| state = ( < statename {, statename} |
| CT_RSCSTATUSITEM {, CT_RSCSTATUSITEM} > )
| submit folderpath
| submitcount = integer
| < nosuspend | suspend >
| [ type = ] CT_TRIGGERTYPE
| group = groupname
```

CT\_EVENT:

```
< create | change | delete >
```

CT\_RSCSTATUSITEM:

```
< statename any | statename statename | any statename >
```

CT\_TRIGGERTYPE:

```
before final
| immediate local
| immediate merge
| warning
```

## Description

The create trigger statement is used to create an object that waits for a certain event to happen following which a job or batch is submitted in response to this event.

*Description*

If the **or alter** option is specified, an existing trigger is changed; otherwise, it is considered to be an error if the trigger already exists.

Triggers can be defined for Scheduling Entities or Synchronizing (Named) Resources. In the latter case, the trigger is valuated every time the state of the resource or instance of the Named Resource changes. Resource Triggers are always so-called Master Triggers, i.e. they submit a new Master Batch or Master Job. Although triggers in Scheduling Entities can submit Master Batches, by default they submit new children. These children must be defined as (dynamic) children of the triggering Scheduling Entities.

**active** The active option enables the trigger to be activated or deactivated. This means that the trigger action can be temporarily suppressed without having to delete the trigger.

**check** The check option is only valid for **until final** and **until finished** triggers. It defines the time intervals between two evaluations of the conditions.

The condition is always evaluated when a job finishes regardless of the defined intervals.

**condition** The condition option can be specified to define an additional condition which has to be checked before the trigger is activated. This condition is a Boolean expression and the trigger is activated if this condition returns 'true'.

BOOLEAN OPERATORS Since this condition is a Boolean expression, Boolean operators can be used to create multiple complex conditions. This Boolean operators are:

- **not** (unary negation operator)
- **and**
- **or**

The usual priority rules apply. The 'not' operator takes priority over the 'and' operator, which in turn takes priority over the 'or' operator. Parentheses can be used to force a valuation sequence.

It is also permitted to use the Boolean constants **false** and **true**.

COMPARISON OPERATORS Comparisons can be used as part of Boolean expressions. The following comparison operators are defined.

- **==** (equal to)

- `>=` (greater than or equal to)
- `<=` (less than or equal to)
- `!=` (not equal to)
- `>` (greater than)
- `<` (less than)
- `=~` (pattern matches)
- `!~` (pattern does not match)

All comparison operators can work with strings. With character strings, the 'larger than' and 'less than' operators use the ASCII value of the characters. The matching operators do not work with numbers.

For a full description of the regular expressions that can be used by the match operators, please refer to the original Java documentation for `java.util.regex`.

NUMERIC OPERATORS Since it cannot be guaranteed that decisions cannot only be made by comparing two values, the use of (numeric) operators is also permitted. The valid operators are:

- `+` (unary operator)
- `-` (unary negation operator)
- `*` (multiplication operator)
- `/` (division operator)
- `%` (modulo Operator)
- `+` (binary addition operator)
- `-` (binary subtraction operator)

LITERALS AND VARIABLES Literals are numbers (integers and floating point numbers) or character strings. Strings are delimited using double quotes (`"`). It is possible to use variables that are resolved within the context of the triggering job or resource. Variables are addressed by prefixing their name with a dollar sign (`$`).

When a variable is resolved, it is initially assumed that it is a trigger variable. If this is not the case, it is interpreted as a job variable. This kind of resolution is often, but unfortunately not always, correct. The prefix `job.`, `trigger.` or `resource.` can be used to explicitly specify which object will initiate a search for the variable.

Variables are usually created in uppercase. This can be prevented by quoting the name. However, the name is converted back to uppercase when addressing the variables in conditions. To avoid this, the name and prefix (where applicable) have to be written in braces.

The operands are interpreted as character strings or numbers depending upon the operator and the first operand. Multiplication, division, modulo and subtraction operations, as well as unary processes, are only defined for numeric values. The addition operator in a character string context causes the operands to be strung together.

**FUNCTIONS** Not everything can be simply expressed using (numeric) expressions, and so some additional functions have been added. The following functions are defined at this time:

- **abs(expression)** – the absolute value of the expression is returned
- **int(expression)** – the integer value of the expression is returned
- **lowercase(expression)** – the result of the expression is converted to lowercase and returned
- **round(expression)** – the expression is rounded and returned
- **str(expression)** – the expression is returned as a character string
- **substr(source, from [ , until ])** – returns part of the character string *source* beginning at the position *from* up to the end of the string or, if *until* is specified, up to the position *until*
- **str(expression)** – the expression is returned without a space at the end
- **uppercase(expression)** – the result of the expression is converted to uppercase and returned

Functions can be nested in one another without any restrictions.

**EXAMPLES** To clarify this, here are some statements that specify the conditions. Since conditions are not just found in trigger definitions, some other examples are given here as well. However, the syntax is always the same.

The first example shows a trigger that is activated when the job state changes to WARNING or FAILURE after it has already processed some rows (`$NUM_ROWS > 0`).

```
CREATE OR ALTER TRIGGER ON_FAILURE
ON JOB DEFINITION SYSTEM.EXAMPLES.E0100_TRIGGER.TRIGGER
WITH
  STATES = (FAILURE, WARNING),
  SUBMIT SYSTEM.EXAMPLES.E0100_TRIGGER.ON_FAILURE,
  IMMEDIATE MERGE,
  ACTIVE,
  NOMASTER,
  SUBMITCOUNT = 3,
  NOWARN,
  NOSUSPEND,
  CONDITION = '$NUM_ROWS > 0';
```

The second example shows an environment that requires the value of the resource variable `AVAILABLE` to begin with a `T` (such as `TRUE`, `True`, `true` or `Tricky`).

```
CREATE ENVIRONMENT SERVER@LOCALHOST
WITH RESOURCE = (
    RESOURCE.EXAMPLES.STATIC.NODE.LOCALHOST
    CONDITION = '$RESOURCE.AVAILABLE =~ "[tT].*"',
    RESOURCE.EXAMPLES.STATIC.USER.SERVER
);
```

The third example shows the same as the second one, except that here the parameter name is defined as being mixed case.

```
CREATE ENVIRONMENT SERVER@LOCALHOST
WITH RESOURCE = (
    RESOURCE.EXAMPLES.STATIC.NODE.LOCALHOST
    CONDITION = '${RESOURCE.Available} =~ "[tT].*"',
    RESOURCE.EXAMPLES.STATIC.USER.SERVER
);
```

**event** The event option is only relevant for Object Monitor Triggers. It specifies for which types of events the trigger should be activated.

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the `ADMIN` privileged group. In this case, any group can be specified.

**main** The master option is used to define whether the job is submitted as a master or not. This option is only relevant for Job Triggers because Resource Triggers are always submitted as a master.

**master** The master option is used to define whether the job is submitted as a master or not. This option is only relevant for Job Triggers because Resource Triggers are always submitted as a master.

**parent** The parent option is only relevant for Object Monitor Triggers. It can also only be specified in combination with the main option. If it is specified, a search is run for the corresponding job (or batch) within the tree submitted using the main job is sought and the trigger jobs are appended below the parent.

**rerun** The rerun option can only react to restartable states and initiate an automatic rerun. In many cases, it will be practicable to also specify the suspend/resume options to allow a certain period of time between the resumes. Either the submit option or the rerun option have to be specified.



**resume** The resume option can be used together with the suspend option to cause a delayed execution. There are two ways to do this. A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.

If an incomplete time is defined, such as `T16:00`, the time for the trigger activation is taken as the reference time.

**state** The state option is valid for all triggers apart from **until final** and **until finished** triggers. A list of Exit States can be specified for triggers that act on jobs. When the job in which the trigger is defined reaches an Exit State that is listed in the Trigger Definition, this activates the trigger (unless a condition has been specified that is valuated as false).

A list of state changes can be specified in the case of a trigger that acts on a (Named) resource. This allows each state change to be explicitly addressed. It is possible to activate a trigger when a state is exited by using the keyword **any** on the right. It is always possible to activate a trigger on reaching a certain state by specifying **any** on the left. The state option is omitted to activate a trigger after every state change.

**submit** The submit option defines which job or batch is submitted when the trigger is activated.

Either the submit option or the rerun option have to be specified.

**submitcount** The submitcount option is only permitted for triggers that act on jobs. It defines the number of times that a trigger can be activated. If this option is not specified, a submitcount of 1 is used.

If a submitcount of 0 is specified, the submitcount is set to the server parameter `TriggerSoftLimit` (the default value for this is 50). In the case of a rerun trigger, however, a submitcount of 0 means that there is no limit to the number of restart attempts.

If a submitcount greater than the `TriggerSoftLimit` is specified, the submitcount is restricted to the server parameter `TriggerHardLimit` (the default value for this is 100). This is done to avoid endless loops. The `TriggerHardLimit` can be set in the server configuration to  $2^{31} - 1$  in order to virtually eliminate the restriction above.

**suspend** The suspend option is used to submit the job or batch in a suspend state. This option is valid for all trigger types.

**type** There are several types of triggers on jobs. The most important difference between them is the time at which they are checked. The table below shows a list of all the types with a brief description of their behaviour.

It must be emphasised that the type option is not valid for (named) resource triggers.

User Commands

create trigger

| Field                         | Description   |
|-------------------------------|---|
| Type                          | Check time  |
| <b>after final</b>            | Only after a final state is reached is a check run to establish whether the defined trigger has to be activated. If the trigger is not a Master Trigger, the newly submitted job will have the same parent as the triggering job. A special situation arises if the triggering job triggers its own submit. In this case, the newly submitted job replaces the triggering job. Since this exchange takes place before the dependency was checked, all the dependent jobs wait until the newly submitted job is final. |
| <b>before final</b>           | Immediately before a final state is reached, a check is run to establish whether the defined trigger is to be activated. This is the last opportunity to submit new children. If this is done, the job or batch will not reach a Final State at this time.  |
| <b>finish child</b>           | A finish child trigger checks whether it is to be activated every time when a direct or indirect child finishes.  |
| <b>immediate local</b>        | The immediate local trigger local checks whether it has to be activated when a job is terminated. Only the Exit State of the job is taken into consideration.   |
| <b>immediate merge</b>        | The immediate merge trigger checks whether it has to be activated as soon as the Merged Exit State changes.   |
| <b>until final</b>            | The until final trigger periodically checks whether it has to be activated. This check starts as soon as a job or batch has been submitted and does not stop until it is final. The until final trigger imperatively requires a condition. This condition is checked at least once. This check takes place when the job or batch switches to the finished state.  |
| <i>Continues on next page</i> |   |

| Continued from previous page |  |
|------------------------------|--|
| Field                        | Description  |
| until finished               | The until finished trigger is similar to the final trigger. The only difference is that the until finished trigger stops the check as soon as the job is finished. The until finished trigger imperatively requires a condition. This condition is checked at least once. This check takes place when the job or batch switches to the finished state. |

Table 6.5: Description of the different types of triggers

Output

Output

This statement returns a confirmation of a successful operation

## create user

### Purpose

The purpose of the create user statement is to create a pair of values which can be used to authenticate oneself to the server. *Purpose*

### Syntax

The syntax for the create user statement is

*Syntax*

```
create [ or alter ] user username
with WITHITEM {, WITHITEM}
```

WITHITEM:

```
    default group = groupname
    | < enable | disable >
    | group = ( groupname {, groupname} )
    | password = string
    | rawpassword = string [ SALT = string ]
```

### Description

The create user statement is used to create a user. If "or alter" is specified, an already existing user is changed. Otherwise, an existing user will trigger an error. The **default group** clause is used to specify the Default Group. *Description*

**default group** The default group clause defines the group that is used as the owner for all its objects created by the user if an explicit group was not specified when the object was created.

The default group must be one of the user's groups.

**enable** The enable option allows the user to connect to the repository server.

**disable** The disable option forbids the user from connecting to the repository server.

**group** The group clause is used to specify the groups to which the user belongs. Every user is a member of the Public system group.

**password** The password option is used to set the password for the user.

## User Commands

## create user

**rawpassword** The rawpassword is used to set the user's password that is required to connect to the repository server. The rawpassword is the already encrypted password.

The rawpassword option has been implemented to be able to dump and restore users.

**Output**

*Output* This statement returns a confirmation of a successful operation

## **7 deregister commands**

## deregister

### Purpose

*Purpose* The purpose of the deregister statement is to notify the server that the jobserver is not to process jobs anymore. See also the register statement on page [234](#).

### Syntax

*Syntax* The syntax for the deregister statement is

```
deregister serverpath . servername
```

### Description

*Description* The deregister statement is used to notify the server about a more or less permanent failure of a job server. This message prompts different server actions. Firstly, all the running jobs on the job server (i.e. jobs in the state **started**, **running**, **to\_kill** and **killed**) are set to the state **broken\_finished**. Jobs in the state **starting** are reset to **runnable**. The job server is then removed from the list of job servers that are able to process jobs so that this job server is consequently no longer allocated any more jobs. A side effect of this is that jobs that can only run on this server due to their resource requirements are set to the state **error** with the message "Cannot run in any scope because of resource shortage". Finally, a complete reschedule is executed so that jobs are redistributed among the job servers. The job server is added to the list of job-processing job servers again by re-registering it (refer to the register statement on page [234](#)).

### Output

*Output* This statement returns a confirmation of a successful operation



## **8 disconnect commands**

User Commands

disconnect

## disconnect

### Purpose

*Purpose*      The purpose of the disconnect statement is to terminate the server connection.

### Syntax

*Syntax*      The syntax for the disconnect statement is

**disconnect**

### Description

*Description*      The connection to the server can be shut down using the disconnect statement.

### Output

*Output*      This statement returns a confirmation of a successful operation

## 9 drop commands

## drop comment

### Purpose

*Purpose*      The purpose of the drop comment statement is to remove the comment.

### Syntax

*Syntax*      The syntax for the drop comment statement is

**drop** [ **existing** ] **comment on** OBJECTURL

OBJECTURL:

```

distribution distributionname for pool resourcepath in serverpath
|
environment environmentname
|
exit state definition statename
|
exit state mapping mappingname
|
exit state profile profilename
|
event eventname
|
resource resourcepath in folderpath
|
folder folderpath
|
footprint footprintname
|
group groupname
|
interval intervalname
|
job definition folderpath
|
job jobid
|
named resource resourcepath
|
parameter parametername of PARAM_LOC
|
resource state definition statename
|
resource state mapping mappingname
|
resource state profile profilename
|
scheduled event schedulepath . eventname
|
schedule schedulepath
|
resource resourcepath in serverpath
|
< scope serverpath | job server serverpath >
|
trigger triggername on TRIGGEROBJECT
|
user username

```

PARAM\_LOC:

```

folder folderpath
|
job definition folderpath
|
< scope serverpath | job server serverpath >

```

TRIGGEROBJECT:

```
resource resourcepath in folderpath
| job definition folderpath
| object monitor objecttypename
| resource resourcepath in serverpath
```

Description

The drop comment statement deletes the existing comment for the specified object. If the **existing** keyword is not specified, the absence of a comment is considered to be an error.

Description

Output

This statement returns a confirmation of a successful operation

Output

## drop environment

### Purpose

*Purpose*      The purpose of the drop environment statement is to remove the specified environment.

### Syntax

*Syntax*      The syntax for the drop environment statement is

**drop** [ **existing** ] **environment** *environmentname*

### Description

*Description*      The drop environment statement is used to delete a definition from an environment. An error is triggered if jobs are still using this environment. If the **existing** keyword is being used, it is not considered to be an error if the specified environment does not exist.

### Output

*Output*      This statement returns a confirmation of a successful operation

drop event

Purpose

The purpose of the drop event statement is to remove the specified event.

Purpose

Syntax

The syntax for the drop event statement is

Syntax

```
drop [ existing ] event eventname
```

Description

The drop environment statement is used to delete a definition of an event. If the **existing** keyword is being used, it is not considered to be an error if the specified event does not exist.  
An event cannot be deleted if Scheduled Events belong to it.

Description

Output

This statement returns a confirmation of a successful operation

Output

## drop exit state definition

### Purpose

*Purpose* The purpose of the drop exit state definition statement is to remove the specified exit state definition.

### Syntax

*Syntax* The syntax for the drop exit state definition statement is

**drop** [ **existing** ] **exit state definition** *statename*

### Description

*Description* The drop exit state definition statement is used to delete an Exit State Definition. It is considered to be an error if Exit State Profiles are still using this Exit State Definition. If the **existing** keyword is being used, it is not considered to be an error if the specified Exit State Definition does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation



# drop exit state mapping

## Purpose

The purpose of the drop exist state mapping statement is to remove the specified mapping. *Purpose*

## Syntax

The syntax for the drop exit state mapping statement is *Syntax*

**drop [ existing ] exit state mapping *mappingname***

## Description

The drop exit state mapping statement is used to delete an Exit State Mapping. It is considered to be an error if jobs or Exit State Profiles are still using this Exit State Mapping. If the **existing** keyword is being used, it is not considered to be an error if the specified Exit State Mapping does not exist. *Description*

## Output

This statement returns a confirmation of a successful operation *Output*

## drop exit state profile

### Purpose

*Purpose* The purpose of the drop exit state profile statement is to remove the specified profile.

### Syntax

*Syntax* The syntax for the drop exit state profile statement is

**drop** [ **existing** ] **exit state profile** *profilename*

### Description

*Description* The drop exit state profile statement is used to delete a definition of an Exit State Profile. It is considered to be an error if jobs are still using this Exit State Profile. If the **existing** keyword is being used, it is not considered to be an error if the specified Exit State Profile does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation

## drop folder

### Purpose

The purpose of the drop folder statement is to remove a folder and its contents from the system. *Purpose*

### Syntax

The syntax for the drop folder statement is *Syntax*

```
drop [ existing ] folder folderpath [ cascade ] [ force ]
```

### Description

The drop folder statement removes folders and their contents from the system. There are two options: *Description*

**Cascade** The cascade option deletes folders, job definitions and subfolders, but only if they are not referenced to the job definitions, for example as required job.

**Force** With the force option, references to job definitions are removed as well. Force implies cascade. Folders cannot be deleted if they are not empty unless cascade or force has been specified.

### Output

This statement returns a confirmation of a successful operation *Output*

User Commands

drop footprint

## drop footprint

### Purpose

*Purpose*      The purpose of the drop footprint statement is to remove the specified footprint.

### Syntax

*Syntax*      The syntax for the drop footprint statement is

**drop** [ **existing** ] **footprint** *footprintname*

### Description

*Description*      The drop footprint statement is used to delete footprints and resource requirements. If the **existing** keyword is being used, it is not considered to be an error if the specified footprint does not exist.

### Output

*Output*      This statement returns a confirmation of a successful operation

## drop group

### Purpose

The purpose of the drop group statement is to remove a group from the system. *Purpose*

### Syntax

The syntax for the drop group statement is *Syntax*

**drop** [ **existing** ] **group** *groupname*

### Description

The drop group statement is used to delete a group. If there are still any group members in this group, their membership is automatically terminated. *Description*  
It is considered to be an error if the group is still the owner of an object.  
It is not possible to delete a group that is defined as the Default Group for a user.  
If the **existing** keyword is being used, it is not considered to be an error if the specified group does not exist.

### Output

This statement returns a confirmation of a successful operation *Output*

## drop interval

### Purpose

*Purpose*      The purpose of the drop interval statement is to remove the specified interval.

### Syntax

*Syntax*      The syntax for the drop interval statement is

**drop** [ **existing** ] **interval** *intervalname*

### Description

*Description*      The drop interval statement is used to delete intervals. If the **existing** keyword is being used, it is not considered to be an error if the specified interval does not exist.

### Output

*Output*      This statement returns a confirmation of a successful operation

## drop job definition

### Purpose

The purpose of the drop job definition statement is to remove the specified scheduling entity object. *Purpose*

### Syntax

The syntax for the drop job definition statement is *Syntax*

**drop** [ **existing** ] **job definition** *folderpath . jobname* [ **force** ]

### Description

The drop job definition statement deletes the given job definition. *Description*  
If a job definition is referenced (for instance as Required Job), it cannot be deleted unless the force option is specified. If the force option is being used, all references to a job definition are also deleted.

### Output

This statement returns a confirmation of a successful operation *Output*

## drop named resource

### Purpose

*Purpose* The purpose of the drop named resource statement is to delete a class of resources.

### Syntax

*Syntax* The syntax for the drop named resource statement is

```
drop [ existing ] named resource resourcepath [ cascade ]
```

### Description

*Description* The drop named resource statement is used to delete Named Resources. It is considered to be an error if the Named Resource is still instantiated in scopes, job definitions and/or folders and the **cascade** option is not specified. On the other hand, Scope Resources as well as folders and Job Definition Resources are deleted if the **cascade** option is specified. If any requirements exist for the Named Resources that are to be deleted, the statement will fail. If the **existing** keyword is being used, it is not considered to be an error if the specified Name Resource does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation



## drop resource

### Purpose

The purpose of the drop resource statement is to remove an instance of a named resource from a scope, folder or job definition. *Purpose*

### Syntax

The syntax for the drop resource statement is

*Syntax*

```
drop [ existing ] RESOURCE_URL [ force ]
```

RESOURCE\_URL:

```
resource resourcepath in folderpath
| resource resourcepath in serverpath
```

### Description

The drop resource statement is used to delete a resource. It is considered to be an error if the resource is still being allocated by Running Jobs. *Description*  
If the **existing** keyword is being used, it is not considered to be an error if the specified resource does not exist.

### Output

This statement returns a confirmation of a successful operation

*Output*

## drop resource state definition

### Purpose

*Purpose* The purpose of the drop resource state definition statement is to remove the definition.

### Syntax

*Syntax* The syntax for the drop resource state definition statement is

**drop** [ **existing** ] **resource state definition** *statename*

### Description

*Description* The drop resource state definition statement is used to delete Resource State Definitions. It is considered to be an error if Resource State Profiles are still using this Resource State Definition. If the **existing** keyword is being used, it is not considered to be an error if the specified Resource State Definition does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation

# drop resource state mapping

## Purpose

The purpose of the drop resource state mapping statement is to delete the map- *Purpose*  
ping.

## Syntax

The syntax for the drop resource state mapping statement is *Syntax*

**drop** [ **existing** ] **resource state mapping** *mappingname*

## Description

The drop resource state mapping statement is used to delete a Resource State *Description*  
Mapping. It is considered to be an error if job definitions are using this Resource  
State Mapping. If the **existing** keyword is being used, it is not considered to be an  
error if the specified Resource State Mapping does not exist.

## Output

This statement returns a confirmation of a successful operation *Output*

## drop resource state profile

### Purpose

*Purpose* The purpose of the drop resource state profile statement is to remove a resource state profile.

### Syntax

*Syntax* The syntax for the drop resource state profile statement is

**drop** [ **existing** ] **resource state profile** *profilename*

### Description

*Description* The drop resource state profile statement is used to delete the definition of a Resource State Profile. It is considered to be an error if Named Resources are still using this Resource State Profile. If the **existing** keyword is being used, it is not considered to be an error if the specified Resource State Profile does not exist.

### Output

*Output* This statement returns a confirmation of a successful operation

## drop schedule

### Purpose

The purpose of the drop schedule statement is to remove the specified schedule. *Purpose*

### Syntax

The syntax for the drop schedule statement is *Syntax*

**drop** [ **existing** ] **schedule** *schedulepath*

### Description

The drop schedule statement is used to delete schedules. If the **existing** keyword is being used, it is not considered to be an error if the specified schedule does not exist. *Description*

A schedule cannot be deleted if it has a Scheduled Event that belongs to it. It cannot be deleted either if child objects exist.

### Output

This statement returns a confirmation of a successful operation *Output*

## drop scheduled event

### Purpose

*Purpose*      The purpose of the drop scheduled event is to remove the specified scheduled event.

### Syntax

*Syntax*      The syntax for the drop scheduled event statement is

**drop** [ **existing** ] **scheduled event** *schedulepath . eventname*

### Description

*Description*      The drop interval statement is used to delete Scheduled Events. If the **existing** keyword is being used, it is not considered to be an error if the specified Schedule Event does not exist.

### Output

*Output*      This statement returns a confirmation of a successful operation

drop scope

Purpose

The purpose of the drop scope statement is to remove a scope and its contents from the scope hierarchy.

Purpose

Syntax

The syntax for the drop scope statement is

Syntax

```
drop [ existing ] < scope serverpath | job server serverpath > [ cascade ]
```

Description

This statement is synonymous to the drop job server statement. The cascade option deletes the scope together with its contents.

Description

Output

This statement returns a confirmation of a successful operation

Output

## drop trigger

### Purpose

*Purpose*      The purpose of the drop trigger statement is to remove the specified trigger.

### Syntax

*Syntax*      The syntax for the drop trigger statement is

```
drop [ existing ] trigger triggername on TRIGGEROBJECT
TRIGGEROBJECT:
    resource resourcepath in folderpath
    | job definition folderpath
    | object monitor objecttypename
    | resource resourcepath in serverpath
```

### Description

*Description*      The drop trigger statement is used to delete a trigger.  
If the **existing** keyword is being used, it is not considered to be an error if the specified trigger does not exist.

### Output

*Output*      This statement returns a confirmation of a successful operation



## drop user

### Purpose

The purpose of the drop user statement is to remove the user from the system.

*Purpose*

### Syntax

The syntax for the drop user statement is

*Syntax*

```
drop [ existing ] user username
```

### Description

The drop user statement is used to logically delete a user. If the **existing** keyword is being used, it is not considered to be an error if the specified user does not exist.

*Description*

### Output

This statement returns a confirmation of a successful operation

*Output*

User Commands

drop user

## 10 finish commands

## finish job

### Purpose

*Purpose* The purpose of the finish job command is to inform the server about the termination of a job.

### Syntax

*Syntax* The syntax for the finish job statement is

**finish job** *jobid* **with exit code** = *signed\_integer*

**finish job with exit code** = *signed\_integer*

### Description

*Description* The finish job command is used by the job server to report the Exit Code for a process to the server. During the course of repair work, it may be necessary for an administrator to tell the server in this way that a job has terminated. Jobs can themselves report that they have finished. To do this, they connect to the server and use the second form of the statement.

### Output

*Output* This statement returns a confirmation of a successful operation

## 11 get commands

get parameter

Purpose

*Purpose*      The purpose of the get parameter statement is to get the value of the specified parameter within the context of the requesting job, respectively the specified job.

Syntax

*Syntax*      The syntax for the get parameter statement is

```
get parameter parametername
[ < strict | warn | liberal > ]

get parameter of jobid parametername
[ < strict | warn | liberal > ]
```

Description

*Description*      The get parameter statement is used to get the value of the specified parameter within the context of a job.

The additional option has the following meaning:

| Option         | Meaning  |
|----------------|--|
| <b>strict</b>  | The server returns an error if the requested parameter is not explicitly declared in the job definition.                 |
| <b>warn</b>    | A message is written to the server’s log file when an attempt is made to determine the value of an undeclared parameter. |
| <b>liberal</b> | An attempt to query an undeclared parameter is tacitly allowed.  |

The default behaviour depends on the configuration of the server.

Output

*Output*      This statement returns an output structure of type record.

**Main output description**      The data items of the output are described in the table below.

| Field | Description                      |
|-------|----------------------------------|
| VALUE | Value of the requested parameter |

Table 11.1: Description of the output structure of the get parameter statement

get submittag

Purpose

The purpose of the get submittag statement is to get a (server local) unique identifier from the server. This identifier can be used to avoid race conditions between frontend and backend when submitting jobs. *Purpose*

Syntax

The syntax for the get submittag statement is *Syntax*

get submittag

Description

The get submittag statement is used to acquire an identification from the server. This prevents race conditions between the front end and back end when jobs are submitted. *Description*  
Such a situation arises when feedback about the submit does not reach the front end due to an error. By using a submittag, the front end can safely start a second attempt. The server recognises whether the job in question has already been submitted and responds accordingly. This reliably prevents the job from being submitted twice.

Output

This statement returns an output structure of type record. *Output*

**Main output description** The data items of the output are described in the table below.

| Field | Description              |
|-------|--------------------------|
| VALUE | The requested Submit Tag |

Table 11.2: Description of the output structure of the get submittag statement

User Commands

get submittag



## 12 kill commands

## kill session

### Purpose

*Purpose*      The purpose of the kill session is to terminate the specified session.

### Syntax

*Syntax*      The syntax for the kill session statement is

**kill session** *sid*

### Description

*Description*      The list session command can be used to display a list of active sessions. The displayed session ID can be used to terminate the session in question with the kill session command. Only administrators (i.e. members of the Admin group) are allowed to use this statement. It is not possible to terminate your own session.

### Output

*Output*      This statement returns a confirmation of a successful operation

## 13 link commands

## link resource

### Purpose

*Purpose* The purpose of the link resource statement is to create a reference to a resource in another scope.

### Syntax

*Syntax* The syntax for the link resource statement is

```
link resource resourcepath in serverpath to < scope serverpath | job
server serverpath > [ force ]
```

### Description

*Description* With the link resource statement it is possible to make the resource of another scope visible and usable in a scope. This is necessary if a logical process requires resources from more than one scope. This is very well the case, for example, with processes that communicate with a database system.

From the system's perspective, it can scarcely differentiate between a Resource Link and the referenced resource. All operations such as allocating, locking, reading or setting variables take place on the base resource. This means that the link behaves as if it were the base resource. The only difference lies in the view of the allocations. With the base resource, all the allocations are shown. With a link, only those allocations that take place via the link are shown.

It is also possible to set links to links.

The **force** option can be used to overwrite an existing link. An already existing resource is deleted and the link is created. These operations are obviously only possible if the resource or link is not being used, i.e. if there are no allocations or reservations present.

### Output

*Output* This statement returns a confirmation of a successful operation

## 14 list commands

## list calendar

### Purpose

*Purpose* The purpose of the list calendar statement is to get an overview of scheduled jobs.

### Syntax

*Syntax* The syntax for the list calendar statement is

```
list calendar [ with LC_WITHITEM {, LC_WITHITEM} ]
```

LC\_WITHITEM:

```
    endtime = datetime
    | filter = LC_FILTERTERM {or LC_FILTERTERM}
    | starttime = datetime
    | time zone = string
```

LC\_FILTERTERM:

```
LC_FILTERITEM {and LC_FILTERITEM}
```

LC\_FILTERITEM:

```
    ( LC_FILTERTERM {or LC_FILTERTERM} )
    | job . identifier < cmpop | like | not like > < number | string >
    | name like string
    | not ( LC_FILTERTERM {or LC_FILTERTERM} )
```

### Description

*Description* The list calendar statement gives you a list of all the calendar entries sorted by the start dates of the executable objects.  
If a period is specified, those objects whose start time plus the Expected Final Time lies in the selected period are also displayed.

### Output

*Output* This statement returns a confirmation of a successful operation

## list dependency definition

### Purpose

The purpose of the list dependency definition statement is to get a list of all dependencies of a job definition. *Purpose*

### Syntax

The syntax for the list dependency definition statement is

*Syntax*

**list dependency definition** *folderpath*

### Description

The list dependency definition statement gives you a list of all the dependencies of a job definition. *Description*

### Output

This statement returns an output structure of type table.

*Output*

**Main output description** The data items of the output are described in the table below.

| Field               | Description  |
|---------------------|--|
| ID                  | The repository object id   |
| SE_DEPENDENT_PATH   | The folder containing the dependent Scheduling Entity.   |
| DEPENDENT_NAME      | The name of the dependent Scheduling Entity.   |
| SE_REQUIRED_PATH    | The folder containing the required Scheduling Entity.  |
| REQUIRED_NAME       | The name of the required Scheduling Entity.  |
| NAME                | The object name  |
| UNRESOLVED_HANDLING | The Unresolved Handling field describes what to do if a dependent object instance is not present in the current Master Batch. The following options are available: Ignore, Error and Suspend |

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| Field           | Description   |
|-----------------|---|
| MODE            | The Dependency Mode states the context in which the list of dependencies has to be viewed. The following options are available: All and Any   |
| STATE_SELECTION | The State Selection defines how the required Exit States are determined. The options here are FINAL, ALL_REACHABLE, UNREACHABLE and DEFAULT. In the case of FINAL, the required Exit States can be explicitly listed. |
| ALL_FINALS      | This field defines whether the dependency is already fulfilled when a Final State is reached (True) or if the required states are explicitly listed (False).  |
| CONDITION       | The condition that has to be fulfilled is entered in the Condition field.   |
| STATES          | This is the list of all the valid Exit States which the required object must have for the dependency to be fulfilled and so that the dependent job can start.   |

---

Table 14.1: Description of the output structure of the list dependency definition statement



## list dependency hierarchy

### Purpose

The purpose of the list dependency hierarchy statement is to get a list of all dependencies of a submitted entity. *Purpose*

### Syntax

The syntax for the list dependency hierarchy statement is

*Syntax*

```
list dependency hierarchy jobid [ with EXPAND ]
```

EXPAND:

```
    expand = none
| expand = < ( id {, id} ) | all >
```

### Description

The list dependency hierarchy statement gives you a list of all the dependencies of a Submitted Dependency. *Description*

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

### Output

This statement returns an output structure of type table.

*Output*

**Main output description** The data items of the output are described in the table below.

| Field                         | Description  |
|-------------------------------|--|
| ID                            | The ID of the Dependency Instance.                     |
| DD_ID                         | The ID of the Dependency Definition.                   |
| DEPENDENT_ID                  | This is the ID of the dependent job.                   |
| DEPENDENT_NAME                | This is the fully qualified name of the dependent job. |
| <i>Continued on next page</i> |  |

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| <b>Field</b>        | <b>Description</b>  |
|---------------------|---|
| REQUIRED_ID         | This is the ID of the required job.   |
| REQUIRED_NAME       | This is the fully qualified name of the required job.   |
| DEP_STATE           | This is the current state of the dependency relationship. The following variants are used: Open, Fulfilled and Filed  |
| DEPENDENCY_PATH     | This is a ';'-separated list of job hierarchies (parent-child relationships). Each job hierarchy is a list of path names separated by a colon (':').  |
| SE_DEPENDENT_ID     | The ID of the dependent Scheduling Entity.  |
| SE_DEPENDENT_NAME   | The fully qualified name of the dependent Scheduling Entity.  |
| SE_REQUIRED_ID      | The ID of the required Scheduling Entity.   |
| SE_REQUIRED_NAME    | The fully qualified name of the required Scheduling Entity.   |
| DD_NAME             | This is the name of the Dependency Definition.  |
| UNRESOLVED_HANDLING | This field shows the setting of the On Unresolved Error field from the submit mask. The following options are available: Ignore, Suspend and None   |
| MODE                | States the currently used Dependency Mode (ALL_FINAL or JOB_FINAL).   |
| STATE_SELECTION     | The State Selection defines how the required Exit States are determined. The options here are FINAL, ALL_REACHABLE, UNREACHABLE and DEFAULT. In the case of FINAL, the required Exit States can be explicitly listed. |
| MASTER_ID           | This is the ID of the Master Job that was submitted in order to create this runtime object.   |
| SE_TYPE             | This is the Scheduling Entity type (job, batch or milestone).   |
| PARENT_ID           | This is the ID of the parent runtime object that submitted the current job. If the job does not have a parent, NONE is displayed here.  |
| PARENT_NAME         | This is the fully qualified name of the parent runtime object that submitted the current job.   |

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| Field               | Description   |
|---------------------|---|
| OWNER               | The group owning the object   |
| SCOPE               | This is the fully qualified name of the job server on which the job was started. If the job has not yet been started, 'null' is displayed here. |
| EXIT_CODE           | The Exit Code is the exit value that the Run program had when the process finished.   |
| PID                 | This is the process ID of the Job Executor.   |
| EXTPID              | This is the ID of the process that is being executed.   |
| JOB_STATE           | The current Job State.  |
| JOB_ESD             | This is the job's Exit State. If the job has not yet finished, 'null' is displayed here.  |
| FINAL_ESD           | This is the Merged Exit State.  |
| JOB_IS_FINAL        | Specifies whether the job is Final (True) or not (False).   |
| CNT_REQUIRED        | The number of jobs that are dependent on the current job if its status is <b>dependency.wait</b> .  |
| CNT_RESTARTABLE     | The number of Child Jobs in the state <b>restartable</b> .  |
| CNT_SUBMITTED       | The number of Child Jobs in the state <b>submitted</b> .  |
| CNT_DEPENDENCY_WAIT | The number of Child Jobs in the state <b>dependency.wait</b> .  |
| CNT_RESOURCE_WAIT   | The number of Child Jobs in the state <b>resource.wait</b> .  |
| CNT_RUNNABLE        | The number of Child Jobs in the state <b>runnable</b> .   |
| CNT_STARTING        | The number of Child Jobs in the state <b>starting</b> .   |
| CNT_STARTED         | The number of Child Jobs in the state <b>started</b> .  |
| CNT_RUNNING         | The number of Child Jobs in the state <b>running</b> .  |
| CNT_TO_KILL         | The number of Child Jobs in the state <b>to.kill</b> .  |
| CNT_KILLED          | The number of Child Jobs in the state <b>killed</b> .   |
| CNT_CANCELLED       | The number of Child Jobs in the state <b>cancelled</b> .  |
| CNT_FINAL           | The number of Child Jobs in the state <b>final</b> .  |
| CNT_BROKEN_ACTIVE   | The number of Child Jobs in the state <b>broken.active</b> .  |
| CNT_BROKEN_FINISHED | The number of Child Jobs in the state <b>broken.finished</b> .  |

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|-------------------------------------|---|
| <b>Field</b>                        | <b>Description</b>  |
| CNT_ERROR                           | The number of Child Jobs in the state <b>error</b> .  |
| CNT_SYNCHRONIZE_WAIT                | The number of Child Jobs in the state <b>synchronize_wait</b> .   |
| CNT_FINISHED                        | The number of Child Jobs in the state <b>finished</b> .   |
| SUBMIT_TS                           | The time when the job was submitted.  |
| SYNC_TS                             | The time when the job reached the state Synchronize_Wait.   |
| RESOURCE_TS                         |   |
| RUNNABLE_TS                         | The time when the job reached the state Runnable.   |
| START_TS                            | The time when the job was started.  |
| FINSH_TS                            |   |
| FINAL_TS                            |   |
| ERROR_MSG                           | The error message that was displayed on reaching the state Error.   |
| DEPENDENT_ID_ORIG                   | The ID of the object that defined the dependency.   |
| DEPENDENCY_OPERATION                | The Dependency Operation defines whether all the dependencies (All) or just one single dependency have to be fulfilled. |
| CHILD_TAG                           | Marker for differentiating between multiple dynamically submitted children.   |
| CHILDREN                            | The number of the children of the job.  |
| REQUIRED                            | The number of dependent jobs.   |
| DD_STATES                           | A comma-separated list of the required Exit States.   |
| IS_SUSPENDED                        | This field defines whether the job is suspended (True) or not (False).  |
| PARENT_SUSPENDED                    | This field defines whether the job is suspended (True) or not (False) through one of its parents.                       |
| CNT_UNREACHABLE                     | The number of children whose dependencies cannot be fulfilled.  |
| DEPENDENT_PATH_ORIG                 | The fully qualified name of the object that defined the dependency.   |
| IGNORE                              | Ignore indicates whether this dependency is ignored (True) or not (False).  |

Table 14.2: Description of the output structure of the list dependency hierarchy statement

list environment

Purpose

The purpose of the list environment statement is to get a list of defined environments. *Purpose*

Syntax

The syntax for the list environment statement is *Syntax*

list environment

Description

The list environment statement is used to get a list of defined environments that are visible to the user. *Description*

Output

This statement returns an output structure of type table. *Output*

**Main output description** The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The name of the environment.                         |
| PRIVS | String containing the users privileges on the object |

Table 14.3: Description of the output structure of the list environment statement

list event

Purpose

*Purpose*      The purpose of the list event statement is to get a list of all defined events.

Syntax

*Syntax*      The syntax for the list event statement is

```
list event
```

Description

*Description*      The list event statement creates a list of all the defined events.

Output

*Output*      This statement returns an output structure of type table.

**Main output description**    The data items of the output are described in the table below.

| Field             | Description  |
|-------------------|--|
| ID                | The repository object id                               |
| NAME              | The object name  |
| OWNER             | The group owning the object                            |
| SCHEDULING_ENTITY | Batch or job that is submitted when this event occurs. |
| PRIVS             | String containing the users privileges on the object   |

Table 14.4: Description of the output structure of the list event statement

list exit state definition

Purpose

The purpose of the list exit state definition statement is to get a list of all defined exit states. *Purpose*

Syntax

The syntax for the list exit state definition statement is *Syntax*

list exit state definition

Description

The list exit state definition statement gives you a list of all the Exit States. *Description*

Output

This statement returns an output structure of type table. *Output*

**Main output description** The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.5: Description of the output structure of the list exit state definition statement

list exit state mapping

Purpose

Purpose

The purpose of the list exit state mapping statement is to get a list of all defined mappings.

Syntax

Syntax

The syntax for the list exit state mapping statement is

list exit state mapping

Description

Description

The list exit state mapping statement gives you a list of all the defined mappings.

Output

Output

This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.6: Description of the output structure of the list exit state mapping statement



list exit state profile

Purpose

The purpose of the list exit state profile statement is to get a list of all defined exit state profiles.

Purpose

Syntax

The syntax for the list exit state profile statement is

Syntax

list exit state profile

Description

The list exit state profile statement gives you a list of all the defined Exit State Profiles.

Description

Output

This statement returns an output structure of type table.

Output

**Main output description** The data items of the output are described in the table below.

| Field            | Description  |
|------------------|--|
| ID               | The repository object id   |
| NAME             | The object name  |
| DEFAULT_ESM_NAME | The default Exit State Mapping is active if the job itself does not define something else. |
| IS_VALID         | Flag displayed showing the validity of this Exit State Profile.                            |
| PRIVS            | String containing the users privileges on the object                                       |

Table 14.7: Description of the output structure of the list exit state profile statement

## list folder

### Purpose

*Purpose* The purpose of the list folder statement is to get a (partial) list of all folders defined in the system.

### Syntax

*Syntax* The syntax for the list folder statement is

```
list folder folderpath [ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
expand = none
| expand = < ( id {, id} ) | all >
| FILTERTERM {or FILTERTERM}
```

FILTERTERM:

```
FILTERITEM {and FILTERITEM}
```

FILTERITEM:

```
( FILTERTERM {or FILTERTERM} )
| name like string
| not ( FILTERTERM {or FILTERTERM} )
| owner in ( groupname {, groupname} )
```

### Description

*Description* The list folder statement gives you a list for the specified folder with all the direct child folders.

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

**filter** The child folders can be selected by name. Refer to the official Java documentation for the exact syntax used for regular expressions. The various conditions can be combined with one another using **and** and **or**. The usual valuation order of the operators applies (**and** before **or**).

### Output

*Output* This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field                | Description   |
|----------------------|---|
| ID                   | The repository object id  |
| NAME                 | The object name   |
| OWNER                | The group owning the object   |
| TYPE                 | This states the type of object. The following options are available: Batch, Milestone, Job and Folder.  |
| RUN_PROGRAM          | A command line that starts the script or program can be specified in the Run Program field.   |
| RERUN_PROGRAM        | The Rerun Program field specifies the command that is to be executed when repeating the job following an error (rerun).   |
| KILL_PROGRAM         | The Kill Program field determines which program is to be run to terminate a currently running job.  |
| WORKDIR              | This is the working directory of the current job.   |
| LOGFILE              | The Logfile field specifies the file in which all the normal outputs of the Run program are to be returned. These are usually all the outputs that use the standard output channel (STDOUT under UNIX). |
| TRUNC_LOG            | Defines whether the log file is to be renewed or not.   |
| ERRLOGFILE           | The Error Logfile field specifies the file in which all the error outputs from the Run program are to be returned.  |
| TRUNC_ERRLOG         | Defines whether the Error log file is to be renewed or not.   |
| EXPECTED_RUNTIME     | The Expected Runtime describes the anticipated time that will be required to execute a job.   |
| EXPECTED_FINALTIME   | The Expected Finaltime describes the anticipated time that will be required to execute a job or batch together with its children.   |
| GET_EXPECTED_RUNTIME | This is a reserved field for future extended functions.   |

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| Field              | Description  |
|--------------------|--|
| PRIORITY           | The Priority field indicates the urgency with which the process, if it is to be started, is to be considered by the Scheduling System.                         |
| MIN_PRIORITY       | This is the minimum effective priority that can be achieved through natural aging.   |
| AGING_AMOUNT       | The number of time units after which the effective priority is incremented by 1.   |
| AGING_BASE         | The time unit that is used for the aging interval.   |
| SUBMIT_SUSPENDED   | Flag that indicates whether the object is to be suspended after the submit.  |
| MASTER_SUBMITTABLE | The job that is started by the trigger is submitted as its own Master Job and does not have any influence on the current Master Job run of the triggering job. |
| SAME_NODE          | Obsolete   |
| GANG_SCHEDULE      | Obsolete   |
| DEPENDENCY_MODE    | The Dependency Mode states the context in which the list of dependencies has to be viewed. The following options are available: All and Any                    |
| ESP_NAME           | This is the name of the Exit State Profile.  |
| ESM_NAME           | This is the name of the Exit State Mapping.  |
| ENV_NAME           | This is the name of the environment.   |
| FP_NAME            | This is the name of the footprint.   |
| SUBFOLDERS         | This is the number of folders below the folder.  |
| ENTITIES           | This is the number of jobs and batches below the folder.   |
| HAS_MSE            | The folder contains at least one job that can be executed as a Master Submittable job.   |
| PRIVS              | String containing the users privileges on the object   |
| IDPATH             | ID of the path to the object.  |
| HIT                | Line is a search hit Y/N   |

Table 14.8: Description of the output structure of the list folder statement

list footprint

Purpose

The purpose of the list footprint statement is to get a list of all defined footprints. Purpose

Syntax

The syntax for the list footprint statement is Syntax

list footprint

Description

The list exit footprint statement gives you a list of all the defined footprints. Description

Output

This statement returns an output structure of type table. Output

Main output description The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.9: Description of the output structure of the list footprint statement

list group

Purpose

Purpose

The purpose of the list group statement is to get a list of all defined groups.

Syntax

Syntax

The syntax for the list group statement is

list group

Description

Description

The list group statement gives you a list of all the defined groups.

Output

Output

This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.10: Description of the output structure of the list group statement

list interval

Purpose

The purpose of the list interval statement is to get a list of all defined intervals.

Purpose

Syntax

The syntax for the list interval statement is

Syntax

list interval

Description

The list interval statement gives you a list of all the defined intervals.

Description

Output

This statement returns an output structure of type table.

Output

**Main output description** The data items of the output are described in the table below.

| Field     | Description   |
|-----------|---|
| ID        | The repository object id  |
| NAME      | The object name   |
| OWNER     | The group owning the object   |
| STARTTIME | The beginning of the interval. No edges are generated before this time.                                 |
| ENDTIME   | The end of the interval. No edges are generated after this time.  |
| BASE      | The period of the interval.   |
| DURATION  | The duration of a block.  |
| SYNCTIME  | The time with which the interval is synchronised. The first period of the interval starts at this time. |
| INVERSE   | The definition whether the selection list should be regarded as being positive or negative.             |
| EMBEDDED  | The interval from which a selection is subsequently made.   |

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|-------------------------------------|--|
| Field                               | Description  |
| PRIVS                               | String containing the users privileges on the object |

Table 14.11: Description of the output structure of the list interval statement



## list job

### Purpose

The purpose of the list job statement is to get a list of submitted entities based on the selectioncriteria specified. *Purpose*

### Syntax

The syntax for the list job statement is

*Syntax*

```
list job [ jobid {, jobid} ] [ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
expand = none
| expand = < ( id {, id} ) | all >
| FILTERTERM {or FILTERTERM}
| mode = < list | tree >
| parameter = ( parametername {, parametername} )
```

FILTERTERM:

```
FILTERITEM {and FILTERITEM}
```

FILTERITEM:

```
( FILTERTERM {or FILTERTERM} )
| < final | restartable | pending >
| exit state in ( statename {, statename} )
| < history | future > = period
| history BETWEEN period and period
| job . identifier < cmpop | like | not like > < number | string >
| job in ( jobid {, jobid} )
| job server in ( serverpath {, serverpath} )
| job status in ( JOBSTATE {, JOBSTATE} )
| master
| master_id in ( jobid {, jobid} )
| merged exit state in ( statename {, statename} )
| name in ( folderpath {, folderpath} )
| name like string
| node in ( nodename {, nodename} )
| not ( FILTERTERM {or FILTERTERM} )
| owner in ( groupname {, groupname} )
| submitting user in ( groupname {, groupname} )
| warning
```

JOBSTATE:

```
broken active
```

```

| broken finished
| cancelled
| dependency wait
| error
| final
| finished
| killed
| resource wait
| runnable
| running
| started
| starting
| submitted
| synchronize wait
| to kill
| unreachable

```

## Description

### *Description*

The `list job` statement gives you a list of Submitted Entities. The selection of the jobs can be finely specified as required that by defining a filter. Job parameter names can also be specified that are then visible in the output.

The statement `list job` without any further information is equivalent to the statement `list job with master` and therefore outputs the list of all the Master Jobs and Batches.

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

**mode** **list** mode just outputs a list of selected jobs. If the **tree** mode is defined, however, all the parents for each selected job are outputted as well.

**parameter** Additional information about the selected jobs can be outputted by specifying parameter names. The parameters are valuated in the context of each job and the value of the parameter is displayed in the output. If this fails, the output is an empty string. This means that specifying non-existent parameter names does not have any adverse consequences.

This allows state or progress details for jobs to be easily and clearly are displayed.

**filter** A large number of filters are available for filtering all the jobs present in the system. The individual filters can be combined with one another using Boolean operators. The usual order of priority operator applies here.

The individual filter functions are briefly described here.

FINAL, RESTARTABLE, PENDING This filter selects all the jobs in the state **final** respectively **restartable** or **pending**

.

EXIT STATE All jobs that are in an Exit State defined in the specified list are selected. This is the job's own Exit State, and not the Merged Exit State which also takes the Exit States of the children into consideration.

HISTORY By defining a history, only those jobs that have become final at the earliest before the given time are selected. All non-final jobs are selected.

FUTURE Scheduled future jobs are also outputted by specifying a future. These events are determined based on Scheduled Events and calendar entries. 'SCHEDULED' is outputted as the state of such jobs.

JOB.IDENTIFIER This filter is used to select all those jobs whose defined parameters fulfil the condition. This allows all the jobs of a developer to be easily selected, for example. (This obviously assumes that each job has a parameter with the developer's name).

JOB IN (ID, ...) This filter option is equivalent to specifying Jobids after "**list job**". Only those jobs with one of the specified IDs are selected.

JOB SERVER Only those jobs running on the specified job server are selected.

JOB STATE This filter selects only those jobs that have one of the specified job states. For example, it is then easy to find all the jobs in the state **broken.finished**.

MASTER Only the Master Jobs and Batches are selected.

MASTER.ID Only jobs that belong to the specified Master Jobs and Batches are selected.

MERGED EXIT STATE All jobs that are in a Merged Exit State defined in the specified list are selected. This is the Exit State that results from a job's own Exit State in combination with the Exit States of the children.

NAME IN (FOLDERPATH, ...) The jobs whose associated Scheduling Entity is included in the specified list are selected.

NAME LIKE STRING The jobs whose associated Scheduling Entity has the matching name are selected. Refer to the official Java documentation for more details about the syntax used for regular expressions.

NODE Jobs running on one of the specified nodes are selected. In this context, the node designates the entry for the **node** of the job server.

OWNER Only the jobs of the defined owners (groups) are selected.

SUBMITTING USER Only jobs that have been submitted by the specified user are selected.

**Output**

*Output* This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field               | Description  |
|---------------------|--|
| ID                  | The repository object id   |
| MASTER_ID           | This is the ID of the Master Job.  |
| HIERARCHY_PATH      | The Hierarchy Path is the full path of the current entry. The single hierarchy levels are separated by a period. |
| SE_TYPE             | This is the Scheduled Entity type.   |
| PARENT_ID           | This is the ID of the parent.  |
| OWNER               | The group owning the object  |
| SCOPE               | The scope or job server to which the job is allocated.   |
| HTTPHOST            | The host name of the scope for accessing log files via HTTP.   |
| HTTPPORT            | The HTTP port number of the job server for accessing log files via HTTP.   |
| EXIT_CODE           | The Exit Code of the executed process.   |
| PID                 | The Pid is the process identification number of the monitoring job server process on the respective host system. |
| EXTPID              | The Extpid is the process identification number of the utility process.  |
| STATE               | The State is the current state of the job.   |
| IS_CANCELLED        | Indicates whether a Cancel operation was performed on the job.   |
| JOB_ESD             | The job_esd is the Exit State of the job.  |
| FINAL_ESD           | The final_esd is the Merged Exit State of the job or batch job with all the Child Exit States.                   |
| JOB_IS_FINAL        | This field defines whether the job itself is final.  |
| CNT_RESTARTABLE     | These are the children of the job that are in a restartable state.   |
| CNT_SUBMITTED       | The number of Child Jobs in a submitted state.   |
| CNT_DEPENDENCY_WAIT | The number of Child Jobs in a Dependency Wait state.   |

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| Field                | Description   |
|----------------------|---|
| CNT_SYNCHRONIZE_WAIT | The number of Child Jobs in a Synchronize Wait state.   |
| CNT_RESOURCE_WAIT    | The number of Child Jobs in a Resource Wait state.  |
| CNT_RUNNABLE         | The number of Child Jobs in the state <b>runnable</b> .   |
| CNT_STARTING         | The number of Child Jobs in the state <b>starting</b> .   |
| CNT_STARTED          | The number of Child Jobs in the state <b>started</b> .  |
| CNT_RUNNING          | The number of Child Jobs in the state <b>running</b> .  |
| CNT_TO_KILL          | The number of Child Jobs in the state <b>to.kill</b> .  |
| CNT_KILLED           | The number of Child Jobs in the state <b>killed</b> .   |
| CNT_CANCELLED        | The number of Child Jobs in the state <b>cancelled</b> .  |
| CNT_FINISHED         | The number of Child Jobs in the state <b>finished</b> .   |
| CNT_FINAL            | The number of Child Jobs in the state <b>final</b> .  |
| CNT_BROKEN_ACTIVE    | The number of Child Jobs in the state <b>broken.active</b> .  |
| CNT_BROKEN_FINISHED  | The number of Child Jobs in the state <b>broken.finished</b> .  |
| CNT_ERROR            | The number of Child Jobs in the state <b>error</b> .  |
| CNT_UNREACHABLE      | The number of Child Jobs that have become unreachable.  |
| CNT_WARN             | The number of Child Jobs with a warning.  |
| SUBMIT_TS            | This is the time when the job is submitted.   |
| RESUME_TS            | The time when the job is automatically resumed.   |
| SYNC_TS              | The time when the job switched to the state <b>synchronize.wait</b> .   |
| RESOURCE_TS          | The time when the job switched to the state <b>resource.wait</b> .  |
| RUNNABLE_TS          | The time when the job switched to the state <b>runnable</b> .   |
| START_TS             | The time when the job was reported by the job server as having been started.                                  |
| FINISH_TS            | This is the time when the job is finished.  |
| FINAL_TS             | The time when the job reached a final state.  |
| PRIORITY             | The static priority of a job. This is derived from the defined priority and the nice values of the parent(s). |

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| <b>Field</b>     | <b>Description</b>   |
|------------------|--|
| DYNAMIC_PRIORITY | The dynamic priority of the job. This is the static priority that was corrected dependent on the delay time.           |
| NICEVALUE        | The nice value is the correction of the children's priority.   |
| MIN_PRIORITY     | This is the minimum value for the dynamic priority.  |
| AGING_AMOUNT     | The Aging Amount defines after how many time units the dynamic priority of a job is incremented by one point.          |
| AGING_BASE       | The Aging Base defines the time unit for the Aging Amount.   |
| ERROR_MSG        | The error message describing why the job switched to the <b>error</b> state.   |
| CHILDREN         | The number of children of the job or batch.  |
| HIT              | This field indicates whether the job was selected based on filter criteria or not.                                     |
| HITPATH          | This field indicates that the job is a direct or indirect parent of a selected job.                                    |
| SUBMITPATH       | This is the list of submitting parents. In contrast to the general parent-child hierarchy, this is always unequivocal. |
| IS_SUSPENDED     | This field defines whether the job or batch itself is suspended.   |
| IS_RESTARTABLE   | This field defines whether the job is restartable.   |
| PARENT_SUSPENDED | This field defines whether the job or batch is suspended through one of its parents.                                   |
| CHILDTAG         | The tag that enables a differentiation to be made between multiple children.   |
| IS_REPLACED      | This field defines whether the job or batch has been replaced by another one.  |
| WARN_COUNT       | This is the number of unattended warnings.   |
| CHILD_SUSPENDED  | The number of children that have been suspended.   |
| CNT_PENDING      | The number of children in a pending state.   |
| PRIVS            | String containing the users privileges on the object   |

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| Field      | Description   |
|------------|---|
| WORKDIR    | Name of the working directory of the utility process.   |
| LOGFILE    | Name of the utility process log file. The output to <code>stdout</code> is written in this log.       |
| ERRLOGFILE | Name of the utility process error log file. The output to <code>stderr</code> is written in this log. |

---

Table 14.12: Description of the output structure of the `list job` statement

## list job definition hierarchy

### Purpose

*Purpose* The purpose of the list job definition hierarchy statement is to get the complete jobtree of the specified job.

### Syntax

*Syntax* The syntax for the list job definition hierarchy statement is

```
list job definition hierarchy folderpath [ with EXPAND ]
```

EXPAND:

```
expand = none  
| expand = < ( id {, id} ) | all >
```

### Description

*Description* The list job definition statement hierarchy gives you the complete tree structure of the specified job.

### Output

*Output* This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field                         | Description   |
|-------------------------------|---|
| ID                            | The repository object id  |
| NAME                          | The object name   |
| OWNER                         | The group owning the object   |
| TYPE                          | This states the type of object. The following options are available: Batch, Milestone, Job and Folder.                  |
| RUN_PROGRAM                   | A command line that starts the script or program can be specified in the Run Program field.                             |
| RERUN_PROGRAM                 | The Rerun Program field specifies the command that is to be executed when repeating the job following an error (rerun). |
| <i>Continued on next page</i> |   |



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|-------------------------------------|--|
| <b>Field</b>                        | <b>Description</b>   |
| KILL_PROGRAM                        | The Kill Program field determines which program is to be run to terminate a currently running job.   |
| WORKDIR                             | This is the working directory of the current job.  |
| LOGFILE                             | The Logfile field specifies the file in which all the normal outputs of the Run program are to be returned. These are usually all the outputs that use the standard output channel (STDOUT under UNIX).      |
| TRUNC_LOG                           | Defines whether the log file is to be renewed or not.  |
| ERRLOGFILE                          | The Error Logfile field specifies the file in which all the error outputs from the Run program are to be returned.   |
| TRUNC_ERRLOG                        | Defines whether the Error log file is to be renewed or not.  |
| EXPECTED_RUNTIME                    | The Expected Runtime describes the anticipated time that will be required to execute a job.  |
| GET_EXPECTED_RUNTIME                | This is a reserved field for future extended functions.  |
| PRIORITY                            | The Priority field indicates the urgency with which the process, if it is to be started, is to be considered by the Scheduling System.   |
| SUBMIT_SUSPENDED                    | The Submit Suspended parameter specifies the form in which the Child Object is delayed when being started or if it can be started immediately. The following options are available: Yes, No and Childsuspend |
| MASTER_SUBMITTABLE                  | The job that is started by the trigger is submitted as its own Master Job and does not have any influence on the current Master Job run of the triggering job.   |
| SAME_NODE                           | Obsolete   |
| GANG_SCHEDULE                       | Obsolete   |
| DEPENDENCY_MODE                     | The Dependency Mode states the context in which the list of dependencies has to be viewed. The following options are available: All and Any  |
| <i>Continued on next page</i>       |  |

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| Field                | Description  |
|----------------------|--|
| ESP_NAME             | This is the name of the Exit State Profile.  |
| ESM_NAME             | This is the name of the Exit State Mapping.  |
| ENV_NAME             | This is the name of the environment.   |
| FP_NAME              | This is the name of the footprint.   |
| CHILDREN             | This is the number of direct children.   |
| SH_ID                | The ID of the Hierarchy Definition.  |
| IS_STATIC            | Flag indicating the static or dynamic submits of this job.   |
| SH_PRIORITY          | The Priority field indicates the urgency with which the process, if it is to be started, is to be considered by the Scheduling System.   |
| SH_SUSPEND           | The Submit Suspended switch can be used to delay the actual start of a job run.  |
| SH_ALIAS_NAME        | A child can be assigned a new logical name by entering it in the Alias field.  |
| MERGE_MODE           | The Merge Mode indicates whether a Child Object is started multiple times within a Master Job run or not. The following options are available: No Merge, Failure, Merge Local and Merge Global |
| EST_NAME             | This is the Exit State Translation.  |
| IGNORED_DEPENDENCIES | Here you can add a list of dependencies which are to be ignored by the child in this parent-child relationship.  |
| HIERARCHY_PATH       | The Path describes the parent folder hierarchy of an object. All the parent folders are displayed separated by periods.  |
| STATES               | The State is the current state of the job.   |
| PRIVS                | String containing the users privileges on the object   |

Table 14.13: Description of the output structure of the list job definition hierarchy statement

## list named resource

### Purpose

The purpose of the list named resource statement is to get a (partial) list of all defined named resources. *Purpose*

### Syntax

The syntax for the list named resource statement is

*Syntax*

```
list named resource [ resourcepath ]
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
    expand = none
|   expand = < ( id {, id } ) | all >
|   FILTERTERM {or FILTERTERM}
```

FILTERTERM:

```
FILTERITEM {and FILTERITEM}
```

FILTERITEM:

```
    ( FILTERTERM {or FILTERTERM} )
|   name like string
|   not ( FILTERTERM {or FILTERTERM} )
|   usage in ( RESOURCE_USAGE {, RESOURCE_USAGE} )
```

RESOURCE\_USAGE:

```
    category
|   static
|   synchronizing
|   system
```

### Description

The list named resource statement gives you a list of all the defined Named Resources. If a resource is specified, this Named Resource and, if the Named Resource is a category, all the children are listed. The list of Named Resources can be shortened accordingly by specifying a filter.

*Description*

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

User Commands

list named resource

**filter** Named Resources can be filtered by name and/or usage by specifying filters. Refer to the official Java documentation for the syntax used for regular expressions.

Output

*Output* This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field                  | Description  |
|------------------------|--|
| ID                     | The repository object id   |
| NAME                   | The object name  |
| OWNER                  | The group owning the object  |
| USAGE                  | The Usage field specifies the Resource type.   |
| RESOURCE_STATE_PROFILE | This is the Resource State Profile assigned to the resource.   |
| FACTOR                 | This is the default factor by which Resource Requirement Amounts are multiplied if nothing else has been specified for the resource. |
| SUBCATEGORIES          | This is the number of categories that are present as children below the displayed Named Resources.                                   |
| RESOURCES              | These are the instances of the Named Resource.   |
| PRIVS                  | String containing the users privileges on the object   |

Table 14.14: Description of the output structure of the list named resource statement

list resource state definition

Purpose

The purpose of the list resource state definition is to get a list of all defined resource states.

Purpose

Syntax

The syntax for the list resource state definition statement is

Syntax

list resource state definition

Description

The list resource state definition statement gives you a list of all the defined Resource States.

Description

Output

This statement returns an output structure of type table.

Output

**Main output description** The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.15: Description of the output structure of the list resource state definition statement

## list resource state mapping

### Purpose

Purpose

The purpose of the list resource state mapping statement is to get a list of all defined resource state mappings.

### Syntax

Syntax

The syntax for the list resource state mapping statement is

list resource state mapping

### Description

Description

### Output

Output

This statement returns an output structure of type table.

Main output description

The data items of the output are described in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

Table 14.16: Description of the output structure of the list resource state mapping statement

list resource state profile

Purpose

The purpose of the list resource state profile statement is to get a list of all currently defined resource state profiles.

Purpose

Syntax

The syntax for the list resource state profile statement is

Syntax

list resource state profile

Description

The list resource state profile statement gives you a list of all the defined Resource State Profiles.

Description

Output

This statement returns an output structure of type table.

Output

**Main output description** The data items of the output are described in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id  |
| NAME          | The object name   |
| INITIAL_STATE | This field defines the initial state of the resource. This Resource State does not have to be present in the list of valid Resource States. |
| PRIVS         | String containing the users privileges on the object  |

Table 14.17: Description of the output structure of the list resource state profile statement

list schedule

Purpose

Purpose

The purpose of the list schedule statement is to get a (partial) list of all defined schedules.

Syntax

Syntax

The syntax for the list schedule statement is

**list schedule** *schedulepath* [ **with** EXPAND ]

EXPAND:  
    **expand = none**  
    | **expand =** < ( *id* {, *id* } ) | **all** >

Description

Description

The list schedule statement delivers a list with the specified schedule and all its children.

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

Output

Output

This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field                  | Description   |
|------------------------|---|
| ID                     | The repository object id                            |
| NAME                   | The object name                                     |
| OWNER                  | The group owning the object                         |
| INTERVAL               | The name of the interval belonging to the schedule. |
| Continued on next page |   |



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| Field      | Description  |
|------------|--|
| TIME_ZONE  | The time zone in which the schedule is to be calculated.   |
| ACTIVE     | This field defines whether the schedule is marked as being active.   |
| EFF_ACTIVE | This field defines whether the schedule is actually active. This can deviate from "active" due to the hierarchical organisation. |
| PRIVS      | String containing the users privileges on the object   |

---

Table 14.18: Description of the output structure of the list schedule statement

list scheduled event

Purpose

Purpose

The purpose of the list scheduled event is to get a list of all defined scheduled events.

Syntax

Syntax

The syntax for the list scheduled event statement is

list scheduled event

Description

Description

The list scheduled event statement gives you a list of all the defined Scheduled Events.

Output

Output

This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field      | Description   |
|------------|---|
| ID         | The repository object id  |
| OWNER      | The group owning the object   |
| SCHEDULE   | The Schedule that determines when the Scheduled Event is to take place.   |
| EVENT      | The event that is triggered.  |
| ACTIVE     | This flag indicates whether the Scheduled Event is labelled as being active.  |
| EFF_ACTIVE | This flag indicates whether the Scheduled Event is actually active.   |
| BROKEN     | The Broken field can be used to check whether an error occurred when the job was submitted.   |
| ERROR_CODE | If an error occurred while the job was being executed in the Time Scheduling, the returned error code is displayed in the Error Code field. If no error occurred, this field remains empty. |

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|-------------------------------------|---|
| <b>Field</b>                        | <b>Description</b>  |
| ERROR_MSG                           | If an error occurred while the job was being executed in the Time Scheduling, the returned error message is displayed in the Error Message field. If no error occurred, this field remains empty. |
| LAST_START                          | The last time the job is to be executed by the Scheduling System is shown here.   |
| NEXT_START                          | The next scheduled time when the task is to be executed by the Scheduling System is shown here.   |
| NEXT_CALC                           | The next time when a recalculation is to take place.  |
| PRIVS                               | String containing the users privileges on the object  |
| BACKLOG_HANDLING                    | The Backlog Handling describes how events that should have been triggered following a downtime are to be handled.   |
| SUSPEND_LIMIT                       | The Suspend Limit defines the delay after which a job is submitted in a suspended state.  |
| EFFECTIVE_SUSPEND_LIMIT             | The Suspend Limit defines the delay after which a job is submitted in a suspended state.  |
| CALENDAR                            | This flag indicates whether calendar entries are created.   |
| CALENDAR_HORIZON                    | The defined length of the period in days for which a calendar is created.   |
| EFFECTIVE_CALENDAR_HORIZON          | The effective length of the period in days for which a calendar is created.   |

Table 14.19: Description of the output structure of the list scheduled event statement

list scope

Purpose

*Purpose* The purpose of the list scope statement is to get a (partial) list of all defined scopes.

Syntax

*Syntax* The syntax for the list scope statement is

```
list < scope serverpath | job server serverpath > [ with EXPAND ]  
  
EXPAND:  
    expand = none  
    | expand = < ( id {, id} ) | all >
```

Description

*Description* The list scope statement displays a list with the requested scope together with its children.

**expand** The **expand** option can be used to make the hierarchy visible at children level. This is done by specifying in the list the IDs of the nodes whose children are to be made visible. If **none** is specified as an expand option, only the level below the requested node is made visible.

Output

*Output* This statement returns an output structure of type table.

**Main output description** The data items of the output are described in the table below.

| Field                  | Description   |
|------------------------|---|
| ID                     | The repository object id                                |
| NAME                   | The object name   |
| OWNER                  | The group owning the object                             |
| TYPE                   | The type of scope.                                      |
| IS_TERMINATE           | This flag indicates whether a termination order exists. |
| Continued on next page |   |

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|-------------------------------------|--|
| Field                               | Description  |
| HAS_ALTERED_CONFIG                  | The configuration on the server does not match the current configuration on the server.                            |
| IS_SUSPENDED                        | Indicates whether the scope is suspended.  |
| IS_ENABLED                          | The job server can only log on to the server if the Enable flag is set to Yes.                                     |
| IS_REGISTERED                       | Defines whether the job server has sent a register command.  |
| IS_CONNECTED                        | Indicates whether the job server is connected.   |
| STATE                               | This is the current state of the resource in this scope.   |
| PID                                 | The PID is the process identification number of the job server process on the respective host system.              |
| NODE                                | The node specifies the computer on which the job server is running. This field has a purely documentary character. |
| IDLE                                | The time that has elapsed since the last command. This only applies for job servers.                               |
| NOPDELAY                            | The time that a job server waits for "NOP".  |
| ERRMSG                              | This is the most recently outputted error message.   |
| SUBSCOPES                           | The number of scopes and job servers that are present under this scope.  |
| RESOURCES                           | The resources present in this scope are displayed here.  |
| PRIVS                               | String containing the users privileges on the object   |

Table 14.20: Description of the output structure of the list scope statement

User Commands list session

**list session**

**Purpose**

*Purpose*      The purpose of the list session statement is to get a list of connected sessions.

**Syntax**

*Syntax*      The syntax for the list session statement is

**list session**

**Description**

*Description*      The list session statement gives you a list of the connected sessions.

**Output**

*Output*      This statement returns an output structure of type table.

**Main output description**    The data items of the output are described in the table below.

| Field       | Description   |
|-------------|---|
| THIS        | The current session is indicated in this field by an asterisk (*).  |
| SESSIONID   | The internal server ID for the session.   |
| PORT        | The TCP/IP port number at which the session is connected.   |
| START       | Time when the connection was set up.  |
| TYPE        | Type of connection: user, job server or job   |
| USER        | Name of the connecting user, job server or job (Jobid)  |
| UID         | ID of the user, job server or job.  |
| IP          | IP address of the connecting sessions.  |
| TXID        | Number of the last transaction that was executed by the session.  |
| IDLE        | The number of seconds since the last statement from a session.  |
| STATE       | The state of the session. This is one of the following: IDLE (no activity), QUEUED (statement is waiting to be executed), ACTIVE (statement is being executed), COMMITTING (changes to a write transaction are being written), CONNECTED (not yet authenticated). |
| TIMEOUT     | The idle time after which the session is automatically disconnected.  |
| INFORMATION | Additional information about the session (optional).  |
| STATEMENT   | The statement that is currently being executed.   |

Table 14.21: Description of the output structure of the list session statement

list trigger

Purpose

*Purpose*      The purpose of the list trigger statement is to get a list of defined trigger.

Syntax

*Syntax*      The syntax for the list trigger statement is

```
list trigger
list trigger for folderpath
list trigger of folderpath
list trigger for CT_OBJECT
CT_OBJECT:
    job definition folderpath
```

Description

*Description*      The list trigger statement gives you a list of all the defined triggers.

Output

*Output*      This statement returns an output structure of type table.

**Main output description**    The data items of the output are described in the table below.

| Field                  | Description   |
|------------------------|---|
| ID                     | The repository object id                                      |
| NAME                   | The object name   |
| OBJECT_TYPE            | The type of object in which the trigger is defined.           |
| OBJECT_SUBTYPE         | The subtype of the object in which the trigger is defined.    |
| OBJECT_NAME            | Full path name of the object in which the trigger is defined. |
| ACTIVE                 | The flag indicates whether the trigger is currently active.   |
| Continued on next page |   |



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| <b>Field</b>    | <b>Description</b>  |
|-----------------|---|
| ACTION          | Type of triggered action: SUBMIT or RERUN.                              |
| STATES          | A list of states that cause the trigger to be activated.                |
| SUBMIT_TYPE     | The object type that is submitted when the trigger is activated.        |
| SUBMIT_NAME     | Name of the job definition that is submitted.                           |
| SUBMIT_SE_OWNER | The owner of the object that is submitted.                              |
| SUBMIT_PRIVS    | The privileges for the object that is to be submitted.                  |
| MAIN_TYPE       | Type of main job (job/batch).   |
| MAIN_NAME       | Name of the main job.   |
| MAIN_SE_OWNER   | Owner of the main job.  |
| MAIN_PRIVS      | Privileges for the main job.  |
| PARENT_TYPE     | Type of parent job (job/batch).   |
| PARENT_NAME     | Name of the parent job.   |
| PARENT_SE_OWNER | Owner of the parent job.  |
| PARENT_PRIVS    | Privileges for the parent job.  |
| TRIGGER_TYPE    | The trigger type that describes when it is activated.                   |
| MASTER          | Indicates whether the trigger submitted a master or a child.            |
| SUBMIT_OWNER    | The owner group that is used with the Submitted Entity.                 |
| IS_CREATE       | Indicates whether the trigger reacts to create events.                  |
| IS_CHANGE       | Indicates whether the trigger reacts to change events.                  |
| IS_DELETE       | Indicates whether the trigger reacts to delete events.                  |
| IS_GROUP        | Indicates whether the trigger handles the events as a group.            |
| MAX_RETRY       | The maximum number of trigger activations in a single Submitted Entity. |
| SUSPEND         | Specifies whether the submitted object is suspended.                    |
| RESUME_AT       | Time of the automatic resume.   |
| RESUME_IN       | Number of time units until the automatic resume.                        |

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| <b>Field</b> | <b>Description</b>  |
|--------------|---|
| RESUME_BASE  | Time unit for resume.in.  |
| WARN         | Specifies whether a warning has to be given when the activation limit is reached.                   |
| CONDITION    | Conditional expression to define the trigger condition.   |
| CHECK_AMOUNT | The amount of CHECK.Base units for checking the condition in the case of non-synchronised triggers. |
| CHECK_BASE   | Units for the CHECK_AMOUNT.   |
| PRIVS        | String containing the users privileges on the object  |
| COMMENT      | Comment if defined  |
| COMMENTTYPE  | Type of comment if a comment is defined   |

---

Table 14.22: Description of the output structure of the list trigger statement

list user

Purpose

The purpose of the list user statement is to get a list of all defined users.

Purpose

Syntax

The syntax for the list user statement is

Syntax

list user

Description

The list user statement gives you a list of all the defined users.

Description

Output

This statement returns an output structure of type table.

Output

**Main output description**    The data items of the output are described in the table below.

| Field         | Description  |
|---------------|--|
| ID            | The repository object id   |
| NAME          | The object name  |
| IS_ENABLED    | Flag that shows whether the user is allowed to log on.                         |
| DEFAULT_GROUP | The default group of the users who are being used by the owners of the object. |
| PRIVS         | String containing the users privileges on the object                           |

Table 14.23: Description of the output structure of the list user statement

User Commands

list user

## 15 move commands

## move folder

### Purpose

*Purpose*      The purpose of the move folder statement is to rename the folder and/or to move it to some other place in the folder hierarchy.

### Syntax

*Syntax*      The syntax for the move folder statement is

**move folder** *folderpath* **to** *folderpath*

### Description

*Description*      The move folder command either moves the specified folder to somewhere else or renames it.

### Output

*Output*      This statement returns a confirmation of a successful operation

## move job definition

### Purpose

The purpose of the move job definition statement is to rename a scheduling entity object, and/or move it into some other folder. *Purpose*

### Syntax

The syntax for the move job definition statement is *Syntax*

**move job definition** *folderpath . jobname to folderpath*

### Description

The move job definition command moves the specified job definition to the specified folder. If the destination folder does not exist, the last part of the fully qualified name is interpreted as being the new name for the job definition. The relationships to other objects are not changed. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

## move named resource

### Purpose

*Purpose* The purpose of the move named resource statement is to rename the named resource and/or to move the resource into another category.

### Syntax

*Syntax* The syntax for the move named resource statement is

**move named resource** *resourcepath* **to** *resourcepath*

### Description

*Description* The move named resource statement is used to rename a Named Resource or to reorganise categories.

If a Named Resource is moved, the specified destination has to be a category or it must not exist and its parent must be a category.

### Output

*Output* This statement returns a confirmation of a successful operation



## move schedule

### Purpose

The purpose of the move schedule statement is to rename and/or to move the schedule to some other place in the hierarchy. *Purpose*

### Syntax

The syntax for the move schedule statement is *Syntax*

**move schedule** *schedulepath . schedulename* **to** *schedulepath*

### Description

The move schedule command either moves the specified schedule to somewhere else and/or renames it. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

## move scope

### Purpose

*Purpose* The purpose of the move scope statement is to rename a scope and/or to move it to some other place within the scope hierarchy.

### Syntax

*Syntax* The syntax for the move scope statement is

**move** < **scope** *serverpath* | **job server** *serverpath* > **to** *serverpath*

### Description

*Description* The move scope command either moves the specified scope to somewhere else and/or renames it.

### Output

*Output* This statement returns a confirmation of a successful operation

## 16 multicommand commands

## multicommand

### Purpose

*Purpose* This statement is used to control the behaviour of the SDMS Server.

### Syntax

*Syntax* The syntax for the multicommand statement is

**begin multicommand** *commandlist* **end multicommand**

**begin multicommand** *commandlist* **end multicommand rollback**

### Description

*Description* The multicommands allow multiple SDMS commands to be executed together, i.e. in one transaction. This ensures that either all the statements are executed without any errors or nothing happens at all. Not only that, but the transaction is not interrupted by other write transactions.  
If the **rollback** keyword is specified, the transaction is undone at the end of the processing. This means that you can test whether the statements can be correctly processed (technically speaking).

### Output

*Output* This statement returns a confirmation of a successful operation

## 17 register commands

## register

### Purpose

*Purpose* The purpose of the register statement is to notify the server that the jobserver is ready to process jobs.

### Syntax

*Syntax* The syntax for the register statement is

```
register serverpath . servername
with pid = pid [ suspend ]
register with pid = pid
```

### Description

*Description* The first form is used by the operator to enable jobs to be executed by the specified job server.  
The second form is used by the job server itself to notify the server that it is ready to execute jobs.  
Jobs are scheduled for this job server (unless it is suspended) regardless of whether the server is connected or not.  
Refer to the deregister statement on page 140.

**pid** The pid option provides the server with information about the job server's process ID at operating level.

**suspend** The suspend option causes the job server to be transferred to a suspended state.

### Output

*Output* This statement returns a confirmation of a successful operation

## 18 rename commands

User Commands

rename environment

## rename environment

### Purpose

*Purpose*      The purpose of the rename environment statement is to give the specified environment another name.

### Syntax

*Syntax*      The syntax for the rename environment statement is

**rename environment** *environmentname* **to** *environmentname*

### Description

*Description*      The rename environment statement is used to rename environments. Renaming an environment does not have any effect on the functionality and is only for purposes of clarity.

### Output

*Output*      This statement returns a confirmation of a successful operation



rename event

Purpose

The purpose of the rename event is to give the specified event another name. Purpose

Syntax

The syntax for the rename event statement is Syntax

```
rename event eventname to eventname
```

Description

The rename event statement is used to give a specified event a different name. Description

Output

This statement returns a confirmation of a successful operation Output

## rename exit state definition

### Purpose

*Purpose* The purpose of the rename exist state definition statement is to give the specified exit state definition another name.

### Syntax

*Syntax* The syntax for the rename exit state definition statement is

**rename exit state definition** *statename to statename*

### Description

*Description* The rename exit state definition statement is used to rename Exit State Definitions. Renaming an Exit State Definition does not have any effect on the functionality and is only for purposes of clarity.

### Output

*Output* This statement returns a confirmation of a successful operation

## rename exit state mapping

### Purpose

The purpose of the rename exit state mapping statement is to give the specified mapping another name. *Purpose*

### Syntax

The syntax for the rename exit state mapping statement is *Syntax*

**rename exit state mapping** *mappingname to profilename*

### Description

The rename exit state mapping statement is used to rename Exit State Mappings. Renaming an Exit State Mapping does not have any effect on the functionality and is only for purposes of clarity. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

User Commands

rename exit state profile

## rename exit state profile

### Purpose

*Purpose* The purpose of the rename exit state profile statement is to give the specified profile another name.

### Syntax

*Syntax* The syntax for the rename exit state profile statement is

**rename exit state profile** *profilename to profilename*

### Description

*Description* The rename exit state profile statement is used to rename Exit State Profiles. Renaming the Exit State Profiles does not have any effect on the functionality and is only for purposes of clarity.

### Output

*Output* This statement returns a confirmation of a successful operation

## rename folder

### Purpose

The purpose of the rename folder statement is to give a folder another name.

*Purpose*

### Syntax

The syntax for the rename folder statement is

*Syntax*

**rename folder** *folderpath* **to** *foldername*

### Description

The rename folder command renames the specified folder. This is done within the same parent folder. If an object with the new name already exists, this triggers an error message.

*Description*

### Output

This statement returns a confirmation of a successful operation

*Output*

User Commands

rename footprint

## rename footprint

### Purpose

*Purpose*      The purpose of the rename footprint statement is to give the specified footprint another name.

### Syntax

*Syntax*      The syntax for the rename footprint statement is

**rename footprint** *footprintname* **to** *footprintname*

### Description

*Description*      The rename footprint statement is used to give a specified footprint a different name.

### Output

*Output*      This statement returns a confirmation of a successful operation

## rename group

### Purpose

The purpose of the rename group statement is to change the name of a group without affecting any other properties. *Purpose*

### Syntax

The syntax for the rename group statement is

*Syntax*

**rename group** *groupname* **to** *groupname*

### Description

The rename group statement is used to rename groups. Renaming a group does not have any effect on the functionality and is only for purposes of clarity. *Description*

### Output

This statement returns a confirmation of a successful operation

*Output*

## rename interval

### Purpose

*Purpose*      The purpose of the rename interval statement is to give the specified interval another name.

### Syntax

*Syntax*      The syntax for the rename interval statement is

**rename interval** *intervalname* **to** *intervalname*

### Description

*Description*      The rename interval statement is used to give a specified interval a different name.

### Output

*Output*      This statement returns a confirmation of a successful operation



## rename job definition

### Purpose

The purpose of the rename job definition statement is to give the job definition another name. *Purpose*

### Syntax

The syntax for the rename job definition statement is *Syntax*

**rename job definition** *folderpath . jobname to jobname*

### Description

The job definition rename command renames the specified job definition. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

User Commands

rename named resource

## rename named resource

### Purpose

*Purpose* The purpose of the rename named resource statement is to give a named resource another name.

### Syntax

*Syntax* The syntax for the rename named resource statement is

**rename named resource** *resourcepath* **to** *resourcename*

### Description

*Description* The rename named resource statement is used to rename a Named Resource.

### Output

*Output* This statement returns a confirmation of a successful operation

## rename resource state definition

### Purpose

The purpose of the rename resource state definition statement is to rename the resource state. *Purpose*

### Syntax

The syntax for the rename resource state definition statement is *Syntax*

**rename resource state definition** *statename to statename*

### Description

The rename resource state definition statement is used to rename Resource State Definitions. Renaming a Resource State Definition does not have any effect on the functionality and is only for purposes of clarity. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

## rename resource state mapping

### Purpose

*Purpose* The purpose of the rename resource state mapping statement is to give the specified mapping a new name.

### Syntax

*Syntax* The syntax for the rename resource state mapping statement is

**rename resource state mapping** *mappingname* **to** *profilename*

### Description

*Description* The rename resource state mapping statement is used to rename Resource State Mappings. Renaming a Resource State Mapping does not have any effect on the functionality and is only for purposes of clarity.

### Output

*Output* This statement returns a confirmation of a successful operation

## rename resource state profile

### Purpose

The purpose of the rename resource state profile is to give the specified resource state profile a new name. *Purpose*

### Syntax

The syntax for the rename resource state profile statement is *Syntax*

**rename resource state profile** *profilename* **to** *profilename*

### Description

The rename resource state profile statement is used to rename Resource State Profiles. Renaming a Resource State Profile does not have any effect on the functionality and is only for purposes of clarity. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

## rename schedule

### Purpose

*Purpose*      The purpose of the rename schedule statement is to give a schedule another name.

### Syntax

*Syntax*      The syntax for the rename schedule statement is

**rename schedule** *schedulepath . schedulename to schedulename*

### Description

*Description*      The rename schedule command renames the specified schedule.

### Output

*Output*      This statement returns a confirmation of a successful operation

## rename scope

### Purpose

The purpose of the rename scope statement is to give a scope another name.

*Purpose*

### Syntax

The syntax for the rename scope statement is

*Syntax*

```
rename < scope serverpath | job server serverpath > to scopename
```

### Description

The rename scope command renames the specified scope.

*Description*

### Output

This statement returns a confirmation of a successful operation

*Output*

## rename trigger

### Purpose

*Purpose*      The purpose of the rename trigger statement is to give the specified trigger another name.

### Syntax

*Syntax*      The syntax for the rename trigger statement is

```
rename trigger triggername on TRIGGEROBJECT to triggername  
  
TRIGGEROBJECT:  
    resource resourcepath in folderpath  
    | job definition folderpath  
    | object monitor objecttypename  
    | resource resourcepath in serverpath
```

### Description

*Description*      The rename trigger statement is used to rename the trigger. Renaming a trigger does not have any effect on the functionality and is only for purposes of clarity.

### Output

*Output*      This statement returns a confirmation of a successful operation



## rename user

### Purpose

The purpose of the rename user statement is to change the name of a user without altering any other of its properties. *Purpose*

### Syntax

The syntax for the rename user statement is *Syntax*

**rename user** *username* **to** *username*

### Description

The rename user statement is used to rename users. Renaming a user does not have any effect on the functionality and is only for purposes of clarity. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

User Commands

rename user

## 19 resume commands

## resume

### Purpose

*Purpose* The purpose of the resume statement is to reactivate the jobserver. See also the suspend statement on page [350](#).

### Syntax

*Syntax* The syntax for the resume statement is

```
resume serverpath
```

### Description

*Description* The resume statement is used to reactivate a job server.

### Output

*Output* This statement returns a confirmation of a successful operation

## 20 select commands

## select

### Purpose

*Purpose* The purpose of the select statement is to enable the user to issue (almost) arbitrary queries to the underlying RDBMS.

### Syntax

*Syntax* The syntax for the select statement is

```
select-statement
[ with WITHITEM {, WITHITEM} ]

WITHITEM:
    identifier category
    | identifier folder
    | identifier job
    | identifier scope
    | sort ( signed_integer {, signed_integer} )
```

### Description

*Description* The select statement allows practically any number of database select statements to be executed by the Scheduling Server. Refer to the documentation of the database system you are using for information about the syntax that is used for the select statement.

Since executing arbitrary select statements generally represents a vulnerability, administrator privileges are required for this statement. This means that only users belonging to the **admin** group are allowed to use this statement.

Using the with items causes IDs to be translated into names. This function is available for all hierarchically structured object types since this operation is not always easy to perform using SQL means. It is also possible to sort the set of results after replacing the IDs. The columns that are to be used for sorting are addressed according to their position in the set of results (zero-based, i.e. the first column has the number 0).

### Output

*Output* This statement returns a confirmation of a successful operation

## 21 set commands

## set parameter

### Purpose

*Purpose* The purpose of the set parameter statement is to set the value of the specified parameters within the context of the requesting job, respectively the specified job.

### Syntax

*Syntax* The syntax for the set parameter statement is

```
set parameter parametername = string {, parametername = string}
set parameter < on | of > jobid parametername = string {, parametername
= string}
set parameter < on | of > jobid parametername = string {, parametername
= string} identified by string
```

### Description

*Description* The set parameter statements can be used to set jobs or user parameter values in the context of the job.  
If the **identified by** option is specified, the parameter is only set if the pair *jobid* and *string* would allow a logon.

### Output

*Output* This statement returns a confirmation of a successful operation



## 22 show commands

# show comment

## Purpose

*Purpose*      The purpose of the show comment statement is to show the comment for the specified object.

## Syntax

*Syntax*      The syntax for the show comment statement is

**show comment on** OBJECTURL

OBJECTURL:

```

distribution distributionname for pool resourcepath in serverpath
|
environment environmentname
|
exit state definition statename
|
exit state mapping mappingname
|
exit state profile profilename
|
event eventname
|
resource resourcepath in folderpath
|
folder folderpath
|
footprint footprintname
|
group groupname
|
interval intervalname
|
job definition folderpath
|
job jobid
|
named resource resourcepath
|
parameter parametername of PARAM_LOC
|
resource state definition statename
|
resource state mapping mappingname
|
resource state profile profilename
|
scheduled event schedulepath . eventname
|
schedule schedulepath
|
resource resourcepath in serverpath
|
< scope serverpath | job server serverpath >
|
trigger triggername on TRIGGEROBJECT
|
user username

```

PARAM\_LOC:

```

folder folderpath
|
job definition folderpath
|
< scope serverpath | job server serverpath >

```

```
TRIGGEROBJECT:
  resource resourcepath in folderpath
  | job definition folderpath
  | object monitor objecttypename
  | resource resourcepath in serverpath
```

Description

The show comment statement is used to display the saved comment for the specified object. If no comment on the object exists, this is not regarded as being an error; instead, an empty output structure is created and returned. This empty output structure naturally corresponds to the output structure described below, so that it can be easily evaluated by programs without any exception handling.

Description

Output

This statement returns an output structure of type record.

Output

**Main output description** The data items of the output are described in the table below.

| Field       | Description  |
|-------------|--|
| ID          | System-wide unique object number.  |
| COMMENT     | The comment on the specified object.   |
| COMMENTTYPE | Type of comment, text or URL.  |
| CREATOR     | Name of the user who created this pool.                                      |
| CREATE_TIME | The creation time.   |
| CHANGER     | Name of the last user who modified this pool.                                |
| CHANGE_TIME | Time of the last modification.   |
| PRIVS       | Abbreviation for the privileges for this object held by the requesting user. |

Table 22.1: Description of the output structure of the show comment statement

show environment

Purpose

*Purpose*      The purpose of the show environment statement is to get detailed informatoion about the specified environment.

Syntax

*Syntax*      The syntax for the show environment statement is

```
show environment environmentname [ with EXPAND ]  
  
EXPAND:  
    expand = none  
    | expand = < ( id {, id} ) | all >
```

Description

*Description*      The show environment statement gives you detailed information about the specified environment.

**expand**      Since the number of job definitions in the table JOB.DEFINITIONS can become very large, by default they are not all displayed. If the option **expand = all** is used, all the job definitions as well as their parent folder and the folder hierarchy are outputted. Individual paths in the hierarchy can be selected by specifying individual (folder) IDs.

Output

*Output*      This statement returns an output structure of type record.

**Main output description**      The data items of the output are described in the table below.

| Field                  | Description                             |
|------------------------|---|
| ID                     | The repository object id                |
| NAME                   | Name of the environment.                |
| COMMENT                | Comment if defined                      |
| COMMENTTYPE            | Type of comment if a comment is defined |
| CREATOR                | Name of the user created the object     |
| Continued on next page |   |

---

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---

| Field           | Description  |
|-----------------|--|
| CREATE_TIME     | Date and time of object creation   |
| CHANGER         | Name of the last user changed the object   |
| CHANGE_TIME     | Date and time of object change   |
| PRIVS           | String containing the users privileges on the object                                     |
| RESOURCES       | Table of static resources that form this environment.<br>See also table 22.3 on page 265 |
| JOB_DEFINITIONS | Table of jobs and folders that use this environment<br>See also table 22.4 on page 266   |

---

Table 22.2: Description of the output structure of the show environment statement

**RESOURCES** The layout of the RESOURCES table is shown in the table below.

---

| Field     | Description  |
|-----------|--|
| ID        | The repository object id                                   |
| NR_NAME   | Full path name of static Named Resources.                  |
| CONDITION | The condition that has to be fulfilled for the allocation. |
| PRIVS     | String containing the users privileges on the object       |

---

Table 22.3: Description of the output structure of the show environment subtable

**JOB\_DEFINITIONS** The layout of the JOB\_DEFINITIONS table is shown in the table below.

---

| Field   | Description  |
|---------|--|
| ID      | The repository object id   |
| SE_PATH | Full folder path name of job definitions or folders.                   |
| TYPE    | The object type. The possible values are FOLDER and JOB_DEFINITION.    |
| ENV     | An asterisk indicates that the current environment was specified here. |

---

*Continued on next page*

---

User Commands                      show environment

---

*Continued from previous page*

---

| Field        | Description   |
|--------------|---|
| HAS_CHILDREN | true means that there are more environment users further down the tree. |
| PRIVS        | String containing the users privileges on the object                    |

---

Table 22.4: Description of the output structure of the show environment subtable

show event

Purpose

The purpose of the show event statement is to get detailed information about the specified event.

Purpose

Syntax

The syntax for the show event statement is

Syntax

**show event** *eventname*

Description

The show event statement gives you detailed information about the specified event.

Description

Output

This statement returns an output structure of type record.

Output

**Main output description** The data items of the output are described in the table below.

| Field             | Description  |
|-------------------|--|
| ID                | The repository object id                                   |
| NAME              | Name of the show event                                     |
| OWNER             | The group owning the object                                |
| SCHEDULING_ENTITY | Batch or job that is submitted when this event occurs.     |
| CREATOR           | Name of the user created the object                        |
| CREATE_TIME       | Date and time of object creation                           |
| CHANGER           | Name of the last user changed the object                   |
| CHANGE_TIME       | Date and time of object change                             |
| PARAMETERS        | Parameters that are used when submitting the job or batch. |
|                   | See also table 22.6 on page 268                            |
| PRIVS             | String containing the users privileges on the object       |

Continued on next page

| <i>Continued from previous page</i> |   |
|-------------------------------------|---|
| Field                               | Description                             |
| COMMENT                             | Comment if defined                      |
| COMMENTTYPE                         | Type of comment if a comment is defined |

Table 22.5: Description of the output structure of the show event statement

**PARAMETERS** The layout of the PARAMETERS table is shown in the table below.

| Field | Description              |
|-------|--------------------------|
| ID    | The repository object id |
| KEY   | Name of the parameter.   |
| VALUE | Value of the parameter.  |

Table 22.6: Description of the output structure of the show event subtable



show exit state definition

Purpose

The purpose of the show exit state definition statement is to get detailed information about the specified exit state definition.

Purpose

Syntax

The syntax for the show exit state definition statement is

Syntax

```
show exit state definition statename
```

Description

The show exit state definition statement gives you detailed information about the specified Exit State Definition.

Description

Output

This statement returns an output structure of type record.

Output

**Main output description** The data items of the output are described in the table below.

| Field       | Description  |
|-------------|--|
| ID          | The repository object id                             |
| NAME        | Name of the Exit State Definition                    |
| COMMENT     | Comment if defined                                   |
| COMMENTTYPE | Type of comment if a comment is defined              |
| CREATOR     | Name of the user created the object                  |
| CREATE_TIME | Date and time of object creation                     |
| CHANGER     | Name of the last user changed the object             |
| CHANGE_TIME | Date and time of object change                       |
| PRIVS       | String containing the users privileges on the object |

Table 22.7: Description of the output structure of the show exit state definition statement

show exit state mapping

Purpose

Purpose

The purpose of the show exist state mapping statement is to get detailed information about the specified mapping.

Syntax

Syntax

The syntax for the show exit state mapping statement is

**show exit state mapping** *mappingname*

Description

Description

The show exit state mapping statement gives you detailed information about the specified mapping.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field       | Description  |
|-------------|--|
| ID          | The repository object id   |
| NAME        | Name of the Exit State Mapping.  |
| COMMENT     | A comment that can be freely selected by the user.   |
| COMMENTTYPE | Type of comment if a comment is defined  |
| CREATOR     | Name of the user created the object  |
| CREATE_TIME | Date and time of object creation   |
| CHANGER     | Name of the last user changed the object   |
| CHANGE_TIME | Date and time of object change   |
| PRIVS       | String containing the users privileges on the object   |
| RANGES      | The assignment of the respective value ranges shown in a table.<br>See also table 22.9 on page 271 |

Table 22.8: Description of the output structure of the show exit state mapping statement

**RANGES** The layout of the RANGES table is shown in the table below.

| Field     | Description  |
|-----------|--|
| ECR_START | Minimum limit of the range (inclusive)               |
| ECR_END   | Maximum limit of the range (inclusive)               |
| ESD_NAME  | Name of the Exit State to which this area is mapped. |

Table 22.9: Description of the output structure of the show exit state mapping sub-table

show exit state profile

Purpose

Purpose

The purpose of the show exist state profile statement is to get detailed information about the specified profile.

Syntax

Syntax

The syntax for the show exit state profile statement is

**show exit state profile** *profilename*

Description

Description

The show exit state profile statement gives you detailed information about the specified profile.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field            | Description  |
|------------------|--|
| ID               | The repository object id   |
| NAME             | The object name  |
| DEFAULT_ESM_NAME | The default Exit State Mapping is active if the job itself does not define something else. |
| IS_VALID         | Flag displayed showing the validity of this Exit State Profile.                            |
| COMMENT          | Comment if defined   |
| COMMENTTYPE      | Type of comment if a comment is defined  |
| CREATOR          | Name of the user created the object  |
| CREATE_TIME      | Date and time of object creation   |
| CHANGER          | Name of the last user changed the object   |
| CHANGE_TIME      | Date and time of object change   |
| PRIVS            | String containing the users privileges on the object                                       |

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| Field  | Description   |
|--------|---|
| STATES | Table contains Exit States that are valid for this profile.<br>See also table <a href="#">22.11</a> on page <a href="#">273</a> |

Table 22.10: Description of the output structure of the show exit state profile statement

**STATES** The layout of the STATES table is shown in the table below.

| Field                 | Description  |
|-----------------------|--|
| ID                    | The repository object id   |
| PREFERENCE            | The preference for controlling the connection of the Child Exit States.  |
| TYPE                  | Indicates whether the state is FINAL, PENDING or RESTARTABLE.  |
| ESD_NAME              | Name of the Exit State Definition.   |
| IS_UNREACHABLE        | Indicates that this Exit State is used when a job is unreachable.  |
| IS_BROKEN             | Indicates that this Exit State is used when a job is broken.   |
| IS_BATCH_DEFAULT      | Indicates that this Exit State is used when a batch or milestone does not have any children.                     |
| IS_DEPENDENCY_DEFAULT | Indicates that this Exit State is used if the state selection DEFAULT was selected in the Dependency Definition. |

Table 22.11: Description of the output structure of the show exit state profile sub-table

show folder

Purpose

Purpose

The purpose of the show folder statement is to get detailed information about the specified folder.

Syntax

Syntax

The syntax for the show folder statement is

**show folder** *folderpath*

Description

Description

The show folder statement gives you detailed information about the specified folder.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field                  | Description   |
|------------------------|---|
| ID                     | The repository object id                                |
| NAME                   | Name of the folder.                                     |
| OWNER                  | The group owning the object                             |
| TYPE                   | The object type that is always contained in the folder. |
| ENVIRONMENT            | The name of the optional environment.                   |
| INHERIT_PRIVS          | Privileges that are inherited from the parent folder.   |
| COMMENT                | Comment if defined                                      |
| COMMENTTYPE            | Type of comment if a comment is defined                 |
| CREATOR                | Name of the user created the object                     |
| CREATE_TIME            | Date and time of object creation                        |
| CHANGER                | Name of the last user changed the object                |
| CHANGE_TIME            | Date and time of object change                          |
| PRIVS                  | String containing the users privileges on the object    |
| Continued on next page |   |

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| Field             | Description  |
|-------------------|--|
| PARAMETERS        | The parameters table shows all the defined constants for this folder.<br>See also table 22.13 on page 276                          |
| DEFINED_RESOURCES | The Defined Resources table shows all the resource instances that are defined for this folder.<br>See also table 22.14 on page 277 |

Table 22.12: Description of the output structure of the show folder statement

**PARAMETERS** The layout of the PARAMETERS table is shown in the table below.

| Field               | Description   |
|---------------------|---|
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself. |
| EXPRESSION          | Expression for the parameter type EXPRESSION.                       |
| DEFAULT_VALUE       | The default value of the parameter.                                 |
| REFERENCE_TYPE      | Type of object that is being referenced.                            |
| REFERENCE_PATH      | The path to the object that is being referenced.                    |
| REFERENCE_PRIVS     | The user's privileges for the object that is being referenced.      |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                     |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                             |
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself. |
| REFERENCE_TYPE      | Type of object that is referencing the parameter.                   |
| REFERENCE_PATH      | The path to the object that is referencing the parameter.           |

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| Field               | Description   |
|---------------------|---|
| REFERENCE_PRIVS     | The user's privileges for the object that is referencing the parameter. |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                         |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                                 |

Table 22.13: Description of the output structure of the show folder subtable

**DEFINED\_RESOURCES** The layout of the DEFINED\_RESOURCES table is shown in the table below.

| Field              | Description  |
|--------------------|--|
| ID                 | The repository object id   |
| NR_ID              | ID of the Named Resource.  |
| NAME               | Name of the Named Resource.  |
| USAGE              | It is the usage of the Named Resource (STATIC, SYSTEM or SYNCHRONISING)                              |
| NR_PRIVS           | String containing the abbreviations for the user privileges for this Named Resource.                 |
| TAG                | The tag is an optional short name for the resource.  |
| OWNER              | The group owning the object  |
| LINK_ID            | ID of the referenced resource.   |
| LINK_SCOPE         | Scope of the referenced resource.  |
| STATE              | The Resource State of the resource.  |
| REQUESTABLE_AMOUNT | The maximum amount of resources that can be requested by a job.                                      |
| AMOUNT             | The actual amount that is available.   |
| FREE_AMOUNT        | The free amount that can be allocated.   |
| TOTAL_FREE_AMOUNT  | Free amount available for allocations including the free amount of pooled resources if it is a pool. |
| IS_ONLINE          | This is the availability status of the resource.   |
| FACTOR             | This is the correction factor by which the requested amount is multiplied.                           |
| TIMESTAMP          | The timestamp indicates the last time the Resource State changed.                                    |

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| Field                 | Description  |
|-----------------------|--|
| SCOPE                 | The scope in which the resource was created.   |
| MANAGER_ID            | ID of the Managing Pool.   |
| MANAGER_NAME          | Name of the Managing Pool.   |
| MANAGER_SCOPENAME     | Name of the scope in which the Managing Pool was created.  |
| HAS_CHILDREN          | Flag indicating whether a Pool Child has managed resources/pools. If it is not a pool, this is always FALSE. |
| POOL_CHILD            | This flag indicates whether the displayed resource is a child of the pool.                                   |
| TRACE_INTERVAL        | The trace interval is the minimum time in seconds between when Trace Records are written.                    |
| TRACE_BASE            | The trace base is the basis for the valuation period (B).  |
| TRACE_BASE_MULTIPLIER | The base multiplier determines the multiplication factor (M) of the trace base.                              |
| TD0_AVG               | The average resource allocation of the last $B * M^0$ seconds.   |
| TD1_AVG               | The average resource allocation of the last $B * M^1$ seconds.   |
| TD2_AVG               | The average resource allocation of the last $B * M^2$ seconds.   |
| LW_AVG                | The average allocation since the last time a Trace Record was written.                                       |
| LAST_WRITE            | The time the last Trace Record was written.  |
| PRIVS                 | String containing the users privileges on the object   |

---

Table 22.14: Description of the output structure of the show folder subtable

show footprint

Purpose

*Purpose*      The purpose of the show footprint statement is to get detailed information about the specified footprint.

Syntax

*Syntax*      The syntax for the show footprint statement is

```
show footprint footprintname [ with EXPAND ]  
  
EXPAND:  
    expand = none  
    | expand = < ( id {, id} ) | all >
```

Description

*Description*      The show footprint statement gives you detailed information about the specified footprint.

**expand**      Since the number of job definitions in the table JOB.DEFINITIONS can become very large, by default they are not all displayed. If the option **expand = all** is used, all the job definitions as well as their parent folder and the folder hierarchy are outputted. Individual paths in the hierarchy can be selected by specifying individual (folder) IDs.

Output

*Output*      This statement returns an output structure of type record.

**Main output description**      The data items of the output are described in the table below.

| Field                  | Description                             |
|------------------------|---|
| ID                     | The repository object id                |
| NAME                   | Name of the footprint.                  |
| COMMENT                | Comment if defined                      |
| COMMENTTYPE            | Type of comment if a comment is defined |
| CREATOR                | Name of the user created the object     |
| Continued on next page |   |

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| Field           | Description   |
|-----------------|---|
| CREATE_TIME     | Date and time of object creation  |
| CHANGER         | Name of the last user changed the object  |
| CHANGE_TIME     | Date and time of object change  |
| PRIVS           | String containing the users privileges on the object                                    |
| RESOURCES       | Table of system resources that form this footprint.<br>See also table 22.16 on page 279 |
| JOB_DEFINITIONS | Table of job definitions that use this footprint.<br>See also table 22.17 on page 279   |

Table 22.15: Description of the output structure of the show footprint statement

**RESOURCES** The layout of the RESOURCES table is shown in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id  |
| RESOURCE_NAME | Fully qualified path name of System Named Resources.                            |
| AMOUNT        | Amount of resource units that are allocated.                                    |
| KEEP_MODE     | Keep Mode specifies when the resource is released (FINISH, JOB_FINAL or FINAL). |

Table 22.16: Description of the output structure of the show footprint subtable

**JOB\_DEFINITIONS** The layout of the JOB\_DEFINITIONS table is shown in the table below.

| Field        | Description   |
|--------------|---|
| ID           | The repository object id  |
| SE_PATH      | Folder path name of the object.   |
| TYPE         | Type of object.   |
| HAS_CHILDREN | true means that there are more environment users further down the tree. |
| PRIVS        | String containing the users privileges on the object                    |

Table 22.17: Description of the output structure of the show footprint subtable

show group

Purpose

*Purpose*      The purpose of the show group statement is to get detailed information about the specified group.

Syntax

*Syntax*      The syntax for the show group statement is

```
show group groupname
```

Description

*Description*      The show group statement gives you detailed information about the specified group.

Output

*Output*      This statement returns an output structure of type record.

**Main output description**      The data items of the output are described in the table below.

| Field        | Description   |
|--------------|---|
| ID           | The repository object id  |
| NAME         | Name of the group.  |
| COMMENT      | Comment if defined  |
| COMMENTTYPE  | Type of comment if a comment is defined                             |
| CREATOR      | Name of the user created the object                                 |
| CREATE_TIME  | Date and time of object creation                                    |
| CHANGER      | Name of the last user changed the object                            |
| CHANGE_TIME  | Date and time of object change                                      |
| PRIVS        | String containing the users privileges on the object                |
| MANAGE_PRIVS | Table of the manage privileges.<br>See also table 22.19 on page 281 |
| USERS        | Table of the user groups.<br>See also table 22.20 on page 281       |

Table 22.18: Description of the output structure of the show group statement

**MANAGE\_PRIVS** The layout of the MANAGE\_PRIVS table is shown in the table below.

| Field | Description  |
|-------|--|
| PRIVS | String containing the users privileges on the object |

Table 22.19: Description of the output structure of the show group subtable

**USERS** The layout of the USERS table is shown in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id                              |
| UID           | ID of the user.                                       |
| NAME          | The object name                                       |
| IS_ENABLED    | This flag tells the user whether he can be connected. |
| DEFAULT_GROUP | The default group of this user.                       |
| PRIVS         | String containing the users privileges on the object  |

Table 22.20: Description of the output structure of the show group subtable

## show interval

### Purpose

*Purpose* The purpose of the show interval statement is to get detailed information about the interval.

### Syntax

*Syntax* The syntax for the show interval statement is

```
show interval intervalname
[ with expand [ < = datetime | = datetime - datetime > ] ]
```

### Description

*Description* The show interval statement displays detailed information about a interval. No rising edges are displayed in the absence of an expand clause. The expand clause can be used to specify a period for which the edges are to be shown.

### Output

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field     | Description   |
|-----------|---|
| ID        | The repository object id  |
| NAME      | The object name   |
| OWNER     | The group owning the object   |
| STARTTIME | The start time of the interval.   |
| ENDTIME   | The end time of the interval.   |
| BASE      | The base is a period containing time blocks of defined durations.                               |
| DURATION  | These are time blocks of defined durations.   |
| SYNCTIME  | The time from which the interval begins. If the sync time is not given, the start time is used. |
| INVERSE   | The selection is reversed using Inverse.  |
| EMBEDDED  | The name of the embedded interval.  |
| SELECTION | Single blocks are selected using Selection.   |

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| Field       | Description  |
|-------------|--|
|             | See also table 22.22 on page 283   |
| FILTER      | Name(s) of the intervals that filter (multiplication) the output of this interval more finely. |
|             | See also table 22.23 on page 283   |
| CREATOR     | Name of the user created the object  |
| CREATE_TIME | Date and time of object creation   |
| CHANGER     | Name of the last user changed the object   |
| CHANGE_TIME | Date and time of object change   |
| PRIVS       | String containing the users privileges on the object   |
| COMMENT     | Comment if defined   |
| COMMENTTYPE | Type of comment if a comment is defined  |

Table 22.21: Description of the output structure of the show interval statement

**SELECTION** The layout of the SELECTION table is shown in the table below.

| Field       | Description  |
|-------------|--|
| ID          | The repository object id   |
| VALUE       | Number of the selected edge.   |
| PERIOD_FROM | Beginning of the period in which all the occurring edges are considered to have been selected. |
| PERIOD_TO   | End of the period in which all the occurring edges are considered to have been selected.       |

Table 22.22: Description of the output structure of the show interval subtable

**FILTER** The layout of the FILTER table is shown in the table below.

| Field | Description                     |
|-------|---------------------------------|
| ID    | The repository object id        |
| CHILD | Name of the filtering interval. |

Table 22.23: Description of the output structure of the show interval subtable

## show job

### Purpose

*Purpose*      The purpose of the show job statement is to get detailed information about the specified job.

### Syntax

*Syntax*      The syntax for the show job statement is

```
show job jobid [ with WITHITEM {, WITHITEM} ]
```

```
show job submittag = string [ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
filter = ( FILTERITEM {, FILTERITEM} )  
| recursive audit
```

FILTERITEM:

```
cancel  
| change priority  
| clear warning  
| comment  
| ignore named resource  
| ignore resource  
| ignore dependency [ recursive ]  
| job in error  
| kill  
| renice  
| rerun [ recursive ]  
| restartable  
| resume  
| set exit state  
| set resource state  
| set state  
| set warning  
| submit [ suspend ]  
| suspend  
| timeout  
| trigger failure  
| trigger submit  
| unreachable
```



## Description

The show job statement gives you detailed information about the specified job. The job can be specified using either its ID or, if a submit tag was specified during the submit, the submit tag. The filter option is used for selecting audit entries. If the filter option is not specified, all the audit entries are shown. Otherwise, only entries of the type specified in the filter are outputted. The **recursive audit** option collects all the audit messages for the displayed job and its direct or indirect children.

*Description*

## Output

This statement returns an output structure of type record.

*Output*

**Main output description** The data items of the output are described in the table below.

| Field                         | Description  |
|-------------------------------|--|
| ID                            | The repository object id   |
| SE_NAME                       | The full path name of the object.  |
| SE_OWNER                      | Owner of the object.   |
| SE_TYPE                       | The se.type is the object type (JOB, BATCH or MILESTONE).  |
| SE_RUN_PROGRAM                | The Run Program line in the job definition.  |
| SE_RERUN_PROGRAM              | The Rerun Program line in the job definition.  |
| SE_KILL_PROGRAM               | The Kill Program line in the job definition.   |
| SE_WORKDIR                    | The Workdir of the job definition.   |
| SE_LOGFILE                    | The log file of the job definition.  |
| SE_TRUNC_LOG                  | Defines whether the log file is to be truncated before the process starts or if the log information is to be appended. |
| SE_ERRLOGFILE                 | The error log file of the job definition.  |
| SE_TRUNC_ERRLOG               | Defines whether the log file is to be truncated before the process starts or if the log information is to be appended. |
| SE_EXPECTED_RUNTIME           | The anticipated runtime of the job definition.   |
| SE_PRIORITY                   | Priority/nice value of the job definition.   |
| SE_SUBMIT_SUSPENDED           | The Suspend Flag of the object.  |
| SE_MASTER_SUBMITTABLE         | The Master Submittable Flag of the object.   |
| <i>Continued on next page</i> |  |

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| <b>Field</b>       | <b>Description</b>   |
|--------------------|--|
| SE_DEPENDENCY_MODE | The Dependency Mode of the object.   |
| SE_ESP_NAME        | The Exit State Profile of the object.  |
| SE_ESM_NAME        | The Exit State Mapping the job definition.   |
| SE_ENV_NAME        | The environment of the job definition.   |
| SE_FP_NAME         | The footprint of the job definition.   |
| MASTER_ID          | The object ID of the object at the top level in the hierarchy of this object.                          |
| CHILD_TAG          | Tag for exclusive identifying jobs that have been submitted several times as children of the same job. |
| SE_VERSION         | The version of definitions that are valid for this Submitted Entity.                                   |
| OWNER              | The group owning the object  |
| PARENT_ID          | The parent object in the submission hierarchy.   |
| SCOPE_ID           | The ID of the scope.   |
| HTTPHOST           | The host name of the scope for accessing log files via HTTP.   |
| HTTPPORT           | The HTTP port number of the job server for accessing log files via HTTP.                               |
| IS_STATIC          | Flag indicating the static or dynamic submits of this job.   |
| MERGE_MODE         | Indicates how multiple submits of the same defined object are handled in the current Master Run.       |
| STATE              | The state of the job (not to be confused with the Exit State).   |
| IS_CANCELLED       | Shows a Cancel operation that was performed on the job.  |
| JOB_ESD_ID         | The Exit State of the job after it has been executed.  |
| JOB_ESD_PREF       | The preference for merging the Job Exit States with the Child States.                                  |
| JOB_IS_FINAL       | Flag indicating the final state of the job.  |
| JOB_IS_RESTARTABLE | A flag indicating that this job is restartable.  |
| FINAL_ESD_ID       | The final (merged) Exit State of the object.   |
| EXIT_CODE          | The Exit Code of the last command execution.   |
| COMMANDLINE        | The created command line that is used for the first execution.   |

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| Field              | Description   |
|--------------------|---|
| RR_COMMANDLINE     | Created rerun command line that is used for the last executed rerun.  |
| WORKDIR            | The created Workdir.  |
| LOGFILE            | The created log file.   |
| ERRLOGFILE         | The created error log file.   |
| PID                | The process ID of the controller process.   |
| EXT_PID            | The process ID of the user process.   |
| ERROR_MSG          | If an error occurred while the job was being executed in the Time Scheduling, the returned error message is displayed in the Error Message field. If no error occurred, this field remains empty. |
| KILL_ID            | The Submitted Entity ID of the submitted Kill Job.  |
| KILL_EXIT_CODE     | The Exit Code of the last executed Kill Program.  |
| IS_SUSPENDED       | Flag indicating whether the object is suspended.  |
| IS_SUSPENDED_LOCAL | Flag indicating whether the object is locally suspended (for restart trigger with suspend).   |
| PRIORITY           | The current priority of the job.  |
| NICEVALUE          | The current nice value of the job.  |
| MIN_PRIORITY       | Minimum effective priority that can be achieved through natural aging.  |
| AGING_AMOUNT       | The number of time units after which the effective priority is incremented by 1.  |
| AGING_BASE         | The time unit that is used for the aging interval.  |
| DYNAMIC_PRIORITY   | The calculated priority that is currently being used by the system.   |
| PARENT_SUSPENDED   | The number of parents that have been suspended.   |
| SUBMIT_TS          | The submit time.  |
| RESUME_TS          | The time when the job is automatically resumed.   |
| SYNC_TS            | The time from which all the dependencies are fulfilled.   |
| RESOURCE_TS        | The time from which all the Synchronizing Resources are allocated.  |
| RUNNABLE_TS        | The time from which the job switches to the Runnable State.   |

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| Field                | Description  |
|----------------------|--|
| START_TS             | The time when the job was last executed.                     |
| FINISH_TS            | The end time of the last job execution.                      |
| FINAL_TS             | The time when the object becomes final.                      |
| CNT_SUBMITTED        | The number of children in a Submitted state.                 |
| CNT_DEPENDENCY_WAIT  | The number of children in a Dependency.Wait state.           |
| CNT_SYNCHRONIZE_WAIT | The number of children in a Synchronize.Wait state.          |
| CNT_RESOURCE_WAIT    | The number of children in a Resource.Wait state.             |
| CNT_RUNNABLE         | The number of children in a Runnable state.                  |
| CNT_STARTING         | The number of children in a Starting state.                  |
| CNT_STARTED          | The number of children in a Started state.                   |
| CNT_RUNNING          | The number of children in a Running state.                   |
| CNT_TO_KILL          | The number of children in a To.Kill state.                   |
| CNT_KILLED           | The number of children in a Killed state.                    |
| CNT_CANCELLED        | The number of children in a Cancelled state.                 |
| CNT_FINISHED         | The number of children in a Finished state.                  |
| CNT_FINAL            | The number of children in a Final state.                     |
| CNT_BROKEN_ACTIVE    | The number of children in a Broken.Active state.             |
| CNT_BROKEN_FINISHED  | The number of children in a Broken.Finished state.           |
| CNT_ERROR            | The number of children in an Error state.                    |
| CNT_RESTARTABLE      | The number of children in a Restartable state.               |
| CNT_UNREACHABLE      | The number of children in an Unreachable state.              |
| CNT_WARN             | Number of children that have warning messages.               |
| WARN_COUNT           | Number of warning messages for the current object.           |
| CHILDREN             | Table of the children.<br>See also table 22.25 on page 290   |
| PARENTS              | Table of the parents.<br>See also table 22.26 on page 291    |
| PARAMETER            | Table of the parameters.<br>See also table 22.27 on page 291 |
| REQUIRED_JOBS        | Table of the required jobs.                                  |

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|-------------------------------------|---|
| Field                               | Description   |
| DEPENDENT_JOBS                      | See also table 22.28 on page 293<br>Table of the dependent jobs.                                  |
| REQUIRED_RESOURCES                  | See also table 22.29 on page 296<br>Table of the required resources.                              |
| SUBMIT_PATH                         | See also table 22.30 on page 297<br>The path from the job to the master via the submit hierarchy. |
| IS_REPLACED                         | Flag indicating whether the job has been replaced with another one.                               |
| TIMEOUT_AMOUNT                      | The maximum time that the job will wait for its resource.   |
| TIMEOUT_BASE                        | The maximum time that the job will wait for its resource.   |
| TIMEOUT_STATE                       | The timeout of the Scheduling Entity.   |
| RERUN_SEQ                           | The rerun order.  |
| AUDIT_TRAIL                         | Table of the log entries.   |
| CHILD_SUSPENDED                     | See also table 22.31 on page 298<br>The number of children that have been suspended.              |
| CNT_PENDING                         | The number of children in a pending state.  |
| CREATOR                             | Name of the user created the object   |
| CREATE_TIME                         | Date and time of object creation  |
| CHANGER                             | Name of the last user changed the object  |
| CHANGE_TIME                         | Date and time of object change  |
| PRIVS                               | String containing the users privileges on the object  |
| SE_PRIVS                            | The privileges for the Scheduling Entity.   |
| SUBMITTAG                           | Unique marker that is given at the submit time.   |
| UNRESOLVED_HANDLING                 | Defines what to do if the required object cannot be found.  |
| DEFINED_RESOURCES                   | Table of the Defined Resources of the object.<br>See also table 22.32 on page 298                 |

Table 22.24: Description of the output structure of the show job statement

**CHILDREN** The layout of the CHILDREN table is shown in the table below.

| Field                | Description   |
|----------------------|---|
| CHILDDID             | The Submitted Entity ID of the child.                               |
| CHILDPRIVS           | The privileges for the child object.                                |
| CHILDSENAME          | The name of the child object.                                       |
| CHILDSETYPE          | The type of child object.   |
| CHILDSEPRIVS         | The privileges for the child object.                                |
| PARENTID             | The ID of the parent.   |
| PARENTPRIVS          | The privileges for the parent object.                               |
| PARENTSENAME         | The name of the parent object.                                      |
| PARENTSETYPE         | The type of parent object.  |
| PARENTSEPRIVS        | The privileges for the job definition that belong to the parent.    |
| IS_STATIC            | Static flag of the hierarchy definition.                            |
| PRIORITY             | The priority of the hierarchy definition.                           |
| SUSPEND              | The suspend mode of the hierarchy definition.                       |
| MERGE_MODE           | The merge mode of the hierarchy definition.                         |
| EST_NAME             | The name of the Exit State Translation of the hierarchy definition. |
| IGNORED_DEPENDENCIES | Ignored Dependencies Flag of the hierarchy definition.              |

Table 22.25: Description of the output structure of the show job subtable

**PARENTS** The layout of the PARENTS table is shown in the table below.

| Field         | Description  |
|---------------|--|
| CHILDDID      | The Submitted Entity ID of the child.                            |
| CHILDPRIVS    | The privileges for the child object.                             |
| CHILDSENAME   | The name of the child object.                                    |
| CHILDSETYPE   | The type of child object.  |
| CHILDSEPRIVS  | The privileges for the child object.                             |
| PARENTID      | The ID of the parent.  |
| PARENTPRIVS   | The privileges for the parent object.                            |
| PARENTSENAME  | The name of the parent object.                                   |
| PARENTSETYPE  | The type of parent object.                                       |
| PARENTSEPRIVS | The privileges for the job definition that belong to the parent. |

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| Field                | Description   |
|----------------------|---|
| IS_STATIC            | Static flag of the hierarchy definition.                            |
| PRIORITY             | The priority of the hierarchy definition.                           |
| SUSPEND              | The suspend mode of the hierarchy definition.                       |
| MERGE_MODE           | The merge mode of the hierarchy definition.                         |
| EST_NAME             | The name of the Exit State Translation of the hierarchy definition. |
| IGNORED_DEPENDENCIES | Ignored Dependencies Flag of the hierarchy definition.              |

Table 22.26: Description of the output structure of the show job subtable

**PARAMETER** The layout of the PARAMETER table is shown in the table below.

| Field | Description   |
|-------|---|
| ID    | The repository object id                            |
| NAME  | The name of the parameter, variable or expression.  |
| TYPE  | The type of parameter, variable or expression.      |
| VALUE | The value of the parameter, variable or expression. |

Table 22.27: Description of the output structure of the show job subtable

**REQUIRED\_JOBS** The layout of the REQUIRED\_JOBS table is shown in the table below.

| Field             | Description  |
|-------------------|--|
| ID                | The repository object id   |
| DEPENDENT_ID      | ID of the dependent Submitted Entity.  |
| DEPENDENT_PATH    | The path from the job to the master via the submit hierarchy.  |
| DEPENDENT_PRIVS   | The privileges for the dependent object.   |
| DEPENDENT_ID_ORIG | ID of the original dependent Submitted Entity on which the dependency is defined for dependencies that have been inherited from the parents. |

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| Field                  | Description   |
|------------------------|---|
| DEPENDENT_PATH_ORIG    | The path from the dependent object to the master via the submit hierarchy.                                    |
| DEPENDENT_PRIVS_ORIG   | The privileges for the original dependent object.   |
| DEPENDENCY_OPERATION   | Defines whether all or only some dependencies of the original object have to be fulfilled.                    |
| REQUIRED_ID            | ID of the required Submitted Entity.  |
| REQUIRED_PATH          | The path from the required object to the master via the submit hierarchy.                                     |
| REQUIRED_PRIVS         | The privileges for the required object.   |
| STATE                  | The state of the dependency (OPEN, FULFILLED or FAILED).  |
| DD_ID                  | ID of the Dependency Definition object.   |
| DD_NAME                | Name of the Dependency Definition (deprecated).   |
| DD_DEPENDENTNAME       | The full path name of the object.   |
| DD_DEPENDENTTYPE       | The type of dependent object.   |
| DD_DEPENDENTPRIVS      | Privileges for the dependent object.  |
| DD_REQUIREDNAME        | Path name of the definition of the dependent object.  |
| DD_REQUIREDTYPE        | The type of required object.  |
| DD_REQUIREDPRIVS       | The privileges for the required object definition.  |
| DD_UNRESOLVED_HANDLING | Specifies how to handle unresolvable dependencies during a submit.  |
| DD_MODE                | Defines whether just the required job itself or the required job together with its children have to be final. |
| DD_STATES              | List of Exit States that the required object have to achieve to fulfil the dependency.                        |
| JOB_STATE              | In the Job State list, you can filter for jobs that have the entered Job State.                               |
| IS_SUSPENDED           | Flag indicating whether the object is suspended.  |
| PARENT_SUSPENDED       | Job is suspended because its parent is suspended.   |
| CNT_SUBMITTED          | The number of children in a Submitted state.  |
| CNT_DEPENDENCY_WAIT    | The number of children in a Dependency_Wait state.  |
| CNT_SYNCHRONIZE_WAIT   | The number of children in a Synchronize_Wait state.   |

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|-------------------------------------|--|
| Field                               | Description  |
| CNT_RESOURCE_WAIT                   | The number of children in a Resource.Wait state.   |
| CNT_RUNNABLE                        | The number of children in a Runnable state.  |
| CNT_STARTING                        | The number of children in a Starting state.  |
| CNT_STARTED                         | The number of children in a Started state.   |
| CNT_RUNNING                         | The number of children in a Running state.   |
| CNT_TO_KILL                         | The number of children in a To_Kill state.   |
| CNT_KILLED                          | The number of children in a Killed state.  |
| CNT_CANCELLED                       | The number of children in a Cancelled state.   |
| CNT_FINISHED                        | The number of children in a Finished state.  |
| CNT_FINAL                           | The number of children in a Final state.   |
| CNT_BROKEN_ACTIVE                   | The number of children in a Broken.Active state.   |
| CNT_BROKEN_FINISHED                 | The number of children in a Broken.Finished state.   |
| CNT_ERROR                           | The number of children in an Error state.  |
| CNT_RESTARTABLE                     | The number of children in a Restartable state.   |
| CNT_UNREACHABLE                     | The number of children in an Unreachable state.  |
| JOB_IS_FINAL                        | The number of children in an Is_Final state.   |
| CHILD_TAG                           | Tag for exclusive identifying jobs that have been submitted several times as children of the same job. |
| FINAL_STATE                         | The final state of a job.  |
| CHILDREN                            | The number of children the job has.  |
| IGNORE                              | Flag indicating whether the Resource Allocation is bring ignored.                                      |
| CHILD_SUSPENDED                     | The number of children that have been suspended.   |
| CNT_PENDING                         | The number of children in a Pending state.   |
| DD_CONDITION                        | The condition that has to be additionally fulfilled for the dependency to be fulfilled.                |

Table 22.28: Description of the output structure of the show job subtable

**DEPENDENT\_JOBS** The layout of the DEPENDENT\_JOBS table is shown in the table below.

| Field                         | Description  |
|-------------------------------|--|
| ID                            | The repository object id   |
| DEPENDENT_ID                  | ID of the dependent Submitted Entity.  |
| DEPENDENT_PATH                | The path from the job to the master via the submit hierarchy.  |
| DEPENDENT_PRIVS               | The privileges for the dependent object.   |
| DEPENDENT_ID_ORIG             | ID of the original dependent Submitted Entity on which the dependency is defined for dependencies that have been inherited from the parents. |
| DEPENDENT_PATH_ORIG           | The path from the dependent object to the master via the submit hierarchy.   |
| DEPENDENT_PRIVS_ORIG          | The privileges for the original dependent object.  |
| DEPENDENCY_OPERATION          | Defines whether all or only some dependencies of the original object have to be fulfilled.   |
| REQUIRED_ID                   | ID of the required Submitted Entity.   |
| REQUIRED_PATH                 | The path from the required object to the master via the submit hierarchy.  |
| REQUIRED_PRIVS                | The privileges for the required object.  |
| STATE                         | The state of the dependency (OPEN, FILLED or FAILED).  |
| DD_ID                         | ID of the Dependency Definition object.  |
| DD_NAME                       | Name of the Dependency Definition (deprecated).  |
| DD_DEPENDENTNAME              | The full path name of the object.  |
| DD_DEPENDENTTYPE              | The type of dependent object.  |
| DD_DEPENDENTPRIVS             | Privileges for the dependent object.   |
| DD_REQUIREDNAME               | Path name of the definition of the dependent object.   |
| DD_REQUIREDTYPE               | The type of required object.   |
| DD_REQUIREDPRIVS              | The privileges for the required object definition.   |
| DD_UNRESOLVED_HANDLING        | Specifies how to handle unresolvable dependencies during a submit.   |
| DD_MODE                       | Defines whether just the required job itself or the required job together with its children have to be final.                                |
| <i>Continued on next page</i> |  |

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| Field                | Description  |
|----------------------|--|
| DD_STATES            | List of Exit States that the required object have to achieve to fulfil the dependency.                 |
| JOB_STATE            | In the Job State list, you can filter for jobs that have the entered Job State.                        |
| IS_SUSPENDED         | Flag indicating whether the object is suspended.   |
| PARENT_SUSPENDED     | Job is suspended because its parent is suspended.  |
| CNT_SUBMITTED        | The number of children in a Submitted state.   |
| CNT_DEPENDENCY_WAIT  | The number of children in a Dependency.Wait state.   |
| CNT_SYNCHRONIZE_WAIT | The number of children in a Synchronize.Wait state.  |
| CNT_RESOURCE_WAIT    | The number of children in a Resource.Wait state.   |
| CNT_RUNNABLE         | The number of children in a Runnable state.  |
| CNT_STARTING         | The number of children in a Starting state.  |
| CNT_STARTED          | The number of children in a Started state.   |
| CNT_RUNNING          | The number of children in a Running state.   |
| CNT_TO_KILL          | The number of children in a To_Kill state.   |
| CNT_KILLED           | The number of children in a Killed state.  |
| CNT_CANCELLED        | The number of children in a Cancelled state.   |
| CNT_FINISHED         | The number of children in a Finished state.  |
| CNT_FINAL            | The number of children in a Final state.   |
| CNT_BROKEN_ACTIVE    | The number of children in a Broken_Active state.   |
| CNT_BROKEN_FINISHED  | The number of children in a Broken_Finished state.   |
| CNT_ERROR            | The number of children in an Error state.  |
| CNT_RESTARTABLE      | The number of children in a Restartable state.   |
| CNT_UNREACHABLE      | The number of children in an Unreachable state.  |
| JOB_IS_FINAL         | The number of children in an Is_Final state.   |
| CHILD_TAG            | Tag for exclusive identifying jobs that have been submitted several times as children of the same job. |
| FINAL_STATE          | The final state of a job.  |
| CHILDREN             | The number of children the job has.  |
| IGNORE               | Flag indicating whether the Resource Allocation is bring ignored.                                      |

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| Field           | Description   |
|-----------------|---|
| CHILD_SUSPENDED | The number of children that have been suspended.  |
| CNT_PENDING     | The number of children in a Pending state.  |
| DD_CONDITION    | The condition that has to be additionally fulfilled for the dependency to be fulfilled. |

Table 22.29: Description of the output structure of the show job subtable

**REQUIRED\_RESOURCES** The layout of the REQUIRED\_RESOURCES table is shown in the table below.

| Field              | Description   |
|--------------------|---|
| SCOPE_ID           | ID of the scope that allocated the resource.                          |
| SCOPE_NAME         | The fully qualified name of the scope.                                |
| SCOPE_TYPE         | The type of scope (SCOPE or SERVER, FOLDER, BATCH or JOB).            |
| SCOPE_PRIVS        | The privileges for the scope.   |
| RESOURCE_ID        | ID of the Required Resource.  |
| RESOURCE_NAME      | Categorical path name of the Requested Resource.                      |
| RESOURCE_USAGE     | The usage of the Required Resource (STATIC, SYSTEM or SYNCHRONIZING). |
| RESOURCE_OWNER     | Name of the owner of the Requested Resource.                          |
| RESOURCE_PRIVS     | The privileges for the Requested Resource.                            |
| RESOURCE_STATE     | The state of the Requested Resource.                                  |
| RESOURCE_TIMESTAMP | Date time of last time state was set for the requested resource.      |
| REQUESTABLE_AMOUNT | The maximum amount of resources that can be requested by a job.       |
| TOTAL_AMOUNT       | The amount that can be allocated.                                     |
| FREE_AMOUNT        | The free amount that can be requested.                                |
| REQUESTED_AMOUNT   | This is the requested amount.   |
| REQUESTED_LOCKMODE | The requested lockmode.   |
| REQUESTED_STATES   | The requested Resource State.   |
| RESERVED_AMOUNT    | The amount that is reserved by the Requested Resource.                |

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| <i>Continued from previous page</i> |   |
|-------------------------------------|---|
| Field                               | Description   |
| ALLOCATED_AMOUNT                    | The amount that was allocated by the Requested Resource.  |
| ALLOCATED_LOCKMODE                  | The lockmode currently allocated by the Requested Resource.   |
| IGNORE                              | Flag indicating whether the Resource Allocation is bring ignored.   |
| STICKY                              | Flag indicating whether it is a Sticky Resource Allocation.   |
| STICKY_NAME                         | Optional name of the sticky resource request  |
| STICKY_PARENT                       | Parent job within which the sticky request is evaluated   |
| STICKY_PARENT_TYPE                  | Type of the parent within which the sticky requirement is evaluated   |
| ONLINE                              | Flag indicating whether the resource is available for an allocation.  |
| ALLOCATE_STATE                      | The state of the allocation (RESERVED, ALLOCATED, AVAILABLE or BLOCKED).  |
| EXPIRE                              | Time defining the maximum or minimum age of a resource depending on whether the expire is positive or negative. |
| EXPIRE_SIGN                         | Defines the expiration condition, +/- indicating younger/older than.  |
| DEFINITION                          | Where the Resource Definition is saved.   |

Table 22.30: Description of the output structure of the show job subtable

**AUDIT\_TRAIL** The layout of the AUDIT\_TRAIL table is shown in the table below.

| Field    | Description   |
|----------|---|
| ID       | The repository object id                              |
| USERNAME | User name that causes this audit record.              |
| TIME     | The time when this audit record was created.          |
| TXID     | Transaction number of the change.                     |
| ACTION   | Action that causes this audit record.                 |
| ORIGINID | The original object ID that causes this audit record. |

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| Field   | Description  |
|---------|--|
| JOBID   | This field is not yet documented   |
| JOBNAME | This field is not yet documented   |
| COMMENT | Comment if defined   |
| INFO    | Additional system information about the Action Event that caused the audit record. |

Table 22.31: Description of the output structure of the show job subtable

**DEFINED\_RESOURCES** The layout of the DEFINED\_RESOURCES table is shown in the table below.

| Field              | Description   |
|--------------------|---|
| ID                 | ID of the Defined Resource.                                     |
| RESOURCE_NAME      | Full path name of the Defined Object.                           |
| RESOURCE_USAGE     | The usage of the resource (STATIC, SYSTEM or SYNCHRONIZING).    |
| RESOURCE_OWNER     | The owner of the resource.                                      |
| RESOURCE_PRIVS     | The privileges for the resource.                                |
| RESOURCE_STATE     | The current state of the resource.                              |
| RESOURCE_TIMESTAMP | The last time the Resource State was set for this resource.     |
| REQUESTABLE_AMOUNT | The maximum amount of resources that can be requested by a job. |
| TOTAL_AMOUNT       | The complete amount that can be allocated.                      |
| FREE_AMOUNT        | The free amount that can be allocated.                          |
| ONLINE             | Indicates whether the resource can be allocated or not.         |

Table 22.32: Description of the output structure of the show job subtable

## show job definition

### Purpose

The purpose of the show job definition statement is to get detailed information about the specified job definition. *Purpose*

### Syntax

The syntax for the show job definition statement is *Syntax*

**show job definition** *folderpath*

### Description

The show job definition statement gives you detailed information about the specified job definition. *Description*

### Output

This statement returns an output structure of type record. *Output*

**Main output description** The data items of the output are described in the table below.

| Field                         | Description  |
|-------------------------------|--|
| ID                            | The repository object id   |
| NAME                          | The full path name of the job definition.                          |
| OWNER                         | The group owning the object  |
| TYPE                          | The object type ( <b>Batch</b> , <b>Job</b> or <b>Milestone</b> ). |
| INHERIT_PRIVS                 | Privileges that are inherited from the parent folder.              |
| RUN_PROGRAM                   | The command line for executing a job for the first time.           |
| RERUN_PROGRAM                 | The command line for restarting a submitted job.                   |
| KILL_PROGRAM                  | The command line for executing the deletion of a running job.      |
| WORKDIR                       | The working directory from where the command is to be executed.    |
| <i>Continued on next page</i> |  |

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| Field              | Description  |
|--------------------|--|
| LOGFILE            | The file to which the stdout of the command is written.  |
| TRUNC_LOG          | Indicates whether the log is overwritten or appended.  |
| ERRLOGFILE         | The file to which the stderr of the command is written.  |
| TRUNC_ERRLOG       | Indicates whether the error log is overwritten or appended.  |
| EXPECTED_RUNTIME   | The estimated runtime in seconds. This can be used in triggers for monitoring the runtime.                               |
| EXPECTED_FINALTIME | The estimated time in seconds until the Final State is reached. This can be used in triggers for monitoring the runtime. |
| PRIORITY           | Priority/nice value of the job or batch.   |
| MIN_PRIORITY       | This is the minimum effective priority that can be achieved through natural aging.                                       |
| AGING_AMOUNT       | The number of time units after which the effective priority is incremented by 1.   |
| AGING_BASE         | The time unit that is used for the aging interval.   |
| SUBMIT_SUSPENDED   | Flag that indicates whether the object is to be suspended after the submit.  |
| RESUME_AT          | If the job is to be submitted as being suspended, an automatic resume takes place at the given time.                     |
| RESUME_IN          | If the job is to be submitted as being suspended, an automatic resume takes place after the given number of time units.  |
| RESUME_BASE        | Specified time unit for RESUME_IN.   |
| MASTER_SUBMITTABLE | Flag indicating whether the job or batch can be submitted as a standalone master.  |
| TIMEOUT_AMOUNT     | The number of time units for the delay until the timeout occurs.   |
| TIMEOUT_BASE       | The unit that is used to specify the timeout in seconds, minutes, hours or days.   |
| TIMEOUT_STATE      | Exit State that is set for a job when the timeout occurs.  |
| DEPENDENCY_MODE    | Indicates whether all or just one dependency has to be fulfilled to start the job.                                       |

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|-------------------------------------|--|
| Field                               | Description  |
| ESP_NAME                            | Name of the Exit State Profile of the object.  |
| ESM_NAME                            | Name of the Exit State Mapping that is being used for this job.  |
| ENV_NAME                            | Name of the environment requesting the job.  |
| FP_NAME                             | Name of the footprint using the job.   |
| COMMENT                             | Comment if defined   |
| COMMENTTYPE                         | Type of comment if a comment is defined  |
| PRIVS                               | String containing the users privileges on the object   |
| CREATOR                             | Name of the user created the object  |
| CREATE_TIME                         | Date and time of object creation   |
| CHANGER                             | Name of the last user changed the object   |
| CHANGE_TIME                         | Date and time of object change   |
| CHILDREN                            | Table of the children.<br>See also table 22.34 on page 302   |
| PARENTS                             | Table of the parents.<br>See also table 22.35 on page 303  |
| PARAMETER                           | Table of the parameters and variables that are defined for this object.<br>See also table 22.36 on page 304                |
| REFERENCES                          | Table of parameter references to this object.  |
| REQUIRED_JOBS                       | Table of objects upon which the following objects are dependent.<br>See also table 22.37 on page 305                       |
| DEPENDENT_JOBS                      | Table of objects that are dependent upon the following objects.<br>See also table 22.38 on page 306                        |
| REQUIRED_RESOURCES                  | Table of resource requirements that are not included in the environment and footprint.<br>See also table 22.39 on page 307 |
| DEFINED_RESOURCES                   | Table of resources to be instantiated at the submit time, visible for submitting children.                                 |

Table 22.33: Description of the output structure of the show job definition statement

**CHILDREN** The layout of the CHILDREN table is shown in the table below.

User Commands

show job definition

| Field                | Description   |
|----------------------|---|
| ID                   | The repository object id  |
| CHILDNAME            | Full path name of the child object.   |
| CHILDTYPE            | The child type (JOB, BATCH or MILESTONE).   |
| CHILDPRIVS           | A string containing the user privileges of the child object.  |
| PARENTNAME           | Full path name of the parent object.  |
| PARENTTYPE           | The parent type (JOB, BATCH or MILESTONE).  |
| PARENTPRIVS          | A string containing the user privileges of the parent object.   |
| ALIAS_NAME           | Name for referencing to child definitions with dynamic submits.   |
| IS_STATIC            | The is_static flag defines whether the job is to be statically or dynamically submitted.                                |
| PRIORITY             | The nice value that has been added to the children.   |
| SUSPEND              | Determines whether the child is to be suspended for the submit.   |
| RESUME_AT            | If the job is to be submitted as being suspended, an automatic resume takes place at the given time.                    |
| RESUME_IN            | If the job is to be submitted as being suspended, an automatic resume takes place after the given number of time units. |
| RESUME_BASE          | Specified time unit for RESUME_IN.  |
| MERGE_MODE           | Determines how the condition handles the same object that occurs more than once in the submission hierarchy.            |
| EST_NAME             | An Exit State Translation that is used to translate the Exit States of the children to the Exit States of the parents.  |
| IGNORED_DEPENDENCIES | List with the names of the dependencies for ignoring the dependencies of the parents.                                   |

Table 22.34: Description of the output structure of the show job definition subtable

**PARENTS** The layout of the PARENTS table is shown in the table below.

| Field                | Description   |
|----------------------|---|
| ID                   | The repository object id  |
| CHILDNAME            | Full path name of the child object.   |
| CHILDTYPE            | The child type (JOB, BATCH or MILESTONE).   |
| CHILDPRIVS           | A string containing the user privileges of the child object.  |
| PARENTNAME           | Full path name of the parent object.  |
| PARENTTYPE           | The parent type (JOB, BATCH or MILESTONE).  |
| PARENTPRIVS          | A string containing the user privileges of the parent object.   |
| ALIAS_NAME           | Name for referencing to child definitions with dynamic submits.   |
| IS_STATIC            | The is_static flag defines whether the job is to be statically or dynamically submitted.                                |
| PRIORITY             | The nice value that has been added to the children.   |
| SUSPEND              | Determines whether the child is to be suspended for the submit.   |
| RESUME_AT            | If the job is to be submitted as being suspended, an automatic resume takes place at the given time.                    |
| RESUME_IN            | If the job is to be submitted as being suspended, an automatic resume takes place after the given number of time units. |
| RESUME_BASE          | Specified time unit for RESUME_IN.  |
| MERGE_MODE           | Determines how the condition handles the same object that occurs more than once in the submission hierarchy.            |
| EST_NAME             | An Exit State Translation that is used to translate the Exit States of the children to the Exit States of the parents.  |
| IGNORED_DEPENDENCIES | List with the names of the dependencies for ignoring the dependencies of the parents.                                   |

Table 22.35: Description of the output structure of the show job definition subtable

**PARAMETER** The layout of the PARAMETER table is shown in the table below.

| Field               | Description   |
|---------------------|---|
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself.     |
| EXPRESSION          | Expression for the parameter type EXPRESSION.                           |
| DEFAULT_VALUE       | The default value of the parameter.                                     |
| REFERENCE_TYPE      | Type of object that is being referenced.                                |
| REFERENCE_PATH      | The path to the object that is being referenced.                        |
| REFERENCE_PRIVS     | The user's privileges for the object that is being referenced.          |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                         |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                                 |
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself.     |
| REFERENCE_TYPE      | Type of object that is referencing the parameter.                       |
| REFERENCE_PATH      | The path to the object that is referencing the parameter.               |
| REFERENCE_PRIVS     | The user's privileges for the object that is referencing the parameter. |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                         |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                                 |

Table 22.36: Description of the output structure of the show job definition subtable

**REQUIRED JOBS** The layout of the REQUIRED\_JOBS table is shown in the table below.

| Field                         | Description              |
|-------------------------------|--------------------------|
| ID                            | The repository object id |
| NAME                          | The object name          |
| <i>Continued on next page</i> |                          |

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| Field               | Description   |
|---------------------|---|
| DEPENDENTNAME       | The full path name of the dependent object.   |
| DEPENDENTTYPE       | The type of dependent object (JOB, BATCH or MILESTONE).   |
| DEPENDENTPRIVS      | String containing the user privileges of the dependent object.  |
| REQUIREDNAME        | The full path name of the required object.  |
| REQUIREDTYPE        | The type of required object (JOB, BATCH or MILESTONE).  |
| REQUIREDPRIVS       | String containing the user privileges of the required object.   |
| UNRESOLVED_HANDLING | Defines what to do if the required object cannot be found.  |
| MODE                | Defines whether dependencies are to be handled as being fulfilled in the case of jobs in a final state (JOB.FINAL) or final states of objects contain the child objects (ALL.FINAL).                                  |
| STATE_SELECTION     | The State Selection defines how the required Exit States are determined. The options here are FINAL, ALL_REACHABLE, UNREACHABLE and DEFAULT. In the case of FINAL, the required Exit States can be explicitly listed. |
| CONDITION           | The additional conditions must be fulfilled.  |
| STATES              | Comma-separated list of permitted Exit States that the required object has to achieve to fulfil the dependencies. If an additional condition has been specified, it is shown after the colon.                         |

Table 22.37: Description of the output structure of the show job definition subtable

**DEPENDENT\_JOBS** The layout of the DEPENDENT\_JOBS table is shown in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id                                |
| NAME          | The object name   |
| DEPENDENTNAME | The full path name of the dependent object.             |
| DEPENDENTTYPE | The type of dependent object (JOB, BATCH or MILESTONE). |

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| Field               | Description   |
|---------------------|---|
| DEPENDENTPRIVS      | String containing the user privileges of the dependent object.  |
| REQUIREDNAME        | The full path name of the required object.  |
| REQUIREDTYPE        | The type of required object (JOB, BATCH or MILESTONE).  |
| REQUIREDPRIVS       | String containing the user privileges of the required object.   |
| UNRESOLVED_HANDLING | Defines what to do if the required object cannot be found.  |
| MODE                | Defines whether dependencies are to be handled as being fulfilled in the case of jobs in a final state (JOB_FINAL) or final states of objects contain the child objects (ALL_FINAL).                                  |
| STATE_SELECTION     | The State Selection defines how the required Exit States are determined. The options here are FINAL, ALL_REACHABLE, UNREACHABLE and DEFAULT. In the case of FINAL, the required Exit States can be explicitly listed. |
| CONDITION           | The additional conditions must be fulfilled.  |
| STATES              | Comma-separated list of permitted Exit States that the required object has to achieve to fulfil the dependencies. If an additional condition has been specified, it is shown after the colon.                         |

Table 22.38: Description of the output structure of the show job definition subtable

**REQUIRED\_RESOURCES** The layout of the REQUIRED\_RESOURCES table is shown in the table below.

| Field          | Description   |
|----------------|---|
| ID             | The repository object id  |
| RESOURCE_NAME  | Full path name of the required Named Resource.                        |
| RESOURCE_USAGE | The usage of the required resource (STATIC, SYSTEM or SYNCHRONIZING). |
| RESOURCE_PRIVS | String containing the user privileges of the Named Resource.          |

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| <i>Continued from previous page</i> |   |
|-------------------------------------|---|
| Field                               | Description   |
| AMOUNT                              | The required amount with System or Synchronizing Resources.   |
| KEEP_MODE                           | Indicates whether the resource is to be released at the end of the job (NOKEEP) or in a final job state (KEEP) including all the children (KEEP_FINAL). |
| IS_STICKY                           | Indicates whether the resource allocation for subsequent jobs is retained.  |
| STICKY_NAME                         | Optional name of the sticky resource request  |
| STICKY_PARENT                       | Parent Job Definition within which the sticky requirement is handled  |
| RESOURCE_STATE_MAPPING              | The Resource State Mapping defines how and whether the state of the resource is to be changed after the job has finished.                               |
| EXPIRED_AMOUNT                      | The maximum number of units (expressed by EXPIRED_BASE) that can affect this resource before it enables an allocation of this Synchronizing Resource.   |
| EXPIRED_BASE                        | The unit for specifying the operation in MINUTES, HOURS, DAYS, WEEKS, MONTHS and YEARS.   |
| LOCKMODE                            | The lockmode for allocating Synchronizing Resources (N, S, SX, X).  |
| STATES                              | Comma-separated list of permitted Exit States that the required object has to achieve to fulfil the dependencies.                                       |
| DEFINITION                          | The origin of the resource request (REQUIREMENT, FOOTPRINT, FOLDER or ENVIRONMENT).   |
| ORIGIN                              | Name of the Resource Request Definition, invalid in the case of a complete request.   |
| CONDITION                           | The optional condition that can be defined for requests for Static Resources.   |

Table 22.39: Description of the output structure of the show job definition subtable

## show named resource

### Purpose

*Purpose*      The purpose of the show named resource statement is to get detailed information about the named resource.

### Syntax

*Syntax*      The syntax for the show named resource statement is

**show named resource** *resourcepath* [ **with** EXPAND ]

EXPAND:

**expand = none**  
| **expand =** < ( *id* {, *id* } ) | **all** >

### Description

*Description*      The show named resource statement gives you detailed information about the Named Resource.

**expand**      Since the number of job definitions in the table JOB\_DEFINITIONS can become very large, by default they are not all displayed. If the option **expand = all** is used, all the job definitions as well as their parent folder and the folder hierarchy are outputted. Individual paths in the hierarchy can be selected by specifying individual (folder) IDs.

### Output

*Output*      This statement returns an output structure of type record.

**Main output description**      The data items of the output are described in the table below.

| Field                  | Description   |
|------------------------|---|
| ID                     | The repository object id                              |
| NAME                   | Name of the Named Resource.                           |
| OWNER                  | Owner of the Named Resource.                          |
| USAGE                  | The Usage field specifies the Resource type.          |
| INHERIT_PRIVS          | Privileges that are inherited from the parent folder. |
| Continued on next page |   |



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|-------------------------------------|--|
| Field                               | Description  |
| RESOURCE.STATE.PROFILE              | This is the Resource State Profile assigned to the resource.                                       |
| FACTOR                              | The factor by which allocations are multiplied.  |
| COMMENT                             | Comment if defined   |
| COMMENTTYPE                         | Type of comment if a comment is defined  |
| CREATOR                             | Name of the user created the object  |
| CREATE_TIME                         | Date and time of object creation   |
| CHANGER                             | Name of the last user changed the object   |
| CHANGE_TIME                         | Date and time of object change   |
| PRIVS                               | String containing the users privileges on the object   |
| RESOURCES                           | These are the instances of the Named Resource.<br>See also table 22.41 on page 310                 |
| PARAMETERS                          | These are the defined parameters of the Named Resource.<br>See also table 22.42 on page 310        |
| JOB_DEFINITIONS                     | These are the job definitions that request the Named Resource.<br>See also table 22.43 on page 311 |

Table 22.40: Description of the output structure of the show named resource statement

**RESOURCES** The layout of the RESOURCES table is shown in the table below.

| Field              | Description  |
|--------------------|--|
| ID                 | The repository object id   |
| SCOPE              | The names of the scopes, Submitted Entities, Scheduling Entities or folders that offer the respective Named Resource are shown here. |
| TYPE               | This is the resource type.   |
| OWNER              | The group owning the object  |
| STATE              | Indicates the state of the resource.   |
| REQUESTABLE_AMOUNT | The maximum amount of resources that can be requested by a job.  |
| AMOUNT             | The amount states the current number of instances of the Named Resource for this scope or job server.                                |

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| Field       | Description  |
|-------------|--|
| FREE_AMOUNT | The Free Amount designates the total number of instances of a resource in the selected scope or job server that have not yet been allocated to jobs. |
| IS_ONLINE   | Indicates whether the resource is online or not.   |
| PRIVS       | String containing the users privileges on the object   |

Table 22.41: Description of the output structure of the show named resource sub-table

**PARAMETERS** The layout of the PARAMETERS table is shown in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id  |
| NAME          | The name of the parameter.  |
| TYPE          | This is the parameter type. Local or Local Constant.  |
| DEFAULT_VALUE | With the Default Value, we differentiate between Constants and Local Constants. It is the value of the parameter for Constants and the default value for Local Constants. |
| COMMENT       | Comment if defined  |
| COMMENTTYPE   | Type of comment if a comment is defined   |

Table 22.42: Description of the output structure of the show named resource sub-table

**JOB\_DEFINITIONS** The layout of the JOB\_DEFINITIONS table is shown in the table below.

| Field     | Description  |
|-----------|--|
| ID        | The repository object id   |
| NAME      | Name of the job definition.  |
| AMOUNT    | The amount of the resource that is required by the job.                |
| KEEP_MODE | The value of the Keep parameter for the resource request from the job. |

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| Field                  | Description  |
|------------------------|--|
| IS_STICKY              | Indicates whether it is a Sticky Request or not.   |
| STICKY_NAME            | Optional name of the sticky resource request   |
| STICKY_PARENT          | Parent Job Definition within which the sticky requirement is handled   |
| RESOURCE_STATE_MAPPING | If a Resource State Mapping was specified in the resource request, it is displayed here.   |
| EXPIRED_AMOUNT         | The number of units. If the Expired Amount is positive, this means that the state change cannot have taken place longer ago than the given maximum time. If the amount is negative, it must have taken place at least as long ago as the given minimum time. |
| EXPIRED_BASE           | The unit in minutes, hours, days, weeks, months and years.   |
| LOCKMODE               | The lockmode describes the mode for accessing this resource (exclusive, shared, etc.).   |
| STATES                 | Multiple states that are acceptable for this job are separated by commas.  |
| CONDITION              | The condition that can be defined for requests for Static Resources.   |
| PRIVS                  | String containing the users privileges on the object   |

---

Table 22.43: Description of the output structure of the show named resource sub-table

show resource

Purpose

Purpose

The purpose of the show resource statement is to get detailed information about the resource.

Syntax

Syntax

The syntax for the show resource statement is

```
show RESOURCE_URL

RESOURCE_URL:
    resource resourcepath in folderpath
    | resource resourcepath in serverpath
```

Description

Description

The show resource statement gives you detailed information about the resource.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field             | Description   |
|-------------------|---|
| ID                | The repository object id                                  |
| NAME              | Name of the resource.                                     |
| SCOPENAME         | Name of the scope in which the pool was created.          |
| OWNER             | The group owning the object                               |
| LINK_ID           | ID of the referenced resource.                            |
| LINK_SCOPE        | Scope name of the referenced resource.                    |
| BASE_ID           | ID of the ultimately referenced resource.                 |
| BASE_SCOPE        | Scope name of the ultimately referenced resource.         |
| MANAGER_ID        | ID of the Managing Pool.                                  |
| MANAGER_NAME      | Name of the Managing Pool.                                |
| MANAGER_SCOPENAME | Name of the scope in which the Managing Pool was created. |

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| Field                  | Description  |
|------------------------|--|
| USAGE                  | The Usage field specifies the Resource type.   |
| RESOURCE_STATE_PROFILE | This is the Resource State Profile allocated to the resource.  |
| COMMENT                | Comment if defined   |
| COMMENTTYPE            | Type of comment if a comment is defined  |
| TAG                    | The tag is an optional short name for the resource.  |
| STATE                  | The state is the current state of the resource in this scope or job server.                                      |
| TIMESTAMP              | The timestamp indicates the last time the Resource State changed.  |
| REQUESTABLE_AMOUNT     | The Requestable Amount is the maximum amount that can be requested.  |
| DEFINED_AMOUNT         | The amount that is available if the resource is not pooled.  |
| AMOUNT                 | The actual available amount.   |
| FREE_AMOUNT            | The Free Amount designates the total number of instances of a resource that have not yet been allocated to jobs. |
| IS_ONLINE              | Is Online is an indicator that states whether the resource is online or not.                                     |
| FACTOR                 | This is the correction factor by which the requested amount is multiplied.                                       |
| TRACE_INTERVAL         | The trace interval is the minimum time in seconds between when Trace Records are written.                        |
| TRACE_BASE             | The trace base is the basis for the valuation period.  |
| TRACE_BASE_MULTIPLIER  | The base multiplier determines the multiplication factor of the trace base.                                      |
| TD0_AVG                | The average resource allocation of the last $B * M^0$ seconds.   |
| TD1_AVG                | The average resource allocation of the last $B * M^1$ seconds.   |
| TD2_AVG                | The average resource allocation of the last $B * M^2$ seconds.   |
| LW_AVG                 | The average allocation since the last time a Trace Record was written.   |

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| Field       | Description   |
|-------------|---|
| LAST_WRITE  | The time the last Trace Record was written.   |
| CREATOR     | Name of the user created the object   |
| CREATE_TIME | Date and time of object creation  |
| CHANGER     | Name of the last user changed the object  |
| CHANGE_TIME | Date and time of object change  |
| PRIVS       | String containing the users privileges on the object  |
| ALLOCATIONS | This is a table of resource allocations.<br>See also table 22.45 on page 315                                    |
| PARAMETERS  | Additional information about a resource can be saved in the Parameters tab.<br>See also table 22.46 on page 316 |

Table 22.44: Description of the output structure of the show resource statement

**ALLOCATIONS** The layout of the ALLOCATIONS table is shown in the table below.

| Field     | Description  |
|-----------|--|
| ID        | The repository object id   |
| JOBID     | This is the ID of the job instance that was started with either a direct submit of the job or by a submit of the Master Batch or Master Job.             |
| MASTERID  | This is the ID of the job or batch instance that was started as a Master Job and contains the current job as a child.                                    |
| JOBTYPE   | This is the type of the job.   |
| JOBNAME   | This is the name of the job.   |
| AMOUNT    | This is the available amount.  |
| KEEP_MODE | The Keep parameter defines whether the job is given the current "Sticky" resource or not. The following variants are used: KEEP, NO KEEP and KEEP FINAL. |
| IS_STICKY | The resource is only released if there are no other Sticky Requests for this Named Resource in the same batch.   |

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|-------------------------------------|---|
| Field                               | Description   |
| STICKY_NAME                         | Optional name of the sticky resource request  |
| STICKY_PARENT                       | Parent job within which the sticky request is evaluated                                     |
| STICKY_PARENT_TYPE                  | Type of the parent within which the sticky requirement is evaluated                         |
| LOCKMODE                            | The lockmode defines which access mode is used to allocate the resource to the current job. |
| RSM_NAME                            | The name of the Resource State Mapping.   |
| TYPE                                | The type of allocation: Available, Blocked, Allocations, Master_Reservation, Reservation    |
| TYPESORT                            | Aid for sorting the allocations.  |
| P                                   | The priority of the job.  |
| EP                                  | The effective priority of the job.  |
| PRIVS                               | String containing the users privileges on the object  |

Table 22.45: Description of the output structure of the show resource subtable

**PARAMETERS** The layout of the PARAMETERS table is shown in the table below.

| Field               | Description   |
|---------------------|---|
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself. |
| EXPRESSION          | Expression for the parameter type EXPRESSION.                       |
| DEFAULT_VALUE       | The default value of the parameter.                                 |
| REFERENCE_TYPE      | Type of object that is being referenced.                            |
| REFERENCE_PATH      | The path to the object that is being referenced.                    |
| REFERENCE_PRIVS     | The user's privileges for the object that is being referenced.      |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                     |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                             |

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| Continued from previous page |   |
|------------------------------|---|
| Field                        | Description   |
| ID                           | The repository object id  |
| NAME                         | Name of the parameter.  |
| TYPE                         | This is the parameter type.   |
| IS_LOCAL                     | True for local parameters that are only visible for the job itself.     |
| REFERENCE_TYPE               | Type of object that is referencing the parameter.                       |
| REFERENCE_PATH               | The path to the object that is referencing the parameter.               |
| REFERENCE_PRIVS              | The user’s privileges for the object that is referencing the parameter. |
| REFERENCE_PARAMETER          | Name of the parameter that is being referenced.                         |
| COMMENT                      | Comment if defined  |
| COMMENTTYPE                  | Type of comment if a comment is defined                                 |

Table 22.46: Description of the output structure of the show resource subtable



show resource state definition

Purpose

The purpose of the show resource state definition is to get detailed information about the specified resource state definition.

Purpose

Syntax

The syntax for the show resource state definition statement is

Syntax

```
show resource state definition statename
```

Description

The show resource state definition statement gives you detailed information about the Resource State Definition.

Description

Output

This statement returns an output structure of type record.

Output

**Main output description** The data items of the output are described in the table below.

| Field       | Description  |
|-------------|--|
| ID          | The repository object id                             |
| NAME        | The object name                                      |
| COMMENT     | Comment if defined                                   |
| COMMENTTYPE | Type of comment if a comment is defined              |
| CREATOR     | Name of the user created the object                  |
| CREATE_TIME | Date and time of object creation                     |
| CHANGER     | Name of the last user changed the object             |
| CHANGE_TIME | Date and time of object change                       |
| PRIVS       | String containing the users privileges on the object |

Table 22.47: Description of the output structure of the show resource state definition statement

## show resource state mapping

### Purpose

*Purpose*      The purpose of the show resource state mapping statement is to get detailed information about the specified mapping.

### Syntax

*Syntax*      The syntax for the show resource state mapping statement is

**show resource state mapping** *profilename*

### Description

*Description*      The show resource state mapping statement gives you detailed information about the specified mapping.

### Output

*Output*      This statement returns an output structure of type record.

**Main output description**    The data items of the output are described in the table below.

| Field       | Description  |
|-------------|--|
| ID          | The repository object id   |
| NAME        | Name of the Resource State Mapping.  |
| COMMENT     | Comment if defined   |
| COMMENTTYPE | Type of comment if a comment is defined  |
| CREATOR     | Name of the user created the object  |
| CREATE_TIME | Date and time of object creation   |
| CHANGER     | Name of the last user changed the object   |
| CHANGE_TIME | Date and time of object change   |
| PRIVS       | String containing the users privileges on the object   |
| MAPPINGS    | A table with translations from the Exit State to the Resource State.<br>See also table <a href="#">22.49</a> on page <a href="#">319</a> |

Table 22.48: Description of the output structure of the show resource state mapping statement

**MAPPINGS**    The layout of the MAPPINGS table is shown in the table below.

show resource state mapping

User Commands

| Field    | Description                         |
|----------|-------------------------------------|
| ESD_NAME | Name of the Exit State Definition.  |
| RSD_FROM | The original state of the resource. |
| RSD_TO   | The current state of the resource.  |

Table 22.49: Description of the output structure of the show resource state mapping subtable

show resource state profile

Purpose

Purpose

The purpose of the show resource state profile is to get detailed information about the specified resource state profile.

Syntax

Syntax

The syntax for the show resource state profile statement is

**show resource state profile** *profilename*

Description

Description

The show resource state profile statement gives you detailed information about the specified Resource State Profile.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id  |
| NAME          | The object name   |
| INITIAL_STATE | This field defines the initial state of the resource. This Resource State does not have to be present in the list of valid Resource States. |
| COMMENT       | Comment if defined  |
| COMMENTTYPE   | Type of comment if a comment is defined   |
| CREATOR       | Name of the user created the object   |
| CREATE_TIME   | Date and time of object creation  |
| CHANGER       | Name of the last user changed the object  |
| CHANGE_TIME   | Date and time of object change  |
| PRIVS         | String containing the users privileges on the object  |
| STATES        | The valid Resource States are shown in the Resource State column in the States table.   |

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| Field | Description  |
|-------|--|
|       | See also table <a href="#">22.51</a> on page <a href="#">321</a> |

---

Table 22.50: Description of the output structure of the show resource state profile statement

**STATES** The layout of the STATES table is shown in the table below.

| Field    | Description  |
|----------|--|
| ID       | The repository object id                             |
| RSD_NAME | Name of the Resource State Definition.               |
| PRIVS    | String containing the users privileges on the object |

---

Table 22.51: Description of the output structure of the show resource state profile subtable

## show schedule

### Purpose

*Purpose* The purpose of the show schedule statement is to get detailed information about the specified schedule.

### Syntax

*Syntax* The syntax for the show schedule statement is

**show schedule** *schedulepath*

### Description

*Description* The show schedule statement gives you detailed information about the specified schedule.

### Output

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field                         | Description  |
|-------------------------------|--|
| ID                            | The repository object id   |
| NAME                          | The object name  |
| OWNER                         | The group owning the object  |
| INHERIT_PRIVS                 | Privileges that are inherited from the parent folder.              |
| INTERVAL                      | These are blocks of defined durations in the Time Scheduling.      |
| TIME_ZONE                     | The time zone in which the schedule is to be calculated.           |
| ACTIVE                        | Jobs are only submitted if this flag is set.                       |
| EFF_ACTIVE                    | States whether a parent has been set to Inactive by the scheduler. |
| CREATOR                       | Name of the user created the object                                |
| CREATE_TIME                   | Date and time of object creation                                   |
| CHANGER                       | Name of the last user changed the object                           |
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| Field       | Description  |
|-------------|--|
| CHANGE_TIME | Date and time of object change                       |
| PRIVS       | String containing the users privileges on the object |
| COMMENT     | Comment if defined                                   |
| COMMENTTYPE | Type of comment if a comment is defined              |

---

Table 22.52: Description of the output structure of the show schedule statement

## show scheduled event

### Purpose

*Purpose* The purpose of the show scheduled event is to get detailed information about the specified event.

### Syntax

*Syntax* The syntax for the show scheduled event statement is

**show scheduled event** *schedulepath . eventname*

### Description

*Description* The show scheduled event statement gives you detailed information about the specified event.

### Output

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field      | Description   |
|------------|---|
| ID         | The repository object id  |
| OWNER      | The group owning the object   |
| SCHEDULE   | The schedule defines the scheduling times.  |
| EVENT      | The event describes what is to be done.   |
| ACTIVE     | Jobs are only submitted if this flag is set.  |
| EFF_ACTIVE | States whether a parent has been set to Inactive by the scheduler.  |
| BROKEN     | The Broken field can be used to check whether an error occurred when the job was submitted.   |
| ERROR_CODE | If an error occurred while the job was being executed in the Time Scheduling, the returned error code is displayed in the Error Code field. If no error occurred, this field remains empty. |

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|-------------------------------------|---|
| Field                               | Description   |
| ERROR_MSG                           | If an error occurred while the job was being executed in the Time Scheduling, the returned error message is displayed in the Error Message field. If no error occurred, this field remains empty. |
| LAST_START                          | The last time the job is to be executed by the Scheduling System is shown here.   |
| NEXT_START                          | The next scheduled time when the task is to be executed by the Scheduling System is shown here.   |
| NEXT_CALC                           | If the Next Start field is empty, the Next Calc gives the time when a search is run for a next start time. Otherwise, the new calculation takes place at the time of the Next Start.              |
| CREATOR                             | Name of the user created the object   |
| CREATE_TIME                         | Date and time of object creation  |
| CHANGER                             | Name of the last user changed the object  |
| CHANGE_TIME                         | Date and time of object change  |
| PRIVS                               | String containing the users privileges on the object  |
| BACKLOG_HANDLING                    | The backlog determines how the Time Scheduling System behaves after a server downtime.  |
| SUSPEND_LIMIT                       | The time that defines when jobs are to be submitted in a suspended state, for example after a downtime.   |
| EFFECTIVE_SUSPEND_LIMIT             | The time that defines when jobs are to be submitted in a suspended state, for example after a downtime.   |
| CALENDAR                            | This flag indicates whether calendar entries are created.   |
| CALENDAR_HORIZON                    | The defined length of the period in days for which a calendar is created.   |
| EFFECTIVE_CALENDAR_HORIZON          | The effective length of the period in days for which a calendar is created.   |
| COMMENT                             | Comment if defined  |
| COMMENTTYPE                         | Type of comment if a comment is defined   |
| CALENDAR_TABLE                      | The table with the next start times.  |

Table 22.53: Description of the output structure of the show scheduled event statement

show scope

Purpose

Purpose

The purpose of the show scope statement is to get detailed information about a scope.

Syntax

Syntax

The syntax for the show scope statement is

```
show < scope serverpath | job server serverpath > [ with EXPAND ]  
  
EXPAND:  
    expand = none  
    | expand = < ( id {, id} ) | all >
```

Description

Description

The show scope statement gives you detailed information about the scope.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field                  | Description  |
|------------------------|--|
| ID                     | The repository object id   |
| NAME                   | The object name  |
| OWNER                  | The group owning the object  |
| TYPE                   | The type of scope.   |
| INHERIT_PRIVS          | Privileges that are inherited from the parent folder.                          |
| IS_TERMINATE           | This flag indicates whether a termination order exists.                        |
| IS_SUSPENDED           | Indicates whether the scope is suspended.                                      |
| IS_ENABLED             | The job server can only log on to the server if the Enable flag is set to Yes. |
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| Field              | Description   |
|--------------------|---|
| IS_REGISTERED      | Defines whether the job server has sent a register command.   |
| IS_CONNECTED       | Indicates whether the job server is connected.  |
| HAS_ALTERED_CONFIG | The configuration on the server does not match the current configuration on the job server.   |
| STATE              | This is the current state of the resource in this scope.  |
| PID                | The PID is the process identification number of the job server process on the respective host system.   |
| NODE               | The node specifies the computer on which the job server is running. This field has a purely documentary character.  |
| IDLE               | The time that has elapsed since the last command. This only applies for job servers.  |
| ERRMSG             | This is an error message.   |
| COMMENT            | Comment if defined  |
| COMMENTTYPE        | Type of comment if a comment is defined   |
| CREATOR            | Name of the user created the object   |
| CREATE_TIME        | Date and time of object creation  |
| CHANGER            | Name of the last user changed the object  |
| CHANGE_TIME        | Date and time of object change  |
| PRIVS              | String containing the users privileges on the object  |
| RESOURCES          | The resources present in this scope are displayed here.<br>See also table <a href="#">22.55</a> on page <a href="#">329</a>                                       |
| CONFIG             | The configuration of the job server is described in the Config tab.<br>See also table <a href="#">22.56</a> on page <a href="#">329</a>                           |
| CONFIG_ENVMAAPPING | Whether and under which name the environment variables are visible is configured in this tab.<br>See also table <a href="#">22.57</a> on page <a href="#">330</a> |
| PARAMETERS         | Additional information about a resource can be saved in the Parameters tab.<br>See also table <a href="#">22.58</a> on page <a href="#">331</a>                   |

Table 22.54: Description of the output structure of the show scope statement

**RESOURCES** The layout of the RESOURCES table is shown in the table below.

| Field              | Description  |
|--------------------|--|
| ID                 | The repository object id   |
| NR_ID              | ID of the Named Resource.  |
| NAME               | Name of the Named Resource.  |
| USAGE              | It is the usage of the Named Resource (STATIC, SYSTEM or SYNCHRONISING)                                      |
| NR_PRIVS           | String containing the abbreviations for the user privileges for this Named Resource.                         |
| TAG                | The tag is an optional short name for the resource.  |
| OWNER              | The group owning the object  |
| LINK_ID            | ID of the referenced resource.   |
| LINK_SCOPE         | Scope of the referenced resource.  |
| STATE              | The Resource State of the resource.  |
| REQUESTABLE_AMOUNT | The maximum amount of resources that can be requested by a job.  |
| AMOUNT             | The actual amount that is available.   |
| FREE_AMOUNT        | The free amount that can be allocated.   |
| TOTAL_FREE_AMOUNT  | Free amount available for allocations including the free amount of pooled resources if it is a pool.         |
| IS_ONLINE          | This is the availability status of the resource.   |
| FACTOR             | This is the correction factor by which the requested amount is multiplied.                                   |
| TIMESTAMP          | The timestamp indicates the last time the Resource State changed.  |
| SCOPE              | The scope in which the resource was created.   |
| MANAGER_ID         | ID of the Managing Pool.   |
| MANAGER_NAME       | Name of the Managing Pool.   |
| MANAGER_SCOPENAME  | Name of the scope in which the Managing Pool was created.  |
| HAS_CHILDREN       | Flag indicating whether a Pool Child has managed resources/pools. If it is not a pool, this is always FALSE. |

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| Field                 | Description   |
|-----------------------|---|
| POOL_CHILD            | This flag indicates whether the displayed resource is a child of the pool.                |
| TRACE_INTERVAL        | The trace interval is the minimum time in seconds between when Trace Records are written. |
| TRACE_BASE            | The trace base is the basis for the valuation period (B).                                 |
| TRACE_BASE_MULTIPLIER | The base multiplier determines the multiplication factor (M) of the trace base.           |
| TD0_AVG               | The average resource allocation of the last $B * M^0$ seconds.                            |
| TD1_AVG               | The average resource allocation of the last $B * M^1$ seconds.                            |
| TD2_AVG               | The average resource allocation of the last $B * M^2$ seconds.                            |
| LW_AVG                | The average allocation since the last time a Trace Record was written.                    |
| LAST_WRITE            | The time the last Trace Record was written.   |
| PRIVS                 | String containing the users privileges on the object                                      |

Table 22.55: Description of the output structure of the show scope subtable

**CONFIG** The layout of the CONFIG table is shown in the table below.

| Field          | Description   |
|----------------|---|
| KEY            | The name of the configuration variable.                                   |
| VALUE          | The value of the configuration variable.                                  |
| LOCAL          | Indicates whether the Key Value Pair is defined at local or parent level. |
| ANCESTOR_SCOPE | This is the scope in which the Key Value Pair is defined.                 |
| ANCESTOR_VALUE | This is the value that is defined at parent level.                        |

Table 22.56: Description of the output structure of the show scope subtable

**CONFIG\_ENVMAPPING** The layout of the CONFIG\_ENVMAPPING table is shown in the table below.

| Field          | Description   |
|----------------|---|
| KEY            | Name of the environment variable.   |
| VALUE          | Name of the environment variable that is to be set.                       |
| LOCAL          | Indicates whether the Key Value Pair is defined at local or parent level. |
| ANCESTOR_SCOPE | This is the scope in which the Key Value Pair is defined.                 |
| ANCESTOR_VALUE | This is the value that is defined at parent level.                        |

Table 22.57: Description of the output structure of the show scope subtable

**PARAMETERS** The layout of the PARAMETERS table is shown in the table below.

| Field               | Description   |
|---------------------|---|
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself. |
| EXPRESSION          | Expression for the parameter type EXPRESSION.                       |
| DEFAULT_VALUE       | The default value of the parameter.                                 |
| REFERENCE_TYPE      | Type of object that is being referenced.                            |
| REFERENCE_PATH      | The path to the object that is being referenced.                    |
| REFERENCE_PRIVS     | The user's privileges for the object that is being referenced.      |
| REFERENCE_PARAMETER | Name of the parameter that is being referenced.                     |
| COMMENT             | Comment if defined  |
| COMMENTTYPE         | Type of comment if a comment is defined                             |
| ID                  | The repository object id  |
| NAME                | Name of the parameter.  |
| TYPE                | This is the parameter type.   |
| IS_LOCAL            | True for local parameters that are only visible for the job itself. |
| REFERENCE_TYPE      | Type of object that is referencing the parameter.                   |
| REFERENCE_PATH      | The path to the object that is referencing the parameter.           |

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|-------------------------------------|---|
| Field                               | Description   |
| REFERENCE_PRIVS                     | The user’s privileges for the object that is referencing the parameter. |
| REFERENCE_PARAMETER                 | Name of the parameter that is being referenced.                         |
| COMMENT                             | Comment if defined  |
| COMMENTTYPE                         | Type of comment if a comment is defined                                 |

Table 22.58: Description of the output structure of the show scope subtable

## show session

### Purpose

*Purpose* The purpose of the show session statement is to get more detailed information about the specified or the current session.

### Syntax

*Syntax* The syntax for the show session statement is

```
show session [ sid ]
```

### Description

*Description* The show session statement gives you detailed information about the specified or current session.

### Output

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field     | Description  |
|-----------|--|
| THIS      | With This, the proprietary session is shown with an asterisk.                        |
| SESSIONID | This is the ID of the session.   |
| START     | The time from which the session was started.   |
| USER      | Name of the user name used for the session login.                                    |
| UID       | The ID of the user.  |
| IP        | The IP address of the computer from which the connection was set up.                 |
| TXID      | The ID of the last or current transaction.   |
| IDLE      | The time in seconds that has elapsed since the last transaction.                     |
| TIMEOUT   | The time in seconds after which an automatic logout takes place (0 means unlimited). |

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|-------------------------------------|--|
| Field                               | Description  |
| STATEMENT                           | The statement that is being executed at this time. |

Table 22.59: Description of the output structure of the show session statement

show system

Purpose

*Purpose*      The purpose of the show system statement is to get information about the actual configuration of the running server.

Syntax

*Syntax*      The syntax for the show system statement is

**show system**

Description

*Description*      The show system statement gives you detailed information about the current configuration of the running server.

Output

*Output*      This statement returns an output structure of type record.

**Main output description**    The data items of the output are described in the table below.

| Field     | Description  |
|-----------|--|
| VERSION   | The current version of the software.   |
| MAX_LEVEL | The maximum compatibility level of the software.   |
| NUM_CPU   | The number of processors present in the system.  |
| MEM_USED  | The amount of used memory.   |
| MEM_FREE  | The amount of free memory.   |
| MEM_MAX   | The maximum amount of memory that the server can use.  |
| STARTTIME | The time when the server was started.  |
| UPTIME    | The time when the server started running.  |
| HITRATE   | The hit rate in the environment cache of the Scheduling Thread.  |
| WORKER    | A table with a list of the Worker Threads.<br>See also table <a href="#">22.61</a> on page <a href="#">335</a> |

Table 22.60: Description of the output structure of the show system statement

**WORKER**    The layout of the WORKER table is shown in the table below.

show system

User Commands

| Field | Description                                   |
|-------|---|
| ID    | The repository object id                      |
| NAME  | The object name                               |
| STATE | The state of the worker.                      |
| TIME  | The time from which the worker is in a state. |

Table 22.61: Description of the output structure of the show system subtable

## show trigger

### Purpose

*Purpose* The purpose of the show trigger statement is to get detailed information about the specified trigger.

### Syntax

*Syntax* The syntax for the show trigger statement is

**show trigger** *triggername* **on** TRIGGEROBJECT

TRIGGEROBJECT:

```

    resource resourcepath in folderpath
    | job definition folderpath
    | object monitor objecttypename
    | resource resourcepath in serverpath

```

### Description

*Description* The show trigger statement gives you detailed information about the specified trigger.

### Output

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field      | Description   |
|------------|---|
| ID         | The repository object id  |
| NAME       | The object name   |
| OBJECTTYPE | The type of object in which the trigger is defined.   |
| OBJECTNAME | Full path name of the object in which the trigger is defined.                                       |
| ACTIVE     | States whether the trigger is active or not.  |
| ACTION     | The Trigger Action that takes place is either the submit of a job or a rerun of the triggering job. |

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| Field           | Description   |
|-----------------|---|
| SUBMIT_TYPE     | The object type that is submitted when the trigger is activated.                  |
| SUBMIT_NAME     | The object type that is submitted when the trigger is activated.                  |
| SUBMIT_SE_OWNER | The owner of the object that is submitted.  |
| SUBMIT_PRIVS    | The privileges for the object that is to be submitted.                            |
| MAIN_TYPE       | Type of main job (job/batch).   |
| MAIN_NAME       | Name of the main job.   |
| MAIN_SE_OWNER   | Owner of the main job.  |
| MAIN_PRIVS      | Privileges for the main job.  |
| PARENT_TYPE     | Type of parent job (job/batch).   |
| PARENT_NAME     | Name of the parent job.   |
| PARENT_SE_OWNER | Owner of the parent job.  |
| PARENT_PRIVS    | Privileges for the parent job.  |
| TRIGGER_TYPE    | The trigger type that describes when it is activated.                             |
| MASTER          | Indicates whether the trigger submitted a master or a child.                      |
| SUBMIT_OWNER    | The owner group that has to be used with the Submitted Entity.                    |
| IS_CREATE       | Indicates whether the trigger reacts to create events.                            |
| IS_CHANGE       | Indicates whether the trigger reacts to change events.                            |
| IS_DELETE       | Indicates whether the trigger reacts to delete events.                            |
| IS_GROUP        | Indicates whether the trigger handles the events as a group.                      |
| MAX_RETRY       | The maximum number of trigger activations in a single Submitted Entity.           |
| SUSPEND         | Specifies whether the submitted object is suspended.                              |
| RESUME_AT       | Time of the automatic resume.   |
| RESUME_IN       | Number of time units until the automatic resume.                                  |
| RESUME_BASE     | Time unit for resume.in.  |
| WARN            | Specifies whether a warning has to be given when the activation limit is reached. |

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| Field        | Description   |
|--------------|---|
| CONDITION    | Conditional expression to define the trigger condition.   |
| CHECK_AMOUNT | The amount of CHECK_Base units for checking the condition in the case of non-synchronised triggers. |
| CHECK_BASE   | Units for the CHECK_AMOUNT.   |
| COMMENT      | Comment if defined  |
| COMMENTTYPE  | Type of comment if a comment is defined   |
| CREATOR      | Name of the user created the object   |
| CREATE_TIME  | Date and time of object creation  |
| CHANGER      | Name of the last user changed the object  |
| CHANGE_TIME  | Date and time of object change  |
| STATES       | Table of states that cause the trigger to be activated.<br>See also table 22.63 on page 338         |

Table 22.62: Description of the output structure of the show trigger statement

**STATES** The layout of the STATES table is shown in the table below.

| Field      | Description   |
|------------|---|
| ID         | The repository object id  |
| FROM_STATE | The trigger is activated if this is the old Resource State.                                 |
| TO_STATE   | The trigger is activated if this is the new Resource State or the Exit State of the object. |

Table 22.63: Description of the output structure of the show trigger subtable

## show user

### Purpose

The purpose of the show user statement is to show detailed information about the user. *Purpose*

### Syntax

The syntax for the show user statement is

*Syntax*

```
show user [ username ]
```

### Description

The show user statement gives you detailed information about the user.

*Description*

### Output

This statement returns an output structure of type record.

*Output*

**Main output description** The data items of the output are described in the table below.

| Field         | Description   |
|---------------|---|
| ID            | The repository object id  |
| NAME          | The object name   |
| IS_ENABLED    | Flag that shows whether the user is allowed to log on.  |
| DEFAULT_GROUP | The default group of the users who are being used by the owners of the object.                      |
| COMMENT       | Comment if defined  |
| COMMENTTYPE   | Type of comment if a comment is defined   |
| CREATOR       | Name of the user created the object   |
| CREATE_TIME   | Date and time of object creation  |
| CHANGER       | Name of the last user changed the object  |
| CHANGE_TIME   | Date and time of object change  |
| PRIVS         | String containing the users privileges on the object  |
| MANAGE_PRIVS  | Table of the manage privileges.<br>See also table <a href="#">22.65</a> on page <a href="#">340</a> |

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| Field  | Description  |
|--------|--|
| GROUPS | Table of groups to which the user belongs.<br>See also table 22.66 on page 340 |

---

Table 22.64: Description of the output structure of the show user statement

**MANAGE\_PRIVS** The layout of the MANAGE\_PRIVS table is shown in the table below.

| Field | Description  |
|-------|--|
| PRIVS | String containing the users privileges on the object |

---

Table 22.65: Description of the output structure of the show user subtable

**GROUPS** The layout of the GROUPS table is shown in the table below.

| Field | Description  |
|-------|--|
| ID    | The repository object id                             |
| NAME  | The object name                                      |
| PRIVS | String containing the users privileges on the object |

---

Table 22.66: Description of the output structure of the show user subtable



## 23 shutdown commands

User Commands

shutdown

## shutdown

### Purpose

*Purpose*      The purpose of the shutdown statement is to instruct the addressed jobserver to terminate.

### Syntax

*Syntax*      The syntax for the shutdown statement is

**shutdown** *serverpath*

### Description

*Description*      The shutdown statement is used to shut down the addressed job server.

### Output

*Output*      This statement returns a confirmation of a successful operation

## 24 stop commands

User Commands

stop server

## stop server

### Purpose

*Purpose*      The purpose of the stop server statement is to instruct the server to terminate.

### Syntax

*Syntax*      The syntax for the stop server statement is

**stop server**

**stop server kill**

### Description

*Description*      The stop server statement is used to shut down the server. If this should not function correctly for any reason, the server can also be forced to shut down using **kill**.

### Output

*Output*      This statement returns a confirmation of a successful operation

## **25 submit commands**

## submit

### Purpose

*Purpose* The purpose of the submit statement is to execute a master batch or job as well as all defined children.

### Syntax

*Syntax* The syntax for the submit statement is

```

submit folderpath
[ with WITHITEM {, WITHITEM} ]

submit aliasname
[ with WITHITEM {, WITHITEM} ]

WITHITEM:
    check only
    | childtag = string
    | nicevalue = signed integer
    | parameter = none
    | parameter = ( PARAM {, PARAM} )
    | < noresume | resume in period | resume at datetime >
    | submittag = string
    | < nosuspend | suspend >
    | unresolved = < error | ignore | suspend | defer >
    | group = groupname

PARAM:
    parametername = < string | number >

```

### Description

*Description* The submit statement is used to submit a job or batch. There are two kinds of submit command:

- The first kind is used by users, who can also be programs, and the Time Scheduling Module. This form submits Master Jobs and Batches.
- The second form of the statement is used by jobs to submit dynamic children.

**check only** The check only option is used to verify whether a Master Submittable Batch or Job can be submitted. This means that a check is run to ascertain whether all the dependencies can be fulfilled and all the referenced parameters are defined.

Whether the jobs can be executed in any scope or not is not verified. This is a situation that can arise at any point during the runtime.

Positive feedback means that, from the system's perspective, the job or batch can be submitted.

**childtag** The childtag option is used by jobs to submit several instances of the same Scheduling Entity and to be able to differentiate between them.

An error is triggered if the same Scheduling Entity is submitted twice using the same childtag. The content of the childtag has no further significance for the Scheduling System.

The maximum length for a childtag is 70 characters. The childtag option is ignored in the case of a Master Submit.

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**nicevalue** The nicevalue option defines a correction that is used for the calculation of the priorities for the job and its children. Values between -100 and 100 are permitted.

**parameter** The parameter option is used to specify the value of Job Parameters for the submit. The parameters are set in the scope of the Master Batch or Job. This means that if parameters are specified that are not defined in the Master Batch or Job, these parameters are invisible to any children.

**submittag** If the submittag is specified, it must have a unique name for the Submitted Entity. This tag was introduced to be able to programmatically submit jobs and batches and to resubmit the job or batch with the same tag following a crash of one of the components. If the job submit was successful the first time, the second submit will report an error. If not, the second submit will succeed.

**unresolved** The unresolved option defines how the server is to react to unresolved dependencies. This option is mainly used if parts of a batch are submitted following repair work. The faulty part is normally cancelled and then resubmitted as a Master Run. In this case the previous dependencies have to be ignored otherwise the submit will fail.

**suspend** The suspend option is used to submit jobs or batches and to suspend them at the same time. If nothing is defined, they are not suspended. This can be explicitly specified at the submit time.

If a job or batch was suspended, neither it nor its children are started. If a job is already running, it will not reach a Final State if it is suspended.

**resume** The resume option can be used together with the suspend option to cause a delayed execution. There are two ways to do this. A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.  
This option can be used to reproduce the `at` functionality without creating a schedule.

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field | Description                 |
|-------|-----------------------------|
| ID    | ID of the Submitted Entity. |

Table 25.1: Description of the output structure of the submit statement



## 26 suspend commands

User Commands

suspend

## suspend

### Purpose

*Purpose* The purpose of the suspend statement is to prevent further jobs to be executed by this jobserver. See also the resume statement on page [256](#).

### Syntax

*Syntax* The syntax for the suspend statement is

**suspend** *serverpath*

### Description

*Description* The suspend statement prevents further jobs from being executed by this job server.

### Output

*Output* This statement returns a confirmation of a successful operation

## **Part III**

# **Jobserver Commands**



## 27 Jobserver Commands

## alter job

### Purpose

*Purpose*      The purpose of the alter job statement is to change properties of the specified job. This statement is used by job administrators, jobservers, and by the job itself.

### Syntax

*Syntax*      The syntax for the alter job statement is

```

alter job jobid
with WITHITEM {, WITHITEM}

alter job
with WITHITEM {, WITHITEM}

WITHITEM:
    cancel
    | clear warning
    | comment = string
    | error text = string
    | exec pid = pid
    | exit code = signed_integer
    | exit state = statename [ force ]
    | ext pid = pid
    | ignore resource = ( id {, id} )
    | ignore dependency = ( jobid [ recursive ] {, jobid [ recursive ]} )
    | kill
    | nicevalue = signed_integer
    | priority = integer
    | renice = signed_integer
    | rerun [ recursive ]
    | resume
    | < noresume | resume in period | resume at datetime >
    | run = integer
    | state = JOBSTATE
    | suspend
    | timestamp = string
    | warning = string

JOBSTATE:
    broken active
    | broken finished
    | dependency wait

```

- | error
- | finished
- | resource wait
- | running
- | started
- | starting
- | synchronize wait

Description

The alter job command is used for several purposes. Firstly, job servers use this command to document the progress of a job. All the state transitions a job undergoes during the time when the job is the responsibility of a job server are performed using the alter job command. Secondly, some changes such as ignoring dependencies or resources, as well as changing the priority of a job, are carried out manually by an administrator. The Exit State of a job in a Pending State can be set by the job itself or by a process that knows the job ID and key of the job that is to be changed.

*Description*

**cancel** The cancel option is used to cancel the addressed job and all non-Final Children. A job can only be cancelled if neither the job itself nor one of its children is active. Cancelling a running job will set the job in a cancelling state. The effective cancel is postponed until the job is finished. If a Scheduling Entity is dependent upon the cancelled job, it can become unreachable. In this case the dependent job does not acquire the Unreachable Exit State defined in the Exit State Profiles, but is set as having the Job State "Unreachable". It is the operator's task to restore this job back to the job state "Dependency Wait" by ignoring dependencies or even to cancel it. Cancelled jobs are considered to be just like Final Jobs without a Final Exit. This means that the parents of a cancelled job become final without taking into consideration the Exit State of the cancelled job. In this case the dependent jobs of the parents continue running normally. The cancel option can only be used by users.

**comment** The comment option is used to document an action or to add a comment to the job. Comments can have a maximum length of 1024 characters. Any number of comments can be saved for a job. Some comments are saved automatically. For example, if a job attains a Restartable State, a log is written to document this fact.

**error text** The error text option is used to write error information about a job. This can be done by the responsible job server or a user. The server can write this text itself as well.

This option is normally used if the job server cannot start the corresponding process. Possible cases are where it is not possible to switch to the defined working directory, if the executable program cannot be found, or when opening the error log file triggers an error.

**exec pid** The exec pid option is used exclusively by the job server to set the process ID of the control process within the server.

**exit code** The exit code option is used by the job server to tell the repository server with which Exit Code the process has finished. The repository server now calculates the matching Exit State from the Exit State Mapping that was used.

**exit state** The exit state option is used by jobs in a pending state to set their state to another value. This is usually a Restartable or Final State.

Alternatively, this option can be used by administrators to set the state of a non-final job.

If the Force Flag is not being used, the only states that can be set are those which are theoretically attainable by applying the Exit State Mapping to any Exit Code. The set state must exist in the Exit State Profile.

**ext pid** The ext pid option is used exclusively by the job server to set the process ID of the started user process.

**ignore resource** The ignore resource option is used to revoke individual Resource Requests. The ignored resource is then no longer requested.

If the parameters of a resource are being referenced, that resource cannot be ignored.

If invalid IDs have been specified, it is skipped. All other specified resources are ignored. Invalid IDs in this context are the IDs of resources that are not requested by the job.

The ignoring of resources is logged.

**ignore dependency** The ignore dependency option is used to ignore defined dependencies. If the **recursive** flag is used, not only do the job or batch ignore the dependencies, but its children do so as well.

**kill** The kill option is used to submit the defined Kill Job. If no Kill Job has been defined, it is not possible to forcibly terminate the job from within BICsuite. The job obviously has to be active, that means it must be **running**, **killed** or **broken.active**.



The last two states are not regular cases. When a Kill Job has been submitted, the Job State is **to\_kill**. After the Kill Job has terminated, the Job State of the killed job is set to **killed** unless it has been completed, in which case it is **finished** or **final**. This means that the job with the Job State **killed** is always still running and that at least one attempt has been made to terminate it.

**nicevalue** The nicevalue option is used to change the priority or the nicevalue of a job or batch and all of its children. If a child has several parents, any changes you make can, but do not necessarily have to, affect the priority of the child in the nicevalue of one of the parents. Where there are several parents, the maximum nicevalue is searched for.

This means that if Job C has three Parents P1, P2 and P3, whereby P1 sets a nice value of 0, P2 sets a nicevalue of 10 and P3 a nicevalue of -10, the effective nicevalue is -10. (The lower the nicevalue the better). If the nicevalue for P2 is changed to -5, nothing happens because the -10 of P3 is better than -5. If the nicevalue of P3 falls to 0, the new effective nicevalue for Job C is -5.

The nicevalues can have values between -100 and 100. Values that exceed this range are tacitly adjusted.

**priority** The priority option is used to change the (static) priority of a job. Because batches and milestones are not executed, priorities are irrelevant to them.

Changing the priority only affects the changed job. Valid values lie between 0 and 100. In this case, 100 corresponds to the lowest priority and 0 is the highest priority. When calculating the dynamic priority of a job, the scheduler begins with the static priority and adjusts it according to how long the job has already been waiting. If more than one job has the same dynamic priority, the job with the lowest job ID is scheduled first.

**renice** The renice option is similar to the nicevalue option with the difference that the renice option functions relatively while the nicevalue option functions absolutely. If some batches have a nicevalue of 10, a renice of -5 causes the nicevalue to rise to 5. (It rises because the lower the number, the higher the priority).

**rerun** The rerun option is used to restart a job in a Restartable State. If you attempt to restart a job that is not restartable, an error message is displayed. A job is restartable if it is in a Restartable State or it has the Job State **error** or **broken\_finished**.

If the **recursive** flag has been specified, the job itself and all its direct and indirect children that are in a Restartable State are restarted. If the job itself is final, this is not considered to be an error. It is therefore possible to recursively restart batches.

**resume** The resume option is used to reactivate a suspended job or batch. There are two ways to do this. The suspended job or batch can either be reactivated immediately or a delay can be set.

A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.

For details about specifying a time, refer to the overview on page 6. The resume option can be used together with the suspend option. Here, the job is suspended and then resumed again after (or at) a specified time.

**run** The run option is used by the job server to ensure that the modified job matches the current version.

Theoretically, the computer could crash after a job has been started by a job server. To complete the work, the job is manually restarted from another job server. After the first system has been booted, the job server can attempt to change the job state to `broken.finished` without knowing anything about what happened after the crash. Using the run option then prevents the wrong state from being set.

**state** The state option is mainly used by job servers, but it can also be used by administrators. It is not recommended to do so unless you know exactly what you are doing.

The usual procedure is that the job server sets the state of a job from **starting** to **started**, from **started** to **running**, and from **running** to **finished**. In the event of a crash or any other problems, it is possible for the job server to set the job state to **broken.active** or **broken.finished**. This means that the Exit Code of the process is not available and the Exit State has to be set manually.

**suspend** The suspend option is used to suspend a batch or job. It always functions recursively. If a parent is suspended, its children are all suspended as well. The resume option is used to reverse the situation.

**timestamp** The timestamp option is used by the job server to set the timestamps of the state transition in keeping with the local time from the perspective of job server.

## Output

*Output* This statement returns a confirmation of a successful operation

## alter jobserver

### Purpose

The purpose of the alter jobserver statement is to alter properties of a jobserver. *Purpose*

### Syntax

The syntax for the alter jobserver statement is *Syntax*

```
alter [ existing ] job server
with < fatal | nonfatal > error text = string

alter [ existing ] job server
with dynamic PARAMETERS

PARAMETERS:
    parameter = none
    | parameter = ( PARAMETERSPEC {, PARAMETERSPEC} )

PARAMETERSPEC:
    parametername = < string | number >
```

### Description

The alter scope command is both a user command and a job server command. *Description*  
It is used as a user command to change the configuration or other properties of a scope or job server. Further details are described in the create scope command on page 125.

The syntax of the user command corresponds to the first form of the alter scope command. As a job server command, it is used to notify the server about any errors. If the Fatal Flag is used, this means that the job server is shutting down. In the other case, the job server continues running.

The third form of the alter jobserver command is also used by the job server. The job server publishes the values of its dynamic parameter. The server uses published values to resolve parameters in the command line and log file information when retrieving a job.

### Output

This statement returns a confirmation of a successful operation *Output*

## connect

### Purpose

*Purpose* The purpose of the connect statement is to authenticate a jobserver to the server.

### Syntax

*Syntax* The syntax for the connect statement is

```
connect job server serverpath . servername identified by string
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
command = ( sdms-command )
| protocol = PROTOCOL
| session = string
| timeout = integer
| < trace | notrace >
| trace level = integer
```

PROTOCOL:

```
line
| perl
| python
| serial
| xml
```

### Description

*Description* The connect command is used to authenticate the connected process on the server to. A communication protocol can be optionally specified. The default protocol is **line**.

The selected protocol defines the output format. All protocols except for **serial** return ASCII output. The protocol **serial** returns a serialized Java object.

An executable command can also be returned when the connection is established. In this case, the output of the accompanying command is used as the output for the connect command. If the command fails, but the connect was successful, the connection remains active.

An example for all protocols except the **serial** protocol is given below.

**The line protocol** The line protocol only returns an ASCII text as the result from a command.

```
connect donald identified by 'duck' with protocol = line;
```

```
Connect
```

```
CONNECT_TIME : 19 Jan 2005 11:12:43 GMT
```

```
Connected
```

```
SDMS>
```

**The XML protocol** The XML protocol returns an XML structure as the result from a command.

```
connect donald identified by 'duck' with protocol = xml;
<OUTPUT>
<DATA>
<TITLE>Connect</TITLE>
<RECORD>
<CONNECT_TIME>19 Jan 2005 11:15:16 GMT</CONNECT_TIME></RECORD>
</DATA>
<FEEDBACK>Connected</FEEDBACK>
</OUTPUT>
```

**The python protocol** The python protocol returns a Python structure that can be valuated using the Python eval function.

```
connect donald identified by 'duck' with protocol = python;
{
  'DATA' :
  {
    'TITLE' : 'Connect',
    'DESC' : [
      'CONNECT_TIME'
    ],
    'RECORD' : {
      'CONNECT_TIME' : '19 Jan 2005 11:16:08 GMT'
    }
  },
  'FEEDBACK' : 'Connected'
}
```

**The perl protocol** The perl protocol returns a Perl structure that can be valuated using the Perl eval function.

```
connect donald identified by 'duck' with protocol = perl;
{
  'DATA' =>
  {
    'TITLE' => 'Connect',
    'DESC' => [
      'CONNECT_TIME'
    ],

```

## Jobserver Commands

## connect

```
'RECORD' => {  
'CONNECT_TIME' => '19 Jan 2005 11:19:19 GMT'}  
}  
, 'FEEDBACK' => 'Connected'  
}
```

## Output

*Output*      This statement returns a confirmation of a successful operation

# deregister

## Purpose

The purpose of the deregister statement is to notify the server that the jobserver is not to process jobs anymore. See also the register statement on page 234.

Purpose

## Syntax

The syntax for the deregister statement is

Syntax

```
deregister serverpath . servername
```

## Description

The deregister statement is used to notify the server about a more or less permanent failure of a job server.

This message prompts different server actions. Firstly, all the running jobs on the job server (i.e. jobs in the state **started**, **running**, **to\_kill** and **killed**) are set to the state **broken\_finished**. Jobs in the state **starting** are reset to **runnable**. The job server is then removed from the list of job servers that are able to process jobs so that this job server is consequently no longer allocated any more jobs. A side effect of this is that jobs that can only run on this server due to their resource requirements are set to the state **error** with the message "Cannot run in any scope because of resource shortage". Finally, a complete reschedule is executed so that jobs are redistributed among the job servers. The job server is added to the list of job-processing job servers again by re-registering it (refer to the register statement on page 234).

Description

## Output

This statement returns a confirmation of a successful operation

Output

## disconnect

### Purpose

*Purpose*      The purpose of the disconnect statement is to terminate the server connection.

### Syntax

*Syntax*      The syntax for the disconnect statement is

**disconnect**

### Description

*Description*      The connection to the server can be shut down using the disconnect statement.

### Output

*Output*      This statement returns a confirmation of a successful operation



## get next job

### Purpose

The purpose of the get next job command is to fetch the next assignment from the server. *Purpose*

### Syntax

The syntax for the get next job statement is

*Syntax*

**get next job**

### Description

The job server uses the get next job statement to fetch the next command to be executed from the server. *Description*

### Output

This statement returns an output structure of type table.

*Output*

**Main output description** The data items of the output are described in the table below.

| Field   | Description  |
|---------|--|
| COMMAND | The command to be executed by the job server. (NOP, ALTER, SHUTDOWN, STARTJOB)                             |
| CONFIG  | Changed configuration. This value is only present in the case of an ALTER command.                         |
| ID      | The ID of the job to be started; only present for the STARTJOB command.                                    |
| DIR     | The working directory of the job to be started; only present for the STARTJOB command.                     |
| LOG     | The log file of the job to be started; only present for the STARTJOB command.                              |
| LOGAPP  | Indicator showing whether the log file is to be opened with Append; only present for the STARTJOB command. |

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| Field  | Description  |
|--------|--|
| ERR    | The error log file of the job to be started; only present for the STARTJOB command.                              |
| ERRAPP | Indicator showing whether the error log file is to be opened with Append; only present for the STARTJOB command. |
| CMD    | File name of the executable to be started; only present for the STARTJOB command.                                |
| ARGS   | The command line parameter of the executable to be started; only present for the STARTJOB command.               |
| ENV    | Additional entries for the environment of the executable to be started; only present for the STARTJOB command.   |
| RUN    | Number of the run. Refer also to the alter job statement on page 45; only present for the STARTJOB command.      |

---

Table 27.1: Description of the output structure of the get next job statement

## multicommand

### Purpose

This statement is used to control the behaviour of the SDMS Server.

*Purpose*

### Syntax

The syntax for the multicommand statement is

*Syntax*

**begin multicommand** *commandlist* **end multicommand**

**begin multicommand** *commandlist* **end multicommand rollback**

### Description

The multicommands allow multiple SDMS commands to be executed together, i.e. in one transaction. This ensures that either all the statements are executed without any errors or nothing happens at all. Not only that, but the transaction is not interrupted by other write transactions.

*Description*

If the **rollback** keyword is specified, the transaction is undone at the end of the processing. This means that you can test whether the statements can be correctly processed (technically speaking).

### Output

This statement returns a confirmation of a successful operation

*Output*

## reassure

### Purpose

*Purpose* The purpose of the reassure job statement is to get a confirmation from the server about the necessity of starting a job after a jobserver was started.

### Syntax

*Syntax* The syntax for the reassure statement is

```
reassure jobid [ with run = integer ]
```

### Description

*Description* With the reassure statement a job server gets a confirmation from the server as to whether a job should be started. This statement is used when a job server boots up and there is a job in the **starting** state.

### Output

*Output* This statement returns a confirmation of a successful operation

## register

### Purpose

The purpose of the register statement is to notify the server that the jobserver is ready to process jobs. *Purpose*

### Syntax

The syntax for the register statement is

*Syntax*

```
register serverpath . servername
with pid = pid [ suspend ]
register with pid = pid
```

### Description

The first form is used by the operator to enable jobs to be executed by the specified job server. *Description*

The second form is used by the job server itself to notify the server that it is ready to execute jobs.

Jobs are scheduled for this job server (unless it is suspended) regardless of whether the server is connected or not.

Refer to the deregister statement on page [140](#).

**pid** The pid option provides the server with information about the job server's process ID at operating level.

**suspend** The suspend option causes the job server to be transferred to a suspended state.

### Output

This statement returns a confirmation of a successful operation

*Output*



# **Part IV**

## **Job Commands**





## 28 Job Commands

## alter job

### Purpose

*Purpose*      The purpose of the alter job statement is to change properties of the specified job. This statement is used by job administrators, jobserver, and by the job itself.

### Syntax

*Syntax*      The syntax for the alter job statement is

```

alter job jobid
with WITHITEM {, WITHITEM}

alter job
with WITHITEM {, WITHITEM}

WITHITEM:
    cancel
    | clear warning
    | comment = string
    | error text = string
    | exec pid = pid
    | exit code = signed_integer
    | exit state = statename [ force ]
    | ext pid = pid
    | ignore resource = ( id {, id} )
    | ignore dependency = ( jobid [ recursive ] {, jobid [ recursive ]} )
    | kill
    | nicevalue = signed_integer
    | priority = integer
    | renice = signed_integer
    | rerun [ recursive ]
    | resume
    | < noresume | resume in period | resume at datetime >
    | run = integer
    | state = JOBSTATE
    | suspend
    | timestamp = string
    | warning = string

JOBSTATE:
    broken active
    | broken finished
    | dependency wait

```

- | error
- | finished
- | resource wait
- | running
- | started
- | starting
- | synchronize wait

Description

The alter job command is used for several purposes. Firstly, job servers use this command to document the progress of a job. All the state transitions a job undergoes during the time when the job is the responsibility of a job server are performed using the alter job command. Secondly, some changes such as ignoring dependencies or resources, as well as changing the priority of a job, are carried out manually by an administrator. The Exit State of a job in a Pending State can be set by the job itself or by a process that knows the job ID and key of the job that is to be changed.

*Description*

**cancel** The cancel option is used to cancel the addressed job and all non-Final Children. A job can only be cancelled if neither the job itself nor one of its children is active. Cancelling a running job will set the job in a cancelling state. The effective cancel is postponed until the job is finished. If a Scheduling Entity is dependent upon the cancelled job, it can become unreachable. In this case the dependent job does not acquire the Unreachable Exit State defined in the Exit State Profiles, but is set as having the Job State "Unreachable". It is the operator's task to restore this job back to the job state "Dependency Wait" by ignoring dependencies or even to cancel it. Cancelled jobs are considered to be just like Final Jobs without a Final Exit. This means that the parents of a cancelled job become final without taking into consideration the Exit State of the cancelled job. In this case the dependent jobs of the parents continue running normally. The cancel option can only be used by users.

**comment** The comment option is used to document an action or to add a comment to the job. Comments can have a maximum length of 1024 characters. Any number of comments can be saved for a job. Some comments are saved automatically. For example, if a job attains a Restartable State, a log is written to document this fact.

**error text** The error text option is used to write error information about a job. This can be done by the responsible job server or a user. The server can write this text itself as well.

This option is normally used if the job server cannot start the corresponding process. Possible cases are where it is not possible to switch to the defined working directory, if the executable program cannot be found, or when opening the error log file triggers an error.

**exec pid** The exec pid option is used exclusively by the job server to set the process ID of the control process within the server.

**exit code** The exit code option is used by the job server to tell the repository server with which Exit Code the process has finished. The repository server now calculates the matching Exit State from the Exit State Mapping that was used.

**exit state** The exit state option is used by jobs in a pending state to set their state to another value. This is usually a Restartable or Final State.

Alternatively, this option can be used by administrators to set the state of a non-final job.

If the Force Flag is not being used, the only states that can be set are those which are theoretically attainable by applying the Exit State Mapping to any Exit Code. The set state must exist in the Exit State Profile.

**ext pid** The ext pid option is used exclusively by the job server to set the process ID of the started user process.

**ignore resource** The ignore resource option is used to revoke individual Resource Requests. The ignored resource is then no longer requested.

If the parameters of a resource are being referenced, that resource cannot be ignored.

If invalid IDs have been specified, it is skipped. All other specified resources are ignored. Invalid IDs in this context are the IDs of resources that are not requested by the job.

The ignoring of resources is logged.

**ignore dependency** The ignore dependency option is used to ignore defined dependencies. If the **recursive** flag is used, not only do the job or batch ignore the dependencies, but its children do so as well.

**kill** The kill option is used to submit the defined Kill Job. If no Kill Job has been defined, it is not possible to forcibly terminate the job from within BICsuite. The job obviously has to be active, that means it must be **running**, **killed** or **broken.active**.

The last two states are not regular cases. When a Kill Job has been submitted, the Job State is **to\_kill**. After the Kill Job has terminated, the Job State of the killed job is set to **killed** unless it has been completed, in which case it is **finished** or **final**. This means that the job with the Job State **killed** is always still running and that at least one attempt has been made to terminate it.

**nicevalue** The nicevalue option is used to change the priority or the nicevalue of a job or batch and all of its children. If a child has several parents, any changes you make can, but do not necessarily have to, affect the priority of the child in the nicevalue of one of the parents. Where there are several parents, the maximum nicevalue is searched for.

This means that if Job C has three Parents P1, P2 and P3, whereby P1 sets a nice value of 0, P2 sets a nicevalue of 10 and P3 a nicevalue of -10, the effective nicevalue is -10. (The lower the nicevalue the better). If the nicevalue for P2 is changed to -5, nothing happens because the -10 of P3 is better than -5. If the nicevalue of P3 falls to 0, the new effective nicevalue for Job C is -5.

The nicevalues can have values between -100 and 100. Values that exceed this range are tacitly adjusted.

**priority** The priority option is used to change the (static) priority of a job. Because batches and milestones are not executed, priorities are irrelevant to them.

Changing the priority only affects the changed job. Valid values lie between 0 and 100. In this case, 100 corresponds to the lowest priority and 0 is the highest priority. When calculating the dynamic priority of a job, the scheduler begins with the static priority and adjusts it according to how long the job has already been waiting. If more than one job has the same dynamic priority, the job with the lowest job ID is scheduled first.

**renice** The renice option is similar to the nicevalue option with the difference that the renice option functions relatively while the nicevalue option functions absolutely. If some batches have a nicevalue of 10, a renice of -5 causes the nicevalue to rise to 5. (It rises because the lower the number, the higher the priority).

**rerun** The rerun option is used to restart a job in a Restartable State. If you attempt to restart a job that is not restartable, an error message is displayed. A job is restartable if it is in a Restartable State or it has the Job State **error** or **broken\_finished**.

If the **recursive** flag has been specified, the job itself and all its direct and indirect children that are in a Restartable State are restarted. If the job itself is final, this is not considered to be an error. It is therefore possible to recursively restart batches.

**resume** The resume option is used to reactivate a suspended job or batch. There are two ways to do this. The suspended job or batch can either be reactivated immediately or a delay can be set.

A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.

For details about specifying a time, refer to the overview on page 6. The resume option can be used together with the suspend option. Here, the job is suspended and then resumed again after (or at) a specified time.

**run** The run option is used by the job server to ensure that the modified job matches the current version.

Theoretically, the computer could crash after a job has been started by a job server. To complete the work, the job is manually restarted from another job server. After the first system has been booted, the job server can attempt to change the job state to `broken_finished` without knowing anything about what happened after the crash. Using the run option then prevents the wrong state from being set.

**state** The state option is mainly used by job servers, but it can also be used by administrators. It is not recommended to do so unless you know exactly what you are doing.

The usual procedure is that the job server sets the state of a job from **starting** to **started**, from **started** to **running**, and from **running** to **finished**. In the event of a crash or any other problems, it is possible for the job server to set the job state to **broken\_active** or **broken\_finished**. This means that the Exit Code of the process is not available and the Exit State has to be set manually.

**suspend** The suspend option is used to suspend a batch or job. It always functions recursively. If a parent is suspended, its children are all suspended as well. The resume option is used to reverse the situation.

**timestamp** The timestamp option is used by the job server to set the timestamps of the state transition in keeping with the local time from the perspective of job server.

## Output

*Output* This statement returns a confirmation of a successful operation

## connect

### Purpose

The purpose of the connect statement is to authenticate a job to the server.

*Purpose*

### Syntax

The syntax for the connect statement is

*Syntax*

```
connect job jobid identified by string
[ with WITHITEM {, WITHITEM} ]
```

WITHITEM:

```
    command = ( sdms-command )
    | protocol = PROTOCOL
    | session = string
    | timeout = integer
    | < trace | notrace >
    | trace level = integer
```

PROTOCOL:

```
    line
    | perl
    | python
    | serial
    | xml
```

### Description

The connect command is used to authenticate the connected process on the server to. A communication protocol can be optionally specified. The default protocol is **line**.

*Description*

The selected protocol defines the output format. All protocols except for **serial** return ASCII output. The protocol **serial** returns a serialized Java object.

An executable command can also be returned when the connection is established. In this case, the output of the accompanying command is used as the output for the connect command. If the command fails, but the connect was successful, the connection remains active.

An example for all protocols except the **serial** protocol is given below.

**The line protocol** The line protocol only returns an ASCII text as the result from a command.

**Job Commands****connect**

```
connect donald identified by 'duck' with protocol = line;
```

```
Connect
```

```
CONNECT_TIME : 19 Jan 2005 11:12:43 GMT
```

```
Connected
```

```
SDMS>
```

**The XML protocol** The XML protocol returns an XML structure as the result from a command.

```
connect donald identified by 'duck' with protocol = xml;
<OUTPUT>
<DATA>
<TITLE>Connect</TITLE>
<RECORD>
<CONNECT_TIME>19 Jan 2005 11:15:16 GMT</CONNECT_TIME></RECORD>
</DATA>
<FEEDBACK>Connected</FEEDBACK>
</OUTPUT>
```

**The python protocol** The python protocol returns a Python structure that can be valuated using the Python eval function.

```
connect donald identified by 'duck' with protocol = python;
{
  'DATA' :
  {
    'TITLE' : 'Connect',
    'DESC' : [
      'CONNECT_TIME'
    ],
    'RECORD' : {
      'CONNECT_TIME' : '19 Jan 2005 11:16:08 GMT'
    }
  },
  'FEEDBACK' : 'Connected'
}
```

**The perl protocol** The perl protocol returns a Perl structure that can be valuated using the Perl eval function.

```
connect donald identified by 'duck' with protocol = perl;
{
  'DATA' =>
  {
    'TITLE' => 'Connect',
    'DESC' => [
      'CONNECT_TIME'
    ],

```



## connect

## Job Commands

```
'RECORD' => {  
'CONNECT_TIME' => '19 Jan 2005 11:19:19 GMT'}  
}  
, 'FEEDBACK' => 'Connected'  
}
```

**Output**

This statement returns a confirmation of a successful operation

*Output*

## disconnect

### Purpose

*Purpose*      The purpose of the disconnect statement is to terminate the server connection.

### Syntax

*Syntax*      The syntax for the disconnect statement is

**disconnect**

### Description

*Description*      The connection to the server can be shut down using the disconnect statement.

### Output

*Output*      This statement returns a confirmation of a successful operation

get parameter

Purpose

The purpose of the get parameter statement is to get the value of the specified parameter within the context of the requesting job, respectively the specified job. *Purpose*

Syntax

The syntax for the get parameter statement is *Syntax*

```
get parameter parametername
[ < strict | warn | liberal > ]

get parameter of jobid parametername
[ < strict | warn | liberal > ]
```

Description

The get parameter statement is used to get the value of the specified parameter within the context of a job. *Description*

The additional option has the following meaning:

| Option         | Meaning  |
|----------------|--|
| <b>strict</b>  | The server returns an error if the requested parameter is not explicitly declared in the job definition.                 |
| <b>warn</b>    | A message is written to the server’s log file when an attempt is made to determine the value of an undeclared parameter. |
| <b>liberal</b> | An attempt to query an undeclared parameter is tacitly allowed.  |

The default behaviour depends on the configuration of the server.

Output

This statement returns an output structure of type record. *Output*

**Main output description** The data items of the output are described in the table below.

| Field | Description                      |
|-------|----------------------------------|
| VALUE | Value of the requested parameter |

Table 28.1: Description of the output structure of the get parameter statement

get submittag

Purpose

Purpose

The purpose of the get submittag statement is to get a (server local) unique identifier from the server. This identifier can be used to avoid race conditions between frontend and backend when submitting jobs.

Syntax

Syntax

The syntax for the get submittag statement is

get submittag

Description

Description

The get submittag statement is used to acquire an identification from the server. This prevents race conditions between the front end and back end when jobs are submitted.  
Such a situation arises when feedback about the submit does not reach the front end due to an error. By using a submittag, the front end can safely start a second attempt. The server recognises whether the job in question has already been submitted and responds accordingly. This reliably prevents the job from being submitted twice.

Output

Output

This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field | Description              |
|-------|--------------------------|
| VALUE | The requested Submit Tag |

Table 28.2: Description of the output structure of the get submittag statement

## multicommand

### Purpose

This statement is used to control the behaviour of the SDMS Server.

*Purpose*

### Syntax

The syntax for the multicommand statement is

*Syntax*

**begin multicommand** *commandlist* **end multicommand**

**begin multicommand** *commandlist* **end multicommand rollback**

### Description

The multicommands allow multiple SDMS commands to be executed together, i.e. in one transaction. This ensures that either all the statements are executed without any errors or nothing happens at all. Not only that, but the transaction is not interrupted by other write transactions.

*Description*

If the **rollback** keyword is specified, the transaction is undone at the end of the processing. This means that you can test whether the statements can be correctly processed (technically speaking).

### Output

This statement returns a confirmation of a successful operation

*Output*

## set parameter

### Purpose

*Purpose* The purpose of the set parameter statement is to set the value of the specified parameters within the context of the requesting job, respectively the specified job.

### Syntax

*Syntax* The syntax for the set parameter statement is

```
set parameter parametername = string {, parametername = string}
```

```
set parameter < on | of > jobid parametername = string {, parametername  
= string}
```

```
set parameter < on | of > jobid parametername = string {, parametername  
= string} identified by string
```

### Description

*Description* The set parameter statements can be used to set jobs or user parameter values in the context of the job.

If the **identified by** option is specified, the parameter is only set if the pair *jobid* and *string* would allow a logon.

### Output

*Output* This statement returns a confirmation of a successful operation

## set state

### Purpose

The purpose of the set state statement is to set the exit state of a job in a pending exit state. *Purpose*

### Syntax

The syntax for the set state statement is *Syntax*

```
set state = statename
```

### Description

The set state statement is used to set the Exit State of a job to a Pending Exit State. *Description*

### Output

This statement returns a confirmation of a successful operation *Output*

## submit

### Purpose

*Purpose* The purpose of the submit statement is to execute a master batch or job as well as all defined children.

### Syntax

*Syntax* The syntax for the submit statement is

```
submit folderpath
[ with WITHITEM {, WITHITEM} ]

submit aliasname
[ with WITHITEM {, WITHITEM} ]

WITHITEM:
    check only
    | childtag = string
    | nicevalue = signed integer
    | parameter = none
    | parameter = ( PARAM {, PARAM} )
    | < noresume | resume in period | resume at datetime >
    | submittag = string
    | < nosuspend | suspend >
    | unresolved = < error | ignore | suspend | defer >
    | group = groupname

PARAM:
    parametername = < string | number >
```

### Description

*Description* The submit statement is used to submit a job or batch. There are two kinds of submit command:

- The first kind is used by users, who can also be programs, and the Time Scheduling Module. This form submits Master Jobs and Batches.
- The second form of the statement is used by jobs to submit dynamic children.

**check only** The check only option is used to verify whether a Master Submittable Batch or Job can be submitted. This means that a check is run to ascertain whether all the dependencies can be fulfilled and all the referenced parameters are defined.



Whether the jobs can be executed in any scope or not is not verified. This is a situation that can arise at any point during the runtime.

Positive feedback means that, from the system's perspective, the job or batch can be submitted.

**childtag** The childtag option is used by jobs to submit several instances of the same Scheduling Entity and to be able to differentiate between them.

An error is triggered if the same Scheduling Entity is submitted twice using the same childtag. The content of the childtag has no further significance for the Scheduling System.

The maximum length for a childtag is 70 characters. The childtag option is ignored in the case of a Master Submit.

**group** The group option is used to set the owner group to the specified value. The user must belong to this group unless he belongs to the ADMIN privileged group. In this case, any group can be specified.

**nicevalue** The nicevalue option defines a correction that is used for the calculation of the priorities for the job and its children. Values between -100 and 100 are permitted.

**parameter** The parameter option is used to specify the value of Job Parameters for the submit. The parameters are set in the scope of the Master Batch or Job. This means that if parameters are specified that are not defined in the Master Batch or Job, these parameters are invisible to any children.

**submittag** If the submittag is specified, it must have a unique name for the Submitted Entity. This tag was introduced to be able to programmatically submit jobs and batches and to resubmit the job or batch with the same tag following a crash of one of the components. If the job submit was successful the first time, the second submit will report an error. If not, the second submit will succeed.

**unresolved** The unresolved option defines how the server is to react to unresolved dependencies. This option is mainly used if parts of a batch are submitted following repair work. The faulty part is normally cancelled and then resubmitted as a Master Run. In this case the previous dependencies have to be ignored otherwise the submit will fail.

**suspend** The suspend option is used to submit jobs or batches and to suspend them at the same time. If nothing is defined, they are not suspended. This can be explicitly specified at the submit time.

If a job or batch was suspended, neither it nor its children are started. If a job is already running, it will not reach a Final State if it is suspended.

**resume** The resume option can be used together with the suspend option to cause a delayed execution. There are two ways to do this. A delay can be achieved by specifying either the number of time units for the delay the time when the job or batch is to be activated.  
This option can be used to reproduce the `at` functionality without creating a schedule.

**Output**

*Output* This statement returns an output structure of type record.

**Main output description** The data items of the output are described in the table below.

| Field | Description                 |
|-------|-----------------------------|
| ID    | ID of the Submitted Entity. |

Table 28.3: Description of the output structure of the submit statement