R/3 on IBM AS/400

Release 4.6C

SAP ™

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Icons

Icon	Meaning
⚠	Caution
🗨	Example
➡	Note
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⟨SYN⟩	Syntax
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R/3 on IBM AS/400

Purpose

This documentation describes the Basis administration of an R/3 System running on AS/400.

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See Also

BC R/3 Database Guide: DB2/400 [Ext.]

For information about security issues relating to R/3 on AS/400, refer to the documentation *BC Security Guide* (see R/3 Note 39267 for access information).

R/3 on AS/400 Release Strategy

With regard to support for different R/3 and OS/400 releases, we have gone to great lengths to make sure that users of R/3 on IBM AS/400 have the greatest possible flexibility. AS/400 was the first platform that allowed R/3 users to take advantage of a new operating system release through the use of a downward-compatible kernel.

Support for New Operating System Releases

IBM guarantees binary compatibility of newer OS/400 releases with older OS/400 releases. If you install the downward-compatible kernel, you can implement new corrections and enhancements even if you are still using an older R/3 release.

Support for R/3 Systems with Different Operating System Releases

Under earlier OS/400 versions, all database and application servers in a distributed R/3 System had to have the same OS/400 release level. This is no longer the case. Each R/3 release is initially made available for a particular version of OS/400. If a new version of OS/400 is subsequently certified for use with R/3, it becomes possible to mix database and application servers as required on the different OS/400 versions supported for that R/3 release.

Since, for technical reasons, the same kernel version has to be used throughout a system, you have to install the kernel appropriate for the oldest operating system release in use on all machines (for example, if you are using both V4R1 and V4R3 machines, you may only use V4R1 kernels). This opens up a number of new possibilities:

- You can quickly integrate a new machine running on the latest OS/400 release as an application server into your existing 3-tier configuration, without having to immediately upgrade the OS/400 version on all other machines.

- You can reduce the downtimes involved in an R/3 release upgrade.

- Some R/3 upgrades require an OS/400 upgrade. Previously, it was necessary to upgrade all AS/400 systems to the new operating system version during an extended, uninterrupted period of downtime, resulting in lengthy downtimes in larger distributed systems. This problem can now be solved by upgrading each individual server to the new operating system release separately before the R/3 release upgrade.

- You can eliminate performance bottlenecks faster by upgrading locally to a newer OS/400 release or to new hardware which requires a new OS/400 release.

You will not achieve the full performance and feature benefits until you have upgraded all your machines to the latest OS/400 release.

See Also

Release Planning FAQs

Should I use the downward-compatible kernel?

Yes. Our statistics show that the use of the downward-compatible kernel leads to a dramatic reduction in problems (on all platforms). This is because, with a new downward-compatible kernel, you also receive fixes for problems, which may not yet have arisen, but which could arise at any time if you continue using the old kernel.

The downward-compatible kernel performs a similar function for the R/3 Basis as the CUM tapes from IBM for OS/400 or the Hot Packages for the R/3 applications. Kernel errors are only fixed by SAP for the latest downward-compatible kernel.

For information about which R/3 kernels are available for a particular 4.x release, see SAP Note 156554. For instructions on how to install a new kernel, refer to the appropriate R/3 Note.

Where can I find quick, up-to-date information about R/3 on AS/400?

As a special service for the AS/400 platform, an R/3 AS/400 "Latest News" Note is provided for each R/3 release. (To find the Notes in the SAPNet – R/3 Frontend, search for "Latest" and "AS/400".) In these Notes, we summarize important information in chronological order. The Notes provide the "latest news" about R/3 on AS/400 and inform you of solutions to any functional or run-time problems that might occur. The Notes are available only in English.

Which platform-specific new functions become available with a new R/3 release?

A summary of new functions is provided in the first chapter of the guide *R/3 Installation: IBM AS/400.*

How can I get an overview of SAP's release planning?

Do you require data about the availability of R/3 releases for planning purposes? Would you like to know when an OS/400 release for use with R/3 is certified? You will find this information in the new booklet *R/3 Release Planning* (material number 50019667, see R/3 Note 78541 for details) and in the *Platform and Technology Information Center* in SAPNet, which you can access with the alias *dbosplatforms*.

How can I find out about the recommended PTF level of OS/400?

IBM lists the recommended PTF level for R/3 and every supported operating system release on a regular basis in their Info APARs. This information can be accessed either over ECS, via the Internet (URL *http://as400service.ibm.com*) or via SAPSERVx.

The Info APARs on SAPSERVx are in the directory: general/R3server/patches/COMMON/OS400 and are updated daily.

AS/400 User Interface

Use

Entering commands

There are two ways of selecting tasks you wish to perform on the AS/400:

- by choosing menu options

You can display a list of all the menus by entering `GO *ALL` in the command line.

> `GO MAIN` displays the AS/400 main menu.
>
> `GO MAJOR` displays the major command groups menu

- by entering commands directly in the command line

  AS/400 commands have standardized naming conventions. Commands normally consist of an **action** part and a **subject** part. These two parts are then combined to make up the entry you have to make in the command line.

Typical AS/400 Commands

Action	Subject	Description	Command Line Entry
WRK	F	Work with Files	WRKF
DSP	JOB	Display Job	DSPJOB
DLT	JOBD	Delete Job Description	DLTJOBD
CHG	AUT	Change Authority	CHGAUT

You can type the abbreviation for the command you require in the command line, for example:

`CHGAUT`

and press `F4` to obtain interactive command prompting.

You can enter commands generically using asterisks. For example, enter:

WRK*

and press `ENTER` to obtain a list of all the "Work with" commands.

Useful function keys

<F1> = help

<F4> = further prompting

<F3> = go back one level

<F9> = retrieve a previously keyed command from the stack

<F10> = additional parameters

<F12> = cancel a command, go back one screen

AS/400 Library Structure

Definition

Libraries form the primary native organizational structure on the AS/400. A library is an object that groups together related objects.

There are three different types of library:

- System libraries, for example, library `QSYS` for objects supplied as part of the operating system

- User libraries, for example, the various R/3 libraries:

Library	Description
`R3<REL>OPT`	Library for optimized executables
`R3<SID>DATA`	Database library
`R3<SID>JRN`	Journal receiver library
`R3<SID>400`	Library for work management objects
`R3<REL>RFC`	Library for RFC SDK
`R3<REL>CPIC`	Library for CPI-C SDK
`R3WRKnn`	Internal R/3 library
`R3*`	Reserved for R/3
`Q*`	System libraries

> <SID> is the SAP system ID (for example "PRD" or "TST"); <REL> is the R/3 Release (for example, "46A"), "nn" is the instance number.

- Product libraries, for example, library `QPDA` which contains objects associated with the AS/400 Programming Development Manager (PDM).

> Some of the R/3 library names may vary if you assign your own library names. However, we do not recommend that you change the default library names without good reason.

Types of objects stored in libraries include, for example, files and programs.

Files do not contain the actual data. The data is stored in **members** within each file. In SQL systems, such as R/3, each file contains exactly one member.

OS/400 Integrated File System

Definition

The AS/400 also provides a UNIX-style and PC-style **integrated file system** that provides enhanced capabilities for managing new types of information processing, including client/server, open systems, and multimedia.

Use

The integrated file system supports the use of **stream files** for storing and operating on data. Stream files are files containing a continuous stream of data. This data might take the form of text files or images, for example. Stream files are system objects with object type *STMF.

For information about displaying or editing stream files, see Editing Stream Files.

Structure

The OS/400 integrated file system has a hierarchy comparable to that used by UNIX . The integrated file system treats the different types of support for accessing the various object types as separate file systems. These file systems are:

- "/": This file system corresponds to the UNIX "root" directory. This PC-style file system is not case-sensitive.

- QOpenSys : The open systems file system. This UNIX -style file system is case-sensitive.

- QSYS.LIB : The library file system allowing the user to access objects residing in AS/400 libraries using IFS commands.

- QDLS : The document library services file system (not used by R/3)

- QLANSrv : The LAN Server/400 file system (not used by R/3)

- QOPT : The optical file system; this file system is mainly used for accessing the CD drive (during installation and upgrade, for example)

- QFileSvr.400 : This file system provides access to other file systems on remote AS/400 systems. It is used by several R/3 functions, for example correction and transport, to access remote stream files.

> ⚠
>
> Take care with upper- and lowercase notation. The "/" file system is not case-sensitive, but QOpenSys and the contents of R/3 profiles are.

Integration

The integrated file system distinguishes between two different types of link: **hard links** and **soft links**. A link is a named connection between a directory and an object.

Hard and Soft Links

Type of Link	Description

Hard link, also known as "link", "absolute link"	• Indicated by a separate directory entry
	• Cannot exist unless linked to an object
	• Cannot cross file systems
Soft link, also known as "symbolic link"	• Takes the form of a path name contained
	• Can exist without pointing to an existing object. (Is an object of type *SYMLNK **.)**
	• Can be removed without affecting the object
	• Can cross file systems
	• Only allowed in the IFS

To see the contents of a symbolic link, use **WRKLNK** with *Detail* option ***EXTENDED** . (This command corresponds to the UNIX command ls -l.) Select option 12 *Work with links*

Work Management on AS/400

Use

All work done on an AS/400 system is controlled by work management functions. These functions manage the system workload and the distribution of resources such as storage.

An AS/400 system can contain a number of subsystems. A **subsystem** is a predefined operating environment allowing the system to better co-ordinate workflow and resources. When R/3 is running on AS/400, the R/3 instances are represented as subsystems. R/3 instance names always correspond to the pattern R3_nn, where "nn" stands for the instance number.

Each item of work run in a subsystem is referred to as a **job**.

Activities

Displaying Job Information on an AS/400 System

There are three main AS/400 commands that give you an overview of work on an AS/400 system. These are:

- Work with Job (WRKJOB) [Page 15]

  If you know the name of the job you are interested in or wish to see information on the job from which you start the command, use this command to obtain information on a job.

- Work with User Jobs (WRKUSRJOB) [Page 16]

  If you know the user profile under which the job you are interested in is running, use this command to obtain detailed information on a job.

- Work with Active Jobs (WRKACTJOB) [Page 17]

  This command provides a general picture of the work being done on the system. It shows all jobs currently running on the system and gives some statistics on each of these jobs.

Using the Job Log

Every job on the AS/400 system has a job log that contains information related to requests entered for a job. The information in a job log includes:

- The commands used by a job

- Messages that were sent to, but not removed from the program message queues

- The commands in a CL (control language) program. This information is included in the log if:

- A CL program was created with parameter `LOGCLPGM(*YES)` (log CL program commands)

- A CL program was created with parameter `LOGCLPGM(*JOB)` and a `CHGJOB` (Change Job) command was run with parameter `LOGCLPGM(*YES)`.

At the end of the job, the job log can be written to a spooled file named QPJOBLOG after which the original job log is deleted. You can control what information is written to the spooled file using the LOG parameter when creating or changing a job description. To specify values for this

parameter, issue the command `WRKJOBD JOBD(library/job name)` and press F4 to get command prompting. Select F10 = Additional parameters and scroll down to *Message logging*. You can specify the severity level from which messages are to be logged and the level and amount of text to be written to the job log.

There are several methods you can use to find a spooled job log. If you do not know the job name, find the job with the `WRKUSRJOB` (Work with User Job) command, then select option 8 (Display spooled file). Find the spooled file named QPJOBLOG and select option 5 (Display). If you know the job name, use the `WRKJOB` (Work with Job) command and press F4 for command prompting.

If the batch or interactive job is still active, or is in a job queue and has not yet started, use the `WRKUSRJOB` (Work with User Job) command to find the job. The `WRKACTJOB` (Work with Active job) command is used to display the job log of active jobs and does not show jobs in job queues. Select option 5 (Work with job) and then select option 10 (Display job log).

To display the job log of your own interactive job, do one of the following:

- Enter the command `DSPJOBLOG` (Display Job Log)

- Enter the command `WRKJOB` (Work with Job) and select option 10 (Display job log, if active or on job queue) from the Work with Job display.

- Press F10 = Display detailed messages from the Command Entry display to display messages that are shown in the job log

If you issue the `DSPJOBLOG` (Display Job Log) command, the Job Log display appears. The display shows program names accompanied by special symbols, which are explained in the table below.

Symbols Used in the Job Log Display

Symbol	Meaning
>>	The command currently running or the next command to run. For example, if a CL (control language) or high-level language program was called, the call to the program is shown.
>	The command has completed processing.
. .	The command has not yet been processed.
?	Reply message. This symbol marks both messages needing a reply and those that have been answered.

Cleaning Up Job Log and Spool Files

During R/3 operation many job logs and spool files are generated. You should clean these up on a regular basis. To do this, you can use the commands provided by the Cleanup Commands (CMDCLNUP) menu. To access this menu, enter:

GO CMDCLNUP

To specify which objects on the system are to be deleted automatically, choose option 1 *Change Cleanup* (CHGCLNUP).

Set *Allow cleanup* to `*YES` and specify the number of days you wish objects on the system to be kept. Use parameter value `*KEEP` for object types you do not wish to be included in the cleanup.

Work Management on AS/400

Cleanup is started with option 4 *Start Cleanup* and ended with option 2 *End Cleanup.*

See Also

For more information, see the IBM documentation *OS/400 Work Management* (document number SC41-4306).

The Work with Job Command

Use

To display the *Work with Job* menu, enter AS/400 command **WRKJOB** (Work with Job). This menu provides options for working with or changing information related to a specific job. To get information on the job you are currently using, enter the command without any parameters. To obtain information on another job, specify the job name in the command as shown here:

WRKJOB JOB(job_number/user_ID/job_name)

Alternatively, type **WRKJOB** and press F4 to obtain command prompting.

Information about the following is available irrespective of whether a job is in a job queue, in an output queue, or is currently active:

- Job status attributes
- Job definition attributes
- Spooled file information

However, a job is not considered as being in the system until all its input has been read in. Only then is an entry placed in the job queue.

Information about the following can only be shown when a job is active:

- Job run attributes
- Job log information
- Program stack information
- Job lock information
- Library list information
- Open file information
- File override information
- Commitment control status
- Communications status

Option 10 (Display job log, if active or on job queue) gives you information about an active job or a job in a job queue. For jobs that have ended, you can usually find the same information using option 4 (Work with spooled files). Option 4 displays the Work with Job Spooled Files display. Select option 5 to display the file named QPJOBLOG if it is on the list.

The Work with User Jobs Command

Use

If you know the user profile (user name) being used by a job, you can use the AS/400 command **WRKUSRJOB** (Work with User Jobs) to display or change job information. Enter the command without any parameters to get a list of the jobs in the system that have your user profile. The Work with User Jobs display shows the names and status information of all user jobs either running in the system (ACTIVE), in job queues (JOBQ) or in an output queue (OUTQ).

To limit the length of the job list displayed, specify a user name and job status as shown here:

WRKUSRJOB USER(user_name) STATUS(*ACTIVE)

Alternatively, type **WRKUSRJOB** and press F4 to obtain command prompting.

You will obtain a display like this:

```
                        Work with User Jobs                    AS0007
                                                    12/29/95   13:53:3
  Type options, press Enter.
    2=Change   3=Hold   4=End    5=Work with   6=Release   7=Display message
    8=Work with spooled files   13=Disconnect


Opt   Job         User      Type      -----Status-----   Function
      P14263      SHAW      CMNEUK    ACTIVE             *  -PASSTHRU
      P14263S2    SHAW      INTER     ACTIVE             CMD-WRKACTJOB
      QPADEV0015  SHAW      INTER     ACTIVE             CMD-WRKUSRJOB
```

This display lists all the jobs in the system for the user, shows the status specified (in this case ***ACTIVE**), and the type of job. It also provides you with eight options (2 through 8 and 13) for entering commands for a selected job. Option 5 presents the Work with Job display described earlier.

The Work with Active Jobs Command

Use

If you wish to monitor jobs running for several users or if you are looking for a job, but do not know the job name or user ID, you can use the AS/400 command **WRKACTJOB** (Work with Active Jobs).

When you enter this command, the *Work with Active Jobs* display appears. It might look something like this:

```
                        Work with Active Jobs                         AS0019
                                                       08/25/99   16:30:46
CPU %:      .0    Elapsed time:    00:00:00    Active jobs:   334
Opt  Subsystem/Job  User         Type  CPU %  Function        Status
|    R3_34          QSYS         SBS     .0                   DEQW
     DISP           BC434        BCI     .0                   SELW
     GWRD           BC434        BCI     .0                   SELW
     MSG_SERVER     BC434        BCI     .0                   SELW
     R3_BC4_34      BC434        BCH     .0    PGM-SAPSTART   EVTW
     SAPOSCOL       BC434        BCI     .0                   SIGW
     WP00           BC434        BCI     .0                   SEMW
     WP01           BC434        BCI     .0                   SEMW
     WP02           BC434        BCI     .0                   SEMW
     WP03           BC434        BCI     .0                   SEMW
     WP04           BC434        BCI     .0                   SEMW
     WP05           BC434        BCI     .0                   SEMW
     WP06           BC434        BCI     .0                   SEMW
     WP07           BC434        BCI     .0                   SEMW
     WP08           BC434        BCI     .0                   SEMW
     WP09           BC434        BCI     .0                   SEMW
                                                              More...
===>
F21=Display instructions/keys
```

It shows the performance and status information for jobs currently active on the system. All information is gathered on a job basis and grouped by subsystem. For example, the subsystem depicted above contains the processes of an R/3 instance. They include:

- `DISP` – the dispatcher process

- `GWRD` – the gateway reader process

- `MSG_SERVER` – the message server

- `SAPOSCOL` – the performance collector

- `WPnn` – the work process (`nn` indicates the work process number)

Work processes specialize in different types like ENQ, UPD, etc. (see Work Process [Ext.]). The first work processes, though, are reliably of the dialog or background type. **WRKACTJOB** retrieves some information on the displayed jobs:

- The *Function* column shows the last function initiated by a job.

The Work with Active Jobs Command

- The *Status* column on the far right of the screen shows the job status. Possible status values include:

  - HLD - indicates that a job is being held.

  - LCKW - indicates that a job is waiting for a lock.

  - MSGW - indicates that a job is waiting for a message from the message queue.

Press function key F11 to get detailed status information such as shown here:

```
                        Work with Active Jobs                    AS0019
                                                      08/25/99  16:30:46
CPU %:       .0    Elapsed time:   00:00:00    Active jobs:    334
Opt  Subsystem/Job   Type  Pool  Pty      CPU  Int    Rsp  AuxIO  CPU %
█     R3_34          SBS    2     0        .2               0      .0
       DISP          BCI    2    12      18.9               0      .0
       GWRD          BCI    2    12       5.2               0      .0
       MSG_SERVER    BCI    2    12       3.8               0      .0
       R3_BC4_34     BCH    2    20       4.7               0      .0
       SAPOSCOL      BCI    2    20    2365.6               0      .0
       WP00          BCI    2    20    9226.0               0      .0
       WP01          BCI    2    20    1064.3               0      .0
       WP02          BCI    2    20      85.6               0      .0
       WP03          BCI    2    20     125.6               0      .0
       WP04          BCI    2    20       2.2               0      .0
       WP05          BCI    2    20       3.1               0      .0
       WP06          BCI    2    20       2.6               0      .0
       WP07          BCI    2    20       2.0               0      .0
       WP08          BCI    2    20       5.2               0      .0
       WP09          BCI    2    12       2.0               0      .0
                                                               More...
===>
F21=Display instructions/keys
```

The *Work with Active Jobs* display provides information on job priority and system usage in addition to the user and type information you get from the *Work with User Jobs* display. You can also use any of the 11 options on a job (2 through 11 and 13), including option 5, which presents you with the *Work with Job* display for the selected job.

Displaying Job Logs and Spool Files from R/3

Use

You can display job logs and spool files from the R/3 System using the database monitor
Transaction ST04.

Procedure

1. Select *Tools → CCMS → Control/Monitoring → Performance menu → Database → Activity*
   or call Transaction ST04.

2. Select *Detail analysis menu*.

3. In the next screen, select *Database Lock Monitor*.

4. In the next screen, select an instance and choose *Execute*.

5. In the next screen, position the cursor on an entry in the column *PID* or *Jobno.* (depending on
   which information you have at your disposal) and select *Display job log* to display the job log
   or *Display list of all Spoolfiles* to obtain a list of spool files.

Result

The job log or spool file you have selected is displayed. If a spool file is still open, a message is
displayed informing you that the spool file cannot be copied.

Managing R/3 Kernels on AS/400

- An R/3 kernel is shipped on a kernel CD.

- From there, the kernel is loaded into an AS/400 library by the LODR3KRN command.

- This library is turned into an R/3 kernel by the APYR3KRN command.

These are the steps performed during R/3 installation, upgrade procedures, or when a downward-compatible kernel is installed.

The R/3 Kernel as a Stream File

At SAP, an AS/400 library containing the R/3 kernel programs is saved into a save file, which then is converted to a stream file by the CPYFRMSAVF command. At customer sites, the stream file is converted to a save file by the CPYTOSAVF command. Both CPYFRMSAVF and CPYTOSAVF commands are part of the IBM "SAP Tools" that are shipped via PTFs. For more details about the tools, see R/3 Note 68732.

Stream files, whether on CD or in a directory, have the great advantage that they can be made available globally in an AS/400 network via the AS/400 file server directory /QFileSvr.400.

The R/3 Kernel as a Save File on an AS/400

Once the save file is available, standard OS/400 restore commands can be used to restore the objects from the save file into a library.

Save files have the advantage that they can be easily distributed within an AS/400 network using FTP.

The R/3 Kernel as a Saved Library on Tape

For the sake of completeness, tapes can be used to distribute saved objects in an AS/400 network, while this always requires manual operation.

What the R/3 on AS/400 Installation Procedure does

The installation uses the LODR3KRN command to load the R/3 kernel from the shipped installation kernel CD into an AS/400 library. You can choose the name of the library. The command APYR3KRN is used to apply the kernel to the created R/3 System.

What the command APYR3FIX does

In the same way that IBM provides PTFs to fix program errors, SAP provides kernel patches to fix kernel errors. AS/400 ILE programs and service programs consist of modules that are linked together. The AS/400 commands UPDPGM and UPDSRVPGM make it possible to provide only the fixed modules in save files on the SAP support servers. This greatly reduces download times for customers.

The APYR3FIX command downloads the save file using FTP, restores the file and runs a program R3INSTFIX (provided this program is contained in the save file). Generally, kernel patch save files contain this program, which runs the UPDPGM and UPDSRVPGM commands needed to fix kernel errors.

See also:

Downward-Compatibility of R/3 Kernels [Page 22]

Downward-Compatibility of R/3 Kernels

SAP ensures downward-compatibility of R/3 kernels within certain release ranges. For example, within the R/3 3.x release range, the R/3 kernel of a higher release can always be used to replace a kernel of a lower release. This allows customers to load and apply all known kernel patches in one step, because the most current kernel always contains all known patches. You receive kernel CDs whenever a new release becomes available. The LODR3KRN command can then be used to load the new kernel and apply it to the installed R/3 System.

See Also

R/3 on AS/400 Release Strategy [Page 6]

Managing R/3 Kernels in a 3-Tier Environment

Purpose

If you have a 3-tier environment with R/3 instances distributed across multiple AS/400 systems, you have multiple R/3 kernels that must be kept synchronized.

Process Flow

One way to manage such an environment is to declare one of the AS/400s as the "master" system, while the remaining AS/400s become "slave" systems.

The R/3 kernel on the master system would be managed normally just like a kernel in a 2-tier environment. The kernels on the slave AS/400s would then be copied or shadowed from the master system.

See Also

Example for Managing R/3 Kernels in a 3-Tier Environment [Ext.]

Managing R/3 Systems and Instances

- An R/3 System is identified by an SAP system ID (<SID>).

- An R/3 instance is identified by an SAP system ID, an instance number, and the instance hostname.

Before Release 4.5A, the host name was not part of the instance identifier, which was the reason why instance numbers had to be different within an R/3 System. As of Release 4.5A instance numbers within an R/3 System no longer need to be unique.

As of Release 4.5A the installation procedure has been changed. The new installation program, R3SETUP, does not store the configuration data in the `.sapconf` file and does not have an equivalent to this file. However, some of the AS/400 commands need to access system and instance configuration data. This information is stored in the `/usr/sap/trans/config` directory on AS/400.

Before using any of these commands, make sure that you are sharing the global transport directory on the local host. You can use the command **CHGR3SHLOC** to let the `/usr/sap/trans` symbolic link point to the `/sapmnt/trans` directory on the host where the transport directory physically resides.

See Also

Processing R/3 System and Instance Objects [Page 26]

Processing R/3 System and Instance Objects

Prerequisites

Before you can use any of the commands for processing R/3 System and instance objects, make sure that you are sharing the global transport directory on the local host. Use the command CHGR3SHLOC to make the `/usr/sap/trans` symbolic link point to the `/sapmnt/trans` directory on the host where the transport directory physically resides.

Rules for Creating R/3 Systems and Instances

- R/3 System objects must be created before instance objects.

- The central R/3 instance must be created first.

- Database server system objects (`R3<SID>DATA`) must be created after the central instance.

- Other additional instances must be created last.

Rules for Deleting R/3 Systems and Instances

- R/3 instance objects must be deleted before R/3 System objects.

- Other additional R/3 instances must be deleted first.

- Database server system objects must be deleted before the central instance.

- The central R/3 instance must be deleted last.

Procedure

Function	AS/400 Command	What You Need to Know
Create R/3 System object	CRTR3SYS	Replaces the command ADDR3SYS. You can rerun the command at any time; it will create only any objects that may be missing. In 3-tier environments, where the database and the central instance are on different hosts, the command must be run on the database server host. R3SETUP also implicitly runs this command.

Delete R/3 System object	`DLTR3SYS`	Replaces the command `RMVR3SYS`.
		If you run the command in a 2-tier environment, or on the database server in a 3-tier environment, it will delete the database library.
		The command does not delete the kernel library. Since it deletes the system user profiles, you cannot use `<SID>OFR` to run the command. We recommend that you use a privileged user profile such as `QSECOFR` to submit long-running delete commands to batch.
Create R/3 instance object	`CRTR3INST`	Replaces the command `ADDR3INST`.
		You can rerun the command at any time; it will create only any objects that may be missing.
		R3SETUP also implicitly runs this command.
Delete R/3 instance object	`DLTR3INST`	Replaces the command `RMVR3INST`.
		Before you can delete the central instance, you must have deleted all other R/3 instances.
Display R/3 System configuration	`DSPR3SYS`	Displays the configuration data of R/3 System and all its configured instances.
Retrieve R/3 System configuration	`RTVR3SYS`, `RTVR3INST`	For use in AS/400 CL programs.

Calling ABAP Programs from OS/400 with STRREPORT

Use

The AS/400 command **STRREPORT** allows you to call ABAP programs at operating system level. **STRREPORT** can be used in RPG programs.

Prerequisites

The AS/400 system must be linked via TCP/IP.

Procedure

1. Enter **STRREPORT** at the command prompt and press F4 to display the command parameters.

```
                Start Report in R/3 Batch (STRREPORT)


Type choices, press Enter.


Report name  . . . . . . . . . . REPORT          > RDDIMPDP
Variant name . . . . . . . . . . VARIANT           *NONE_____
Job name . . . . . . . . . . . . JOB               *REPORT_____
_
SAP System ID  . . . . . . . . . SID               *ENV
R/3 Instance . . . . . . . . . . INSTANCE          *CENTRAL
R/3 Client . . . . . . . . . . . CLIENT            000
R/3 User . . . . . . . . . . . . USER              DDIC____
R/3 Password . . . . . . . . . . PASSWORD
R/3 Language . . . . . . . . . . LANGUAGE        > E
```

2. To see additional parameters, press F10.

```
                    Additional Parameters


Host Name  . . . . . . . . . . . HOSTNAME          *CURRENT_____
```


If you wish to select other parameters (for *R/3 user*, *R/3 client* or *R/3 password*, for example), you can do this easily with the command **CHGCMDDFT** (Change Command Default).

Additional Commands for R/3 on IBM AS/400

Command	Title	Explanation
CHKR3PTF [Page 32]	Check R/3 PTF	Checks the PTF (program temporary fix) status of your AS/400 system.
CPYSTMF	Copy Stream File	Copies text or binary stream files. Allows you to concatenate stream files or to copy subsets of the data.
DSPSTMF From V4R4 use: DSPF	Display Stream File	Allows you to display binary or text stream files. For information on where to find this command, see R/3 Note 68732.
DSPTMPSTG	Display Temporary Storage Size	Returns information about the temporary storage used.
EDTF	Edit Files	Allows you to view or edit text stream files. For information on where to find this command, see R/3 Note 68732.
LSTPKGINF	Show SQLPKG Information	Displays details about the statements in one SQL package.
RRM	Remove Directory Recursively	Deletes a directory along with all its contents and subdirectories.
RUNDR3CMD	Run Distributed R/3 Command	Runs one or more commands on one or more remote hosts.
RUNR3CMD	Run R/3 Command	Runs one or more commands on a remote host.
RUNSTMFCMD	Run Commands from Stream File	Runs commands contained in a text stream file by spreading the commands evenly over multiple jobs.
SCANDIR	Scan Directory	Searches all stream files in a directory for a search string.

Additional Commands for R/3 on IBM AS/400

STRREPORT	Start Report in R/3 Batch	Starts R/3 report programs in the batch service of an R/3 System.
WRKLNKSAP	Work with Object Links	Allows you to look at directories and stream files.
WRKPID	Work with Job by PID	Prompts the corresponding work with job (WRKJOB) command when given a process ID.

For information on the user tools provided by IBM, see the Appendix "AS/400 User Tools" in the *IBM Redbook SAP R/3 Implementation for AS/400* (document number SG24-4672).

PTF Status Check

Purpose

IBM corrections already exist as PTFs (program temporary fixes) for many problems in the OS/400 operating system or DB2/400 database. All the PTFs recommended for the various OS/400 releases are listed in the IBM Information APARs for R/3. To avoid creating a problem message for a problem that has already been solved, compare the PTF status of your AS/400 on a regular basis with the appropriate IBM Information APAR.

Process Flow

- Run command CHKR3PTF [Page 32]. The command:

  - Reads the IBM Information APARs.

  - Compares the contents of the Information APAR with the current PTF status of your system.

- Your R/3 System contains the IBM Information APARs for all supported OS/400 releases that were current when your R/3 kernel CD or kernel patch was produced. More recent kernel patches contain updated versions of the Information APARs. After you import a kernel patch, command CHKR3PTF is started automatically to check the PTF status.

- If you import kernel patches regularly, you will not need to check whether the Information APAR files are up to date or to start command CHKR3PTF manually. However, if problems arise, you can load the latest IBM Information APARs. (See Getting the Latest IBM Information APAR [Page 33].)

- If you already have the relevant IBM Information APAR for your OS/400 release, you can call CHKR3PTF without parameters to check all the PTFs and CUM packages on your AS/400 system. If some PTFs are missing (that is, they do not have status "temporarily applied", "permanently applied" or "superseded"), you receive a message informing you of this. If a comment text exists for the PTF in the Information APAR, you can display this by pressing F1.

Result

You are informed whether your AS/400 system contains all the recommended PTFs for your OS/400 release level.

See also:

PTF Check in the OS/400 Operating System Monitor [Ext.]

Command CHKR3PTF

Definition

The command CHKR3PTF (Check R/3 PTF) allows you to check the PTF (program temporary fix) status of your AS/400 system.

Use

You can use command CHKR3PTF to compare the contents of the relevant IBM Information APAR with the current PTF status of your AS/400 system. The command performs this check at the beginning of installations and upgrades.

To run command CHKR3PTF from R/3:

1. Choose *Tools → CCMS → Control/monitoring → Alert monitor* or call Transaction RZ20.

2. Choose *SAP CCMS Monitor Templates*.

3. Choose *Operating system*.

4. Choose *PTF check*. A list of AS/400 systems appears.

5. Select the AS/400 on which you want the PTF check to be performed.

Structure

Command Parameter	Explanation
INFOAPAR	Specifies the path and file name for the IBM Information APAR, for example: **CHKR3PTF INFOAPAR('/tmp/infoapar.440')**
OUTPUT	Specifies the output format for all checked PTFs. Possible values are: *DISPLAY - Missing PTFs are output as messages *PRINT - Checked PTFs are output as print files *INQUIRY - Missing PTFs are output as query messages

Example

CHKR3PTF INFOAPAR('/usr/sap/trans/config/infoapar.440') OUTPUT(*PRINT)

Displays all checked PTFs as print files.

Getting the Latest IBM Information APAR

Use

We recommend that you regularly compare the PTF status of your AS/400 with the appropriate IBM Information APAR. To get the latest version of the IBM Information APAR for your OS/400 V4R4M0, use the procedure below.

Procedure

1. Copy the appropriate file for your OS/400 release from directory `/general/R3server/patches/COMMON/OS400/` from sapserv(x) into directory `/usr/sap/trans/config` on your AS/400. The file name for OS/400 release V4R4 is `infoapar.440`.

2. Request the Information APAR from IBM using ECS (Electronic Customer Support) by entering the command:
```
SNDPTFORD PTFID((<Info_APAR> INFOAS4 <OS400_Release>))
CPYTOSTMF
FROMMBR('/QSYS.LIB/QGPL.LIB/QAPZCOVER.FILE/Q<Info_APAR>.MBR')
TOSTMF('/usr/sap/trans/config/infoapar.<File_for_Info_APAR>')
```

```
SNDPTFORD PTFID((II09999 INFOAS4 V4R4M0))
CPYTOSTMF
FROMMBR('/QSYS.LIB/QGPL.LIB/QAPZCOVER.FILE/QII09999.MBR')
TOSTMF('/usr/sap/trans/config/infoapar.440')
```

3. Copy the cover sheet into the IFS (integrated file system).
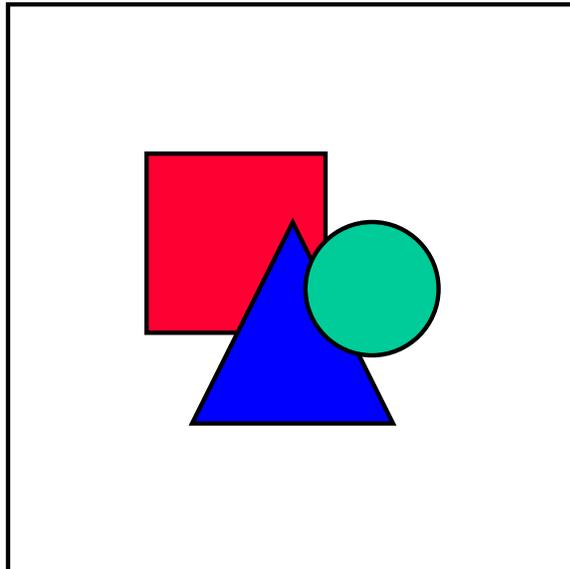
Do not attempt to copy the IBM Information APAR from the IBM Internet pages! This will not work as it has a different format (HTML).

Getting the Latest IBM Information APAR

You may also compare all the PTFs installed on AS/400 with the Information APAR. For more information, see PTF Check in the OS/400 Operating System Monitor [Ext.].