

ABAP Transaction Codes Related to Java Administration



Applies to:

SAP R/3 servers from 4.6C onwards to the latest NetWeaver releases. Some TCodes can even be used for previous releases; however their functionality (and the transaction code screens) may differ. For more information, visit the [Java homepage](#).

Summary

In a productive landscape, an SAP J2EE server/ SAP Enterprise portal or any other application based on the JAVA engine is in constant interaction with a variety of backend R/3 servers, be it UME related, internet application components (IAC's) like ESS or MSS, TREX etc. This guide describes the main TCodes from the ABAP end that can be useful to assist troubleshooting in such cases where connection is made from the j2ee server to the R/3 server or vice versa.

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Created on: May 4th, 2010

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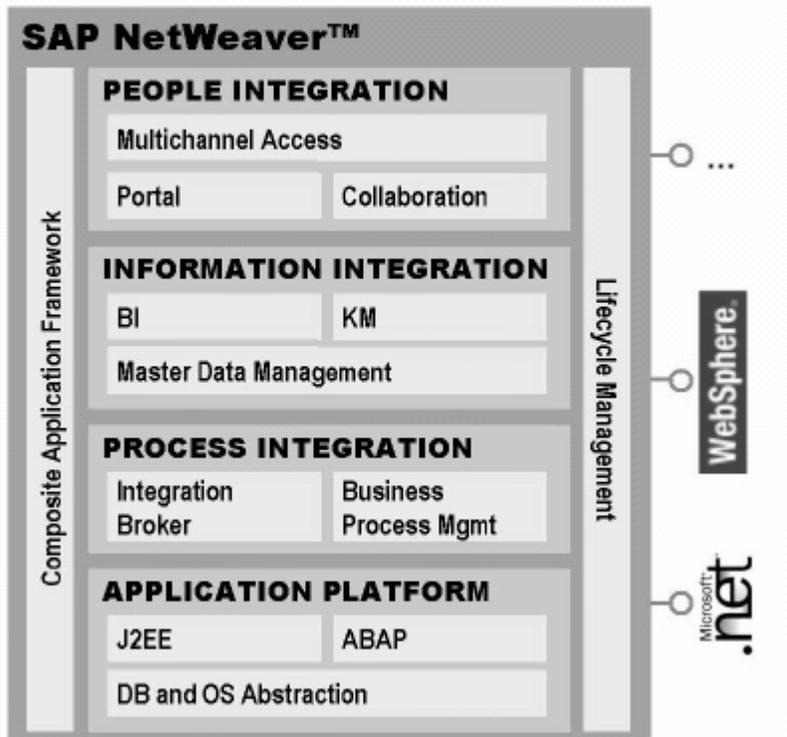
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Introduction

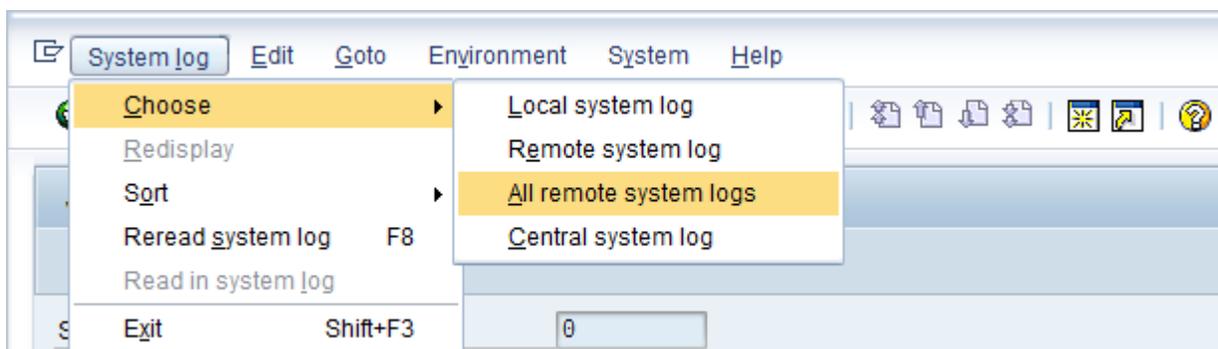
With the advent of SAP NetWeaver and modern internet, there is constant interaction between various SAP systems and other applications that necessarily do not belong to the world of SAP (as shown in the below NetWeaver fridge diagram). For instance, in an Employee Self Service scenario your portal would require a system to generate the appropriate calls from your Human Resource Environment. Hence if issues creep up relating to performance, configuration, connection etc., along with the investigation from the JAVA end (using java administration tools like visual admin, config tool, telnet etc), it is also useful to check the backend R/3 servers for important leads that may result in faster resolution of the issue. This guide provides main TCodes for the same and has been segregated into three parts and shows a brief overview about the main Tcodes in each area.



1) General System transactions

1.1) SM21/ ST22

- Information from the system log can be seen from /n **SM21**. This should be the starting point of all investigation. For all servers: **Syslog -> choose -> all remote system logs**



In this case the communication user error is shown. Double click for more details.

02:00:28	BTC	011	000	SAPSYS			00	1	Transaction Canceled 00 560 (C5075725 100)
03:03:15	DIA	000	000	SAPSYS			PM	2	Certificate with PSE type >SSL Client (Anonymous)
03:03:15	DIA	000	000	SAPSYS			PM	4	Validity of certificate from list with PSE type >
03:03:15	DIA	000	000	SAPSYS			PM	4	Validity of certificate from list with PSE type >
06:37:53	DIA	003	100	SAPJSF			US	1	User XIAPPLUSER locked due to incorrect logon
07:42:42	RD						Q0	1	Operating system call rcv failed (error no. 104
07:42:42	RD						S2	3	Connection to CPI-C client 157 was closed

- /n **ST22** shows all the ABAP runtime errors

ABAP Runtime Error

Parameters

Standard

Today 38 Runtime Errors

For example, the user logs in from the portal and (for an ESS/MSS application) there is a dump that is generated, /nSt22 will show more details of the same.

1.2) STAD, ST03G, SKUSR001

- Transaction /n **STAD** can be used to call up various statistical data for RFC, in order to find the status of actions that you have performed. With STAD you can identify the portal URL which uses the ABAP server as UME backend and other information.

Read Interval

Date Time Length

Filter Parameter

Client Resp. time >= ms

User DB req.time >= ms

Transaction CPU time >= ms

- Report **SKUSR001** shows the time the server was functional (same as **available.log** file)
- Global Workload Monitor (transaction /n **ST03G**) displays statistical records for entire landscapes including web clients /specific frontends that have accessed the ABAP engine

WEB Client Statistics: Destination				
Protocol	Host Name	Port	Calls	T.CallTime
HTTP	wdf.sap.corp	50000	66	26
HTTP	wdf.sap.corp	50044	2	3
HTTP	10.52.171.177	53000	7	1

/n**ST03G** will show the portals/ j2ee servers and other external connections that have been made to the ABAP server. This is very useful information as you can also find the total number of connections, data transferred and lot of other data.

1.3) SM04, AI08

/n **SM04** shows the user list from the actual application server including RFC users.

TCode /n **AL08** you will get a list of all currently active users in the whole SAP server. If there are connections from the portal/ j2ee server, you can check this here.

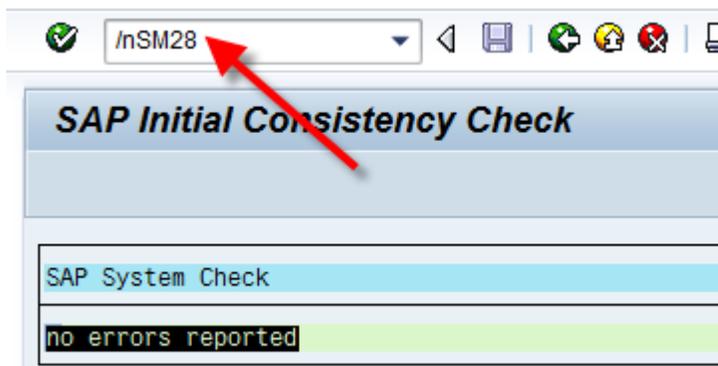
000	PIUSER1	dewdfm749		13.23.45	1	RFC	2
000	PIUSER1	INLD50057851A	SWUI_START	14.40.01	2	RFC	20
000	PIUSER1	dewdfm733		17.41.53	1	RFC	2
105	RAMESHSH	dewdfm733		17.41.53	1	RFC	2

In this case, the portal on the server dewdfm733.wdf.sap.corp is connecting to the ABAP backend.

Profile parameter **rdisp/tm_max_no** is useful in this case as it determines the maximum connections to R/3 server. At times it is possible that many connections are made from the portal end and no other users are able to login to the R/3 server. In such cases, you can increase this parameter (from /n **RZ11**).

1.4) SM28/SICK, SLICENSE

Soon after installation, run TCodes /n **SM28** or /n **SICK** to ensure that the correct database versions and R/3 kernel versions are used, and to make sure that there are no inconsistencies. If there are some database patches that are needed for the ABAP or the JAVA schema, this will be shown here along with the specific SAP note.



Tcode /n **SLICENSE** (or operating system command “**license –install**”) is used to install licenses in case of standalone/add-in installations

Installed Licenses								
Licenses in the Database								
Stat	SID	Hardware Key	Sware Prod	Valid From	Valid To	Type	Inst. No.	
○○○	U7A	U1631489204	NetWeaver_DB6	2009.12.02	9999.12.31	Perm	0020271	
○○○	U7A	U1631489204	Maintenance_DB6	2009.12.02	2010.03.03	Perm	002027	

Note that incase the server is an ADD-IN installation, there is no need to install another license (via Visual admin) for the java server. Just /n **SLICENSE** is needed in this case.

1.5) SDMO and SEARCH_SAP_MENU

/n **SDMO** (Searching T Codes) allows you to search for transaction after entering what the transaction is supposed to do. Example: Lets say that you have forgotten which is the TCode for administering the internet communication manager. Just navigate to /n **SDMO** or /n **search_sap_menu** and type in the details you know.

/n **Search_sap_menu** gives the same option

You can see all the TCodes that deal with the ICM now.

Dynamic Menu

Tcode	Transaktionstext
SMICM	ICM Monitor
SMICM_SOS	ICM Monitor

1.6) SITSPMON and SE93

Use transaction /n **SITSPMON** to get a status summary of the integrated ITS and users currently accessing ITS.

Internal ITS: Status

Difference

Parameter Memory statistics Template & Mime Cache Mutex

Memory Consumption: Overview

Sessions:	1	956.152 Bytes	956.152 Bytes/Se
Templates:		5.515.088 Bytes	
Sess. & Templ.:		6.471.240 Bytes	Currently available to

Transaction /n SE93 governs whether a particular TCode can be accessible via various SAP GUI's

Classification

Transaction classification

Professional User Transaction

Easy Web Transaction Service

Pervasive enabled

GUI support

SAPGUI for HTML

SAPGUI for Java

SAPGUI for Windows

If you do not want sensitive TCodes to be accessed via HTML etc. then this can be specified here. For example in a ERP server, you want to restrict TCode /n PA30 (Maintain HR master data) from being invoked from the portal, then just untick the "sapgui for HTML" option.

1.7) SICF

After the installation of the ABAP server, all Internet Communication Framework (**ICF**) services are available in an inactive state for security reasons. After the installation you have to decide which services must be activated for the applications you want to use. For forms like **ADS** to work, SICF nodes must be activated.

Maintain Services

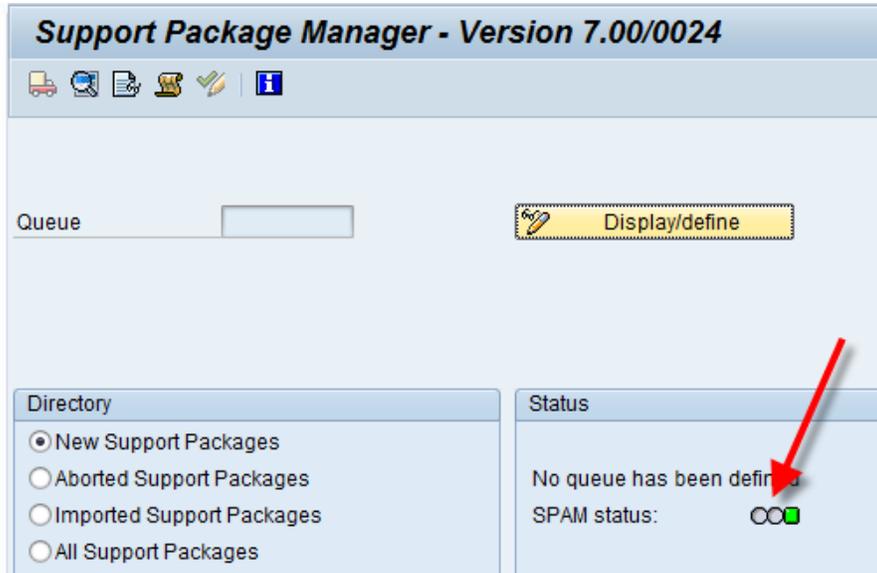
Filter for Calling ICF Hierarchy

Hierarchy Type	SERVICE
Virtual Host	
Service Path	
Service Name	FPADS
PA_RFSRV	
Description	
Language	English

Hence if ADS is not working from the portal end, first check should be done on the /n **SICF** level to see if the node is working fine. Also you can test the service from here.

1.8) SPAM

If the UME of the j2ee engine is an ABAP server and if the support pack upgrades are running on the server, the j2ee too will stop functioning or the performance will go down considerably. In such cases, TCode /n **SPAM** needs to be checked (along with background jobs).

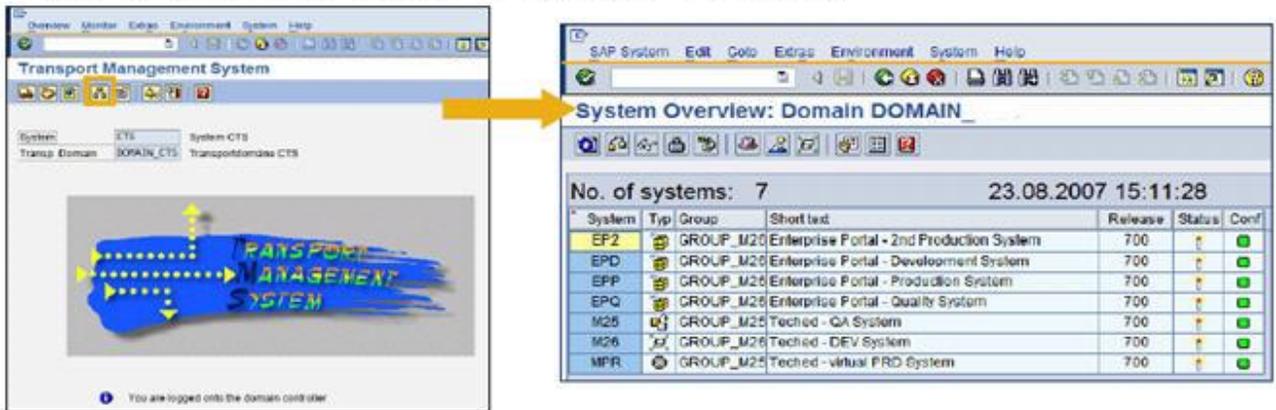


The system log will guide you in such cases as well (as the /n **SPAM** upgrade details will be present here as well).

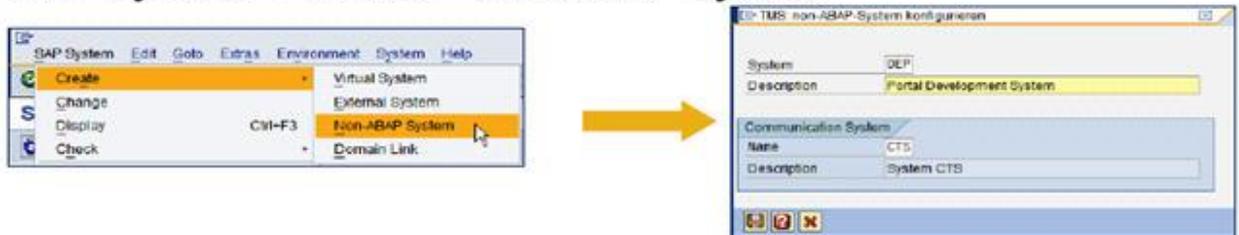
1.9) STMS

The enhanced Change and Transport System (CTS+) enables users to transport Java objects (SCA, EAR, SDA, EPA, PAR files) alongside ABAP objects. Also, it is possible to administer non-ABAP systems in a CTS transport domain in the R/3 server. You can also maintain SDM details and the deployments can be done from the /n STMS screen itself.

Start Transaction STMS → System Overview



SAP-System → Create – Non-ABAP System

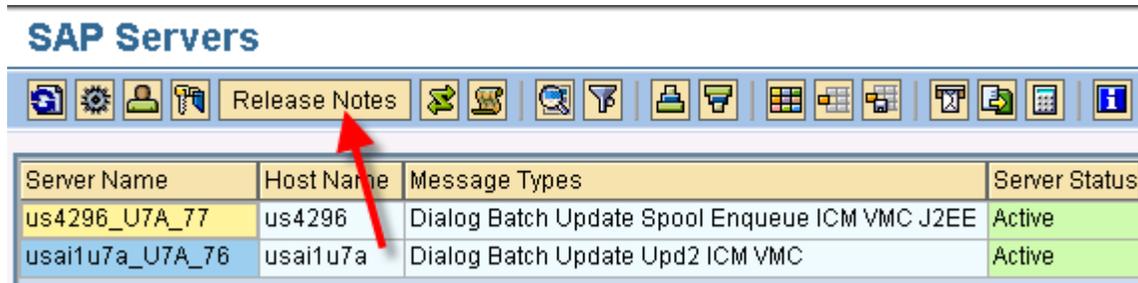


2) Operating System and DB transactions

2.1) SM51 / RZ03 / SMMS

- Overview of all running SAP-Servers (/n **RZ03** shows the configured SAP servers – not just the ones that are started)
- With the button **RELEASE NOTES** you will get the info of the kernel patch level and other related data in TCode /n **SM51**
- You can switch to another server, see ABAP message server properties (this data is very valuable and used in several cases where the J2EE server needs to be connected to the ABAP backend (like ADS, JCo destination etc.)
- Application servers can be started/stopped without OS access.

/n SM51

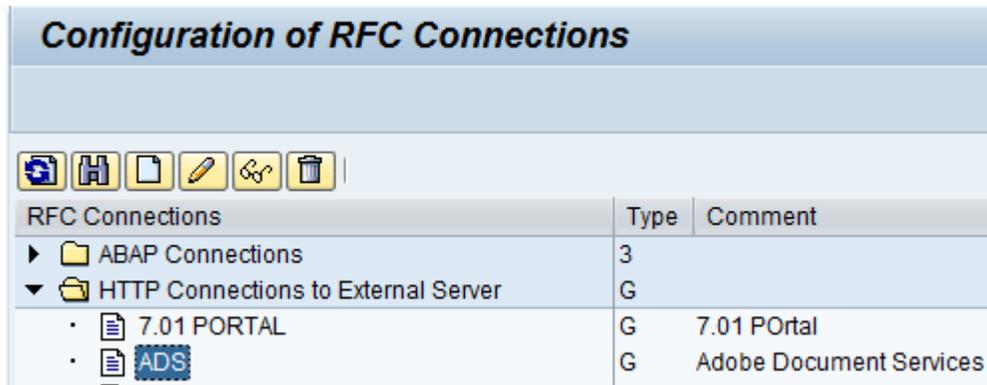


/n RZ03

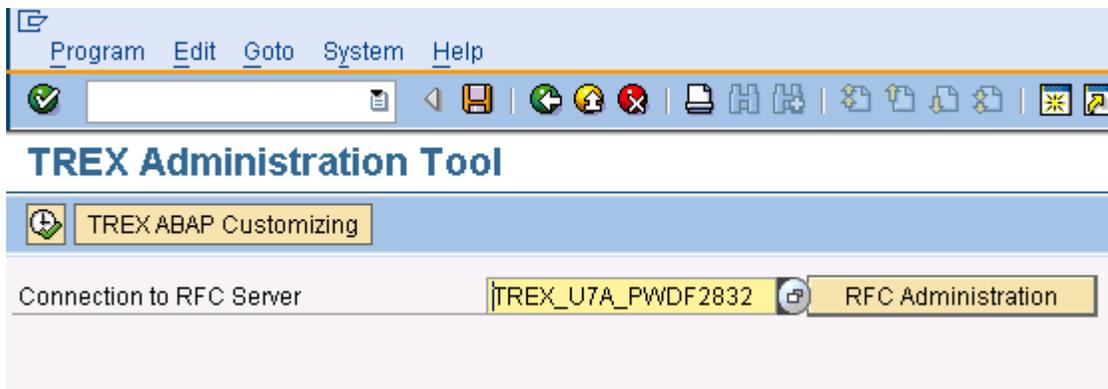


2.2) SM59, TREXADMIN

- The RFC destination (/n **SM59**) defines the physical communication to the remote destination. For the ABAP server to connect to java related services like ADS, TREX etc. an SM59 destination needs to be created.

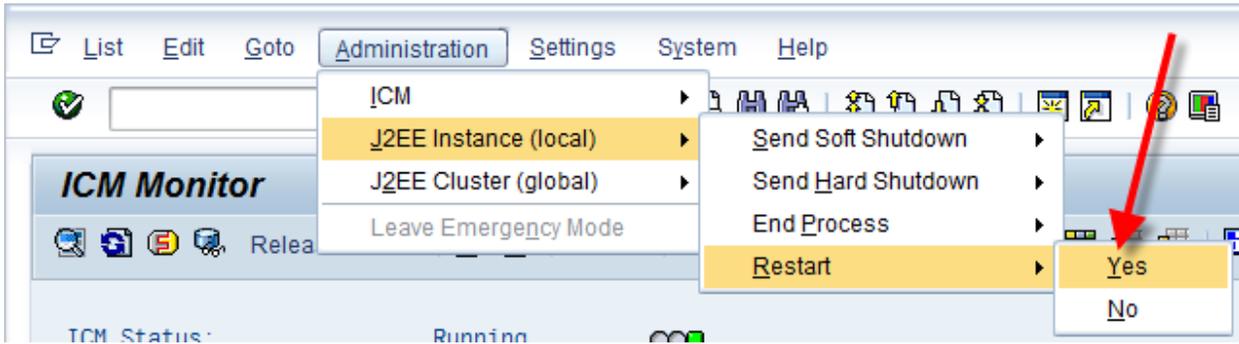


- The TCode /n **TREXADMIN** allows users to check whether the connection to the TREX server (installed on the java part) is working fine.



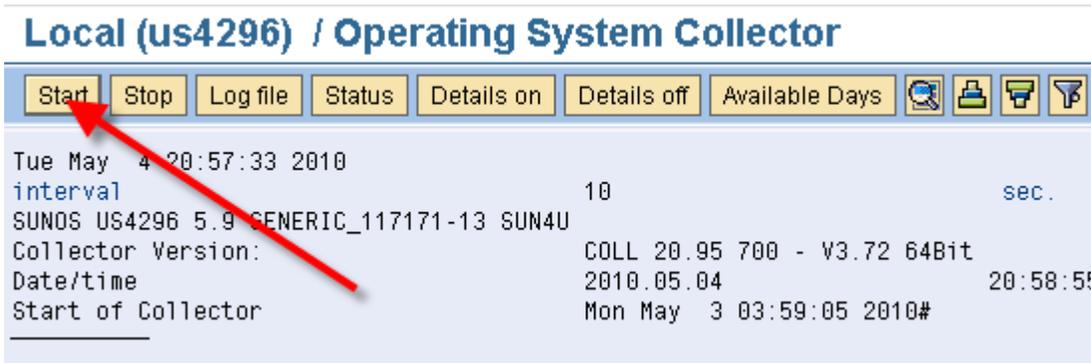
2.3) SMICM, RZ10, RZ11, RSPFPAR, RSPARAM

- Transaction /n **SMICM** can be used to monitor and administer the Internet Communication Manager, which sends and receives requests to and from the Internet. (ICM) of the ABAP instance starts and stops the associated Java instance as required.
- Profile parameters **rdisp/j2ee_start** and **rdisp/j2ee_lazy** determines whether the j2ee should be started by the ABAP dispatcher or in a “standalone” mode (more details for the same are available in /n **RZ11**)
- Profile files are visible via /n **RZ10** and individual parameters can be changed via /n **RZ11**. Please note that for a add-in installation, there are no separate profile files for java and abap part. You can amend java related parameters as well from the TCode /n **RZ11**. Reports **RSPARAM** and **RSPFPAR** uses the OS command **SAPPFPAR** and displays all the profile parameters.

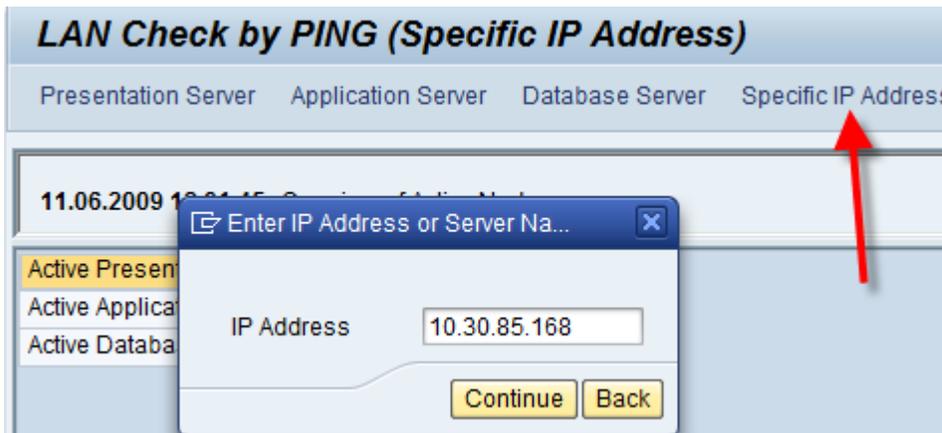


2.4)ST06N,OS01

- /n **ST06**, the operating system monitor shows all the OS memory details, status of the **SAPOSCOL**. The SAP OS Collector can be started/stopped from /n **ST06**.



- If the user reports that from the presentation layer (sap gui, web browser) , he is not able to connect to the java part or abap part, use /n **OS01** to check the network connection is fine. This is useful if a portal link (like **ESS/MSS**) does not work for a particular user but for others it works fine.



2.5) AL11, ST11

- With Tcode /n **AL11**, administrators should be able to view files on the OS level. Also a new directory location can be created as per the need.

User-Defined Directories

Create Delete Save

Directory Name /usr/sap

Param. Name /usr

- /n **ST11** TCode shows the work folder in sequence of the files modified.
- TCode /n **SM49** and /n **SM69** allows users to create their own OS commands and execute them from within the ABAP server.
- Report **RSBDCOS0** gives a telnet like interface inside the ABAP server to execute OS commands. Now no need to specifically log into the operating system to run commands.

Execute OS Command (Logged in SYSLOG and Trace Files)

Reset list Change current directory

R/3 QPT 004 User DSS* Date 04.05.2010 Time 22:17:25
 Host usciqpt User qptadm
 Path /usr/sap/QPT/DVEBMGS09/work

Execute history command number with next command
 Execute last history command with next command ..
 \$(name) replaced by logical OS commands and profile parameters

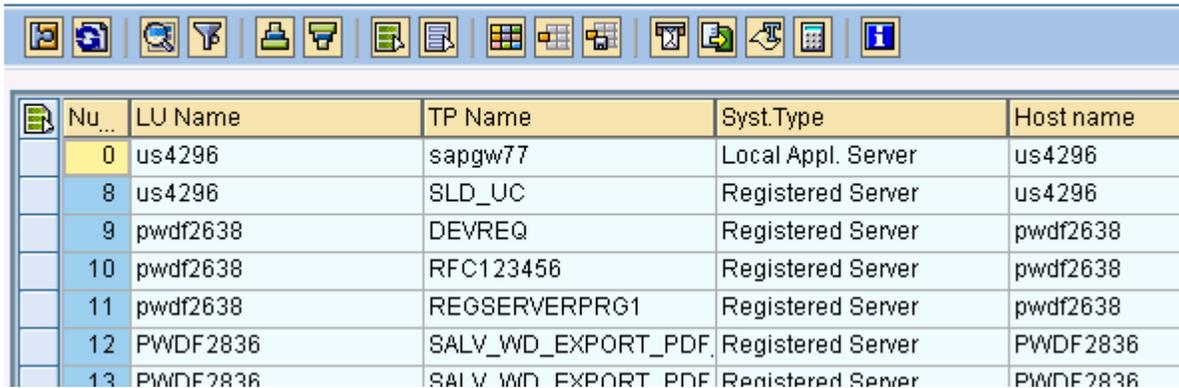
[1]pwd
 /usr/sap/QPT/DVEBMGS09/work

For example, in the above figure, “pwd” command returns the present location.

2.6)SMGW, RZ70

- The gateway monitor shows the gateway properties, the active connections registered on the gateway and other details. If there are issues with the JCo destinations connecting the R/3 server, then you can first check whether the connection is visible here in the logged on clients. For example, in this below screen, the portal pdf2836 connects to the R/3 server for ADS related functionalities.

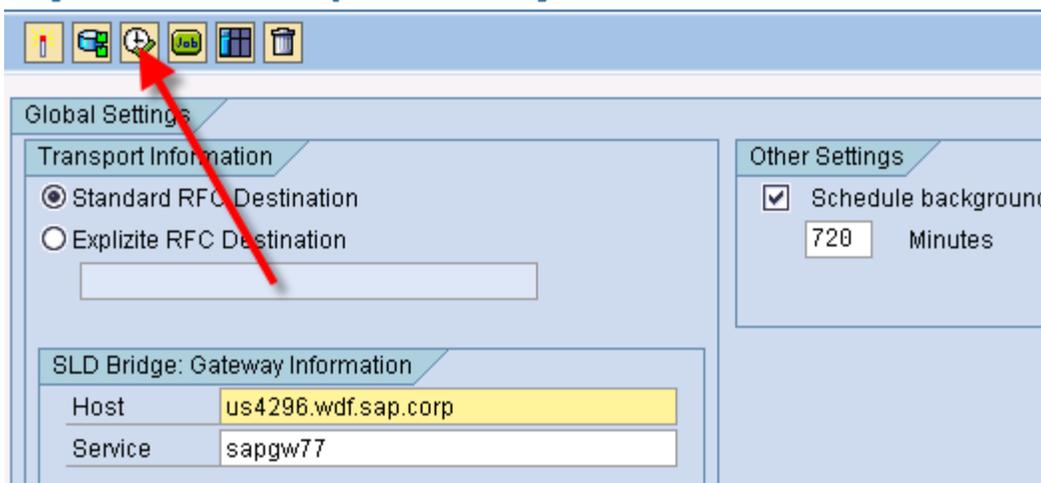
Gateway Monitor for us4296 / Connections to Clients



Nu...	LU Name	TP Name	Syst.Type	Host name
0	us4296	sapgw77	Local Appl. Server	us4296
8	us4296	SLD_UC	Registered Server	us4296
9	pwdf2638	DEVREQ	Registered Server	pwdf2638
10	pwdf2638	RFC123456	Registered Server	pwdf2638
11	pwdf2638	REGSERVERPRG1	Registered Server	pwdf2638
12	PWDF2836	SALV_WD_EXPORT_PDF	Registered Server	PWDF2836
13	PWDF2836	SALV_WD_EXPORT_PDF	Registered Server	PWDF2836

- The gateway service can also be stopped from /n **SMGW**
- The Tcode /n **RZ70** allows connection of the ABAP server to the SLD installed on a J2EE engine.

System Landscape Directory: Local Administration



Global Settings

Transport Information

Standard RFC Destination
 Explizite RFC Destination

Other Settings

Schedule background
 720 Minutes

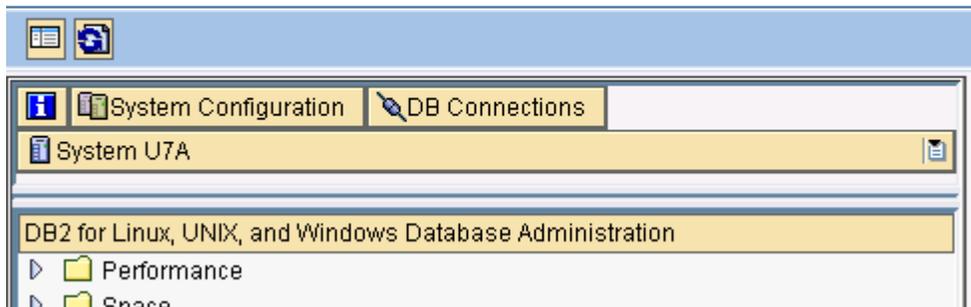
SLD Bridge: Gateway Information

Host	us4296.wdf.sap.corp
Service	sapgw77

2.7) DBACOCKPIT, DB01, DB13, ST04

- The /n **DBACOCKPIT** is a platform-independent tool that you can use to monitor and administer your database. The JAVA schema of the database can also be monitored from here and activities like adding tablespace can be done. You can see:
 - 1) The free space (/n **DB02**),
 - 2) Schedule backup (/n **DB13**)
 - 3) Schedule remote backups (/n **DB13C**)
 - 4) View backup logs (/n **DB14**)
 - 5) View database locks (/n **DB01**)

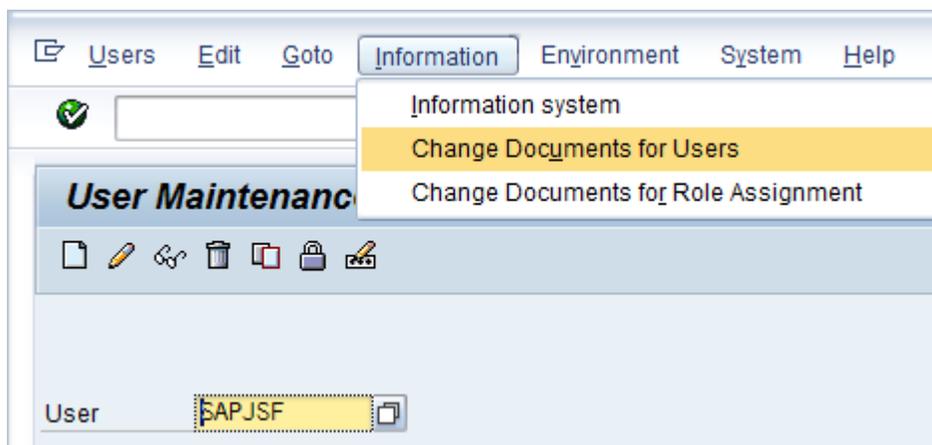
DBA Cockpit: System Configuration Maintenance



3) Security TCodes

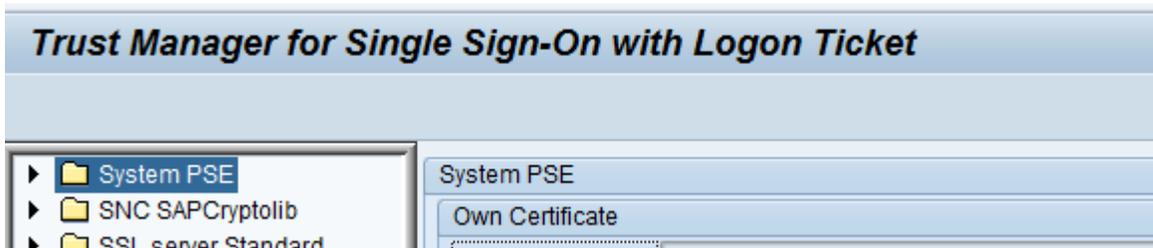
3.1)SU01, SUIM, PFCG, PFUD

- TCode /n **SU01** allows general user maintenance and addition of roles/profile to the user master data. If the UME of the java server is an R/3 server (ABAP), then you can do user administration for the java users from here as well.
- Use TCode /n **PFCG** to generate profiles and add authorisation objects to profile.
- Mass user comparison can be achieved by /n **PFUD**
- /n **SUIM** allows searching of user profiles, roles, authorization objects etc.



3.2)STRUST, SSO2 and STRUSTSSO2

- TCode /n **STRUST** can be used to add a certificate to the system's list of certificates in the database.
- TCode /n **SSO2** can be used to check the logon tickets being employed.
- TCode /n **STRUSTSSO2** is a culmination of both the above transactions.
- Also for SSO connection between a J2EE server and a ABAP server to work, the values of **login/accept_sso2_ticket** and **login/create_sso2_ticket** must be set.

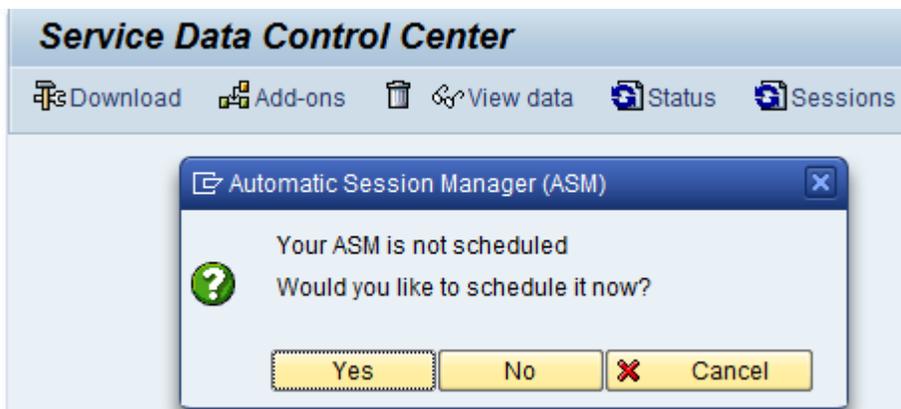


3.3) ST01, SM20N, ST05, SM50

- When a RFC connection is made to the ABAP server from a portal/j2ee engine, ultimately, it is the ABAP dialog workprocesses that connects to the DB, retrieves the necessary information and is responsible for the request. Traces can be activated for:
 - 1) specific workprocess (using /n **SM50**)
 - 2) for specific users (/n **ST01**)
 - 3) For specific users logged in specific clients (/n **SM20N**)
 - 4) Functional trace using /n **STATTRACE**

3.4) SDCC

TCode /n **SDCC** allows data transfer from the customer system to SAP so that data /system measurement is possible and SAP can proactively suggest corrective measures to the customer so that in future issues do not occur.



Related Contents

For more information, visit the [Java homepage](#).

For more information, visit the [Software Logistics homepage](#).

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