Installation Instructions for SAS/ACCESS® 4.2 Interface to R/3®

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Chapter 1 — Introduction

About This Document

This document covers the installation of SAS/ACCESS Interface to R/3 software for SAS 9.1.3.

How to Use This Book

In this chapter, an overview of the architecture of SAS/ACCESS Interface to R/3 software is provided. You should read this chapter and decide which configuration you want to use for your installation.

In Chapter 2 — Pre-Installation, system requirements and prerequisites are listed. You will find tips about how to set up and test prerequisites before you proceed with the installation.

In Chapter 3 — Installing SAS/ACCESS Interface to R/3 Software, the installation of SAS/ACCESS Interface to R/3 software is explained step by step.

Chapter 4 — Start SAS/ACCESS Interface to R/3 Software, explains how to start the software and how to verify its installation.

Appendix A — Selected SAP Transaction Codes, provides a list of SAP transaction codes that are useful during installation and verification.

Appendix B — Error Messages, documents potential problems and their symptoms during installation.

To simplify the installation, two checklists are provided. These checklists are an important tool to successfully install SAS/ACCESS Interface to R/3 software.

- Appendix C — Pre-Installation Checklist - the preinstallation checklist must be completed prior to installation. Do not proceed with installation until all the items on the preinstallation checklist are correctly completed.
- Appendix D — Installation Checklist - during installation, the installation checklist should be completed. This information is important, as it documents the installation and facilitates upgrades, etc.

Appendix E — For mySAP ERP 2004: Installing the Add-On, describes the installation of the mySAP ERP 2004 add-on for the installation of the ABAP objects in the SAP System.

What's New in SAS/ACCESS 4.2 Interface to R/3 Software

SAS/ACCESS 4.2 Interface to R/3 includes support for Unicode SAP servers. The new Unicode RFC server is supported on Windows and several UNIX platforms: AIX, HP-UX, HP-UX for the Itanium Processor, Linux, and Solaris.

The authorization check for permission to read tables has been re-implemented as Business Add-In (BAdI) /SAS/AUTH01. The default implementation of this BAdI does the same authorization check as before on S_TABU_DIS, so no further action is necessary. This feature makes it possible to develop alternative authorization schemes for reading tables.

Configurations of SAS/ACCESS Interface to R/3 Software

SAS/ACCESS Interface to R/3 software can be configured in many different ways. This section describes the components of SAS/ACCESS Interface to R/3 software and its basic configurations.

Components of SAS/ACCESS Interface to R/3 Software

The components of SAS/ACCESS Interface to R/3 software are:

- SAS/ACCESS Interface to R/3 Software - Application
- Data Dictionary Extract
- SAS Views of the SAP data
- SAS RFC Server

The SAS RFC Server connects to SAS/ACCESS Interface to R/3 software via the SAP System Application Server.

SAS/ACCESS Interface to R/3 Software – Application

The Application is the user interface to navigate the metadata, store selections, and generate the SAS views to access the SAP data.

Data Dictionary Extract

The Data Dictionary Extract is a copy of metadata from the SAP Data Dictionary. The metadata is stored in SAS data sets that provide information about tables, fields, data models, and entity types in SAS/ACCESS Interface to R/3 software. For example, one table lists all the tables defined to SAS/ACCESS Interface to R/3 software (typically 20 to 50 thousand logical tables); another table lists all the fields for each table (typically 400 to 800 thousand fields).

The Data Dictionary Extract is usually installed on the same machine as the SAS/ACCESS Interface to R/3 software user interface or on a fileserver.

The Data Dictionary Extract can be on a separate machine provided that machine has

- SAS 9.1.3
- SAS/SHARE Software or SAS/CONNECT Software

SAS Views of the SAP Data

The SAS views are generated by SAS/ACCESS Interface to R/3 software.

To use the SAS views on a particular machine, SAS/ACCESS Interface to R/3 software must be installed.

SAS views can be used in batch mode.

SAS RFC Server

Normally, the SAS RFC Server is installed on the same machine as the:

- SAS/ACCESS Interface to R/3 Software – Application
  or
- SAP System Application Server

The SAS RFC Server is available for Windows NT, Windows 2000, Windows XP, AIX, HP-UX, HP-UX for the Itanium Processor, Tru64 UNIX, Solaris, Linux, and UNIX System Services (USS) – Open Edition. The SAS RFC Server can be installed on a machine without SAS 9.1.3.

SAP System Application Server

The SAS RFC Server communicates with the SAP System Application Server. The installation of SAS/ACCESS Interface to R/3 software includes a number of ABAP objects.

Basic Configurations

Figures 1 and 2 show basic configurations for SAS/ACCESS Interface to R/3 software. In the first configuration, the four components of SAS/ACCESS Interface to R/3 software are all on the same machine.

- SAS/ACCESS Interface to R/3 Software - Application
- Data Dictionary Extract
- SAS Views of the SAP data
- SAS RFC Server

In Figure 1, the SAS RFC Server is installed on the same host as SAS 9.1.3; in Figure 2, the SAS RFC Server is on the same host as the SAP System Application Server.
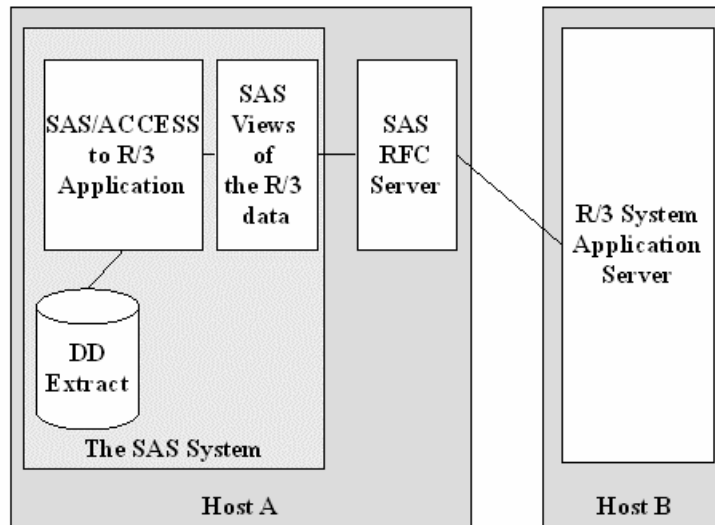
Figure 1 - Basic Configuration (1) of SAS/ACCESS Interface to R/3 Software
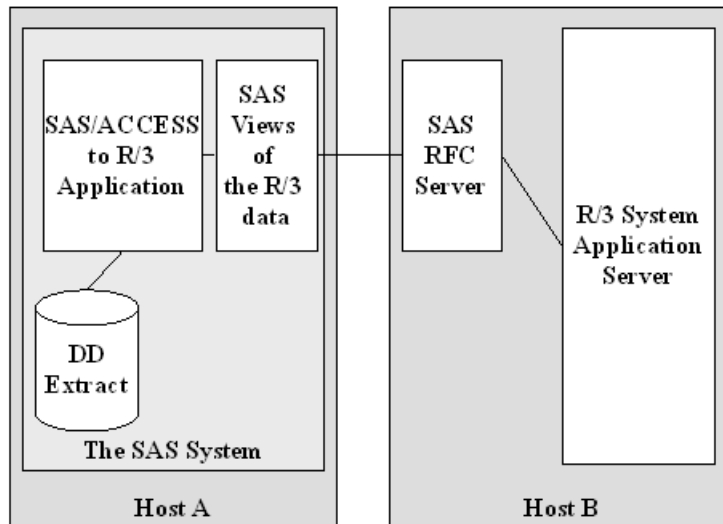
Figure 2 - Basic Configuration (2) of SAS/ACCESS Interface to R/3 Software

Other Configurations

If a basic configuration cannot be used, other configurations are available. In general, the recommendation is to use as few machines as possible to minimize network traffic and offer better system performance.

Figure 3 shows other configurations for the components of SAS/ACCESS Interface to R/3 software.

Separate SAS RFC Server

The SAS RFC Server can run on the SAS host or on the SAP System Application Server. It can also run on another server. However, it is recommended to use either the SAS host or the SAP System Application Server to minimize network traffic.

SAS Views on a Server

The SAS views of the SAP data can run on a machine separate from SAS/ACCESS Interface to R/3 Software - Application. For instance, the user interface of SAS/ACCESS Interface to R/3 software is used on Windows and the SAS views are created on a UNIX host. This configuration requires the installation of SAS/ACCESS Interface to R/3 software on both machines—the local client and the remote server.

Separate Data Dictionary Extract

The Data Dictionary Extract is on a different machine than SAS/ACCESS Interface to R/3 software.
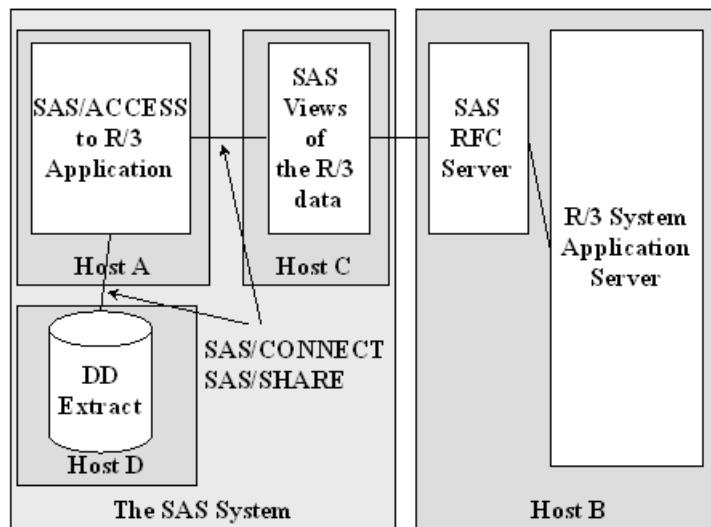
Figure 3 - Other Configurations of SAS/ACCESS Interface to R/3 Software

Related Publications

SAS/ACCESS 9.1 Interface to R/3: User's Guide

Chapter 2 — Pre-Installation

Overview

This chapter outlines the prerequisites to install and run SAS/ACCESS Interface to R/3 software. Some of these prerequisites require the involvement of other staff, such as the SAP system administrator.

System Requirements

The installer requires operating system user IDs and passwords and SAP user IDs and passwords. For a multi-machine installation, appropriate access to the network and all machines must be included. For Windows NT, administrator privilege is required.

Operating System

SAS/ACCESS Interface to R/3 Software - SAS RFC Server

The SAS RFC Server that is part of SAS/ACCESS Interface to R/3 software requires Windows NT, Windows 2000, Windows XP, AIX, HP-UX, HP-UX for the Itanium Processor, Tru64 UNIX, Solaris, Linux, or UNIX System Services (USS) – Open Edition. To install and run the SAS RFC Server as a Windows NT service, Windows NT, Version 4.0 or higher and Windows NT administrator privilege are required.

SAS/ACCESS Interface to R/3 Software - Application

For a list of operating system requirements for the SAS/ACCESS Interface to R/3 software user interface, see the system requirements for SAS 9.1.3.

SAS 9.1.3

SAS/ACCESS Interface to R/3 Software - SAS RFC Server

The SAS RFC Server is required and can run on a machine without SAS 9.1.3 being installed.

SAS/ACCESS Interface to R/3 Software - Application

SAS 9.1.3 is required.

Required SAS Products

Base SAS and SAS/ACCESS Interface to R/3 Software are required.

In addition, to use the "Export metadata to Warehouse Administrator" feature, SAS/Warehouse Administrator software is needed.

To use the SAS client/server support, SAS/CONNECT software or SAS/SHARE software is needed.

SAP System

Release

- SAP Kernel Release 4.6C or higher

The SAS RFC Server requires the SAP RFC library which is provided by SAP AG. Refer to SAP Note 413708 for the current version, download and installation instructions.

For Windows, the recommended way of installation is to install the SAP GUI or the RFC SDK.

For the RFC servers on Windows, z/OS, and Linux, download the 32-bit version; for all other platforms, download the 64-bit version of the RFC library.

For the Unicode RFC server, download the Unicode RFC library and the shared libraries required by the Unicode RFC library.

SAPGUI

During the installation of SAS/ACCESS Interface to R/3 software, a SAPGUI is required.

User IDs

SAP user IDs and passwords are required. The user IDs must have appropriate authorizations to access data and use communication methods. See "Authorization Profiles" for more information about customizing the authorization.

To install and run SAS/ACCESS Interface to R/3 software, the following SAP user IDs are required:

- **RFC user —** This is a SAP user ID that is used for the communication link between the SAS RFC Server and the SAP System Application Server. Typically, there are several RFC user IDs (one per person).
- **SAP System Administrator —** For the installation of ABAP programs and function modules, for the configuration of destinations and variant for batch operations, and for setting up authorizations for user IDs to use the SAS/ACCESS Interface to R/3 software, a SAP System Administrator ID is required. This user ID is only used for the installation.

Connectivity

The SAS RFC Server and the SAS Data Step use TCP/IP socket programming. The TCP/IP network protocol must be installed to use SAS/ACCESS Interface to R/3 software. The default port used by the software is 6999.

The SAS RFC Server and the SAP System Application Server usually use TCP/IP communication. Refer to the RFC documentation from SAP AG. The host of the SAP System Application Server must be known by the host of the SAS RFC Server. Alternatively, you can use the IP address to identify the SAP System Application Server. The TCP/IP services file must contain entries for the services, ports, and protocols used for the communication.

The following is an example for entries in the services file:

```
sapdp00 3200/tcp
sapdp01 3201/tcp
...
sapdp99 3299/tcp
sapgw00 3300/tcp
sapgw01 3301/tcp
...
sapgw99 3399/tcp
sapsp00 3400/tcp
sapsp01 3401/tcp
...
sapsp99 3499/tcp
```

Note: *If the SAPGUI is installed on the machine, the TCP/IP services file already contains these entries.*

Authorization Profiles

To install and use SAS/ACCESS Interface to R/3 software, a user ID with certain authorizations is required. An authorization has an authorization object. Several authorizations can be bundled together into an authorization profile.

If the batch functionality of the SAS RFC Server is used, the RFC user ID needs to have authorization to submit batch jobs already released.

The RFC user IDs require authorizations for the following authorization objects:

Object	Minimum Requirement for Values	Example for Predefined Authorization	Notes
S_RFC (Authorization check for RFC access)	ACTVT: * RFC_NAME: * RFC_TYPE: *	S_RFC_ALL	
S_TABU_DIS (Table maintenance via standard tools such as SM31)	ACTVT: 03 DICBERCLS: *	S_TABU_SHOW	
S_BTCH_JOB (Background processing: Operations on Background Jobs)	JOBACTION: RELE JOBGROUP: *		Only required if batch functionality of the RFC server is used

Table 1 – Authorizations

The existing authorizations, for example S_TABU_SHOW, can be used. The S_RFC and the S_TABU_DIS authorizations are in authorization profile A_ANZEIGE.

Chapter 3 — Installing SAS/ACCESS Interface to R/3 Software

Overview

During the installation of SAS 9.1.3 Foundation, you should select to install SAS/ACCESS Interface to R/3 software, along with other software you want to install. Refer to the installation instructions for SAS 9.1.3 Foundation for your operating system for further information.

Post-Installation Setup for the SAS RFC Server

Overview

This section describes the post-installation setup for the SAS RFC Server after SAS/ACCESS Interface to R/3 software has been loaded from the SAS 9.1.3 CD set.

The SAS RFC Server is either installed on the same host as SAS 9.1.3 or on a remote server. Remote server, in this case, means remote to SAS 9.1.3, which also includes the case where the SAS RFC Server is installed on the same host as the SAP System Application Server. Select one of the following scenarios based on decisions you made about the configuration of SAS/ACCESS Interface to R/3 software.

- **Windows, SAS System Host**
- **Windows, Remote Server**
- **UNIX, SAS System Host**
- **UNIX, Remote Server**
- **z/OS, SAS System Host**

Proceed with the section appropriate for your configuration.

Windows, SAS System Host

The SAS RFC Server is installed as a service if the required SAP RFC library is available during the installation process. Alternatively, the SAS RFC Server can be installed as a service in a post-installation step after SAS/ACCESS Interface to R/3 software has been loaded. For a complete description of the SAS RFC Server command, refer to *SAS/ACCESS 9.1 Interface to R/3: User's Guide*, Chapter 5, "Using the RFC Server."

1. The SAS RFC Server requires the SAP RFC library.

   The recommended way to install the RFC library is to install the SAP GUI or the RFC Software Development Kit (RFC SDK) from SAP AG.

   Follow the download instructions per SAP Note 413708. Refer to SAP Note 413708 for a list of required DLLs.

2. You have several options on how to start the SAS RFC Server. You can start the SAS RFC Server manually, or you can install the SAS RFC Server as a service to start it automatically when the PC is rebooted or on demand.

   To start the SAS RFC Server manually:

   a. Display Services by selecting the **Start** menu, then **Settings**, then **Control Panel**, then **Services**.

b.   Click **SAS RFC Service V9**.

c.   Click the **Start** button.

The optional parameter for the TCP/IP port may be used. If you include the TCP/IP port parameter on the install command, the service will always start with that port.

To install as a service and start the SAS RFC Server whenever the PC is rebooted, enter the following at a command prompt:

```
cd \Program Files\SAS\SAS 9.1\access\sasexe

sasrfc_server –i2
```

To install as a service and start the SAS RFC Service on demand, enter the following at a command prompt:

```
cd \Program Files\SAS\SAS 9.1\access\sasexe

sasrfc_server –i3
```

Note: *To install the Unicode RFC server as a service, use the above mentioned command replacing* `sasrfc_server` *with* `sasrfc_serveru`*.*

Windows, Remote Server

The SAS RFC Server can be installed as a service in a post-installation step after SAS/ACCESS Interface to R/3 software has been loaded. For a complete description of the SAS RFC Server command, refer to *SAS/ACCESS 9.1 Interface to R/3: User's Guide*, Chapter 5, "Using the RFC Server."

1.   Create a directory for the SAS RFC Server, for example `c:\SAS\SASRFC`.

2.   Download the file `ntsasrfc.exe` from the machine where SAS/ACCESS Interface to R/3 software is installed into the installation directory on the Windows machine. If you download the file from a UNIX machine, the file is located in `!SASROOT/misc/dbi`; if you download the file from a Windows machine, the file is located in `!SASROOT\access\sasmisc`; on an OpenVMS Alpha machine, the file is located in `SAS$ROOT[MISC.R3]`; on z/OS the file is in installed as an UNIX file system component and is located at `/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi`.

3.   **Double-click** the self-extracting **`ntsasrfc.exe`** file to extract the files into the installation directory.

4.   The SAS RFC Server requires the SAP RFC library.

The recommended way to install the RFC library is to install the SAP GUI or the RFC Software Development Kit (RFC SDK) from SAP AG.

Follow the download instructions per SAP Note 413708. Refer to SAP Note 413708 for a list of required DLLs.

5.   You have several options on how to start the SAS RFC Server. You can start the SAS RFC Server manually, or you can install the SAS RFC Server as a service to start it automatically when the PC is rebooted or on demand.

To start the SAS RFC Server manually:

a.   Display Services by selecting the **Start** menu, then **Settings**, then **Control Panel**, then **Services**.

b.   Click **SAS RFC Service V9**.

c.   Click the **Start** button.

The optional parameter for the TCP/IP port may be used. If you include the TCP/IP port parameter on the install command, the service will always start with that port.

To install as a service and start the SAS RFC Server whenever the PC is rebooted, enter the following at a command prompt:

```
cd \sas\sasrfc

sasrfc_server –i2
```

To install as a service and start the SAS RFC Service on demand, enter the following at a command prompt:

```
cd \sas\sasrfc

sasrfc_server –i3
```

Note: *To install the Unicode RFC server as a service, use the above mentioned command replacing* sasrfc_server *with* sasrfc_serveru.

UNIX, SAS System Host

For the RFC server on UNIX, the SAP RFC library must be installed. This shared library is provided by SAP AG. Download the shared library for your platform per instructions in SAP Note 413708. For the RFC server on Linux, download the 32-bit version; for all other UNIX platforms, download the 64-bit version of the RFC Library.

The SAS RFC Server uses the shared library for RFC and other shared libraries. You must add the location of the shared libraries to one of the system environment variables. Typically, these environment variables are set in a user's `.profile`, `.kshrc`, or `.cshrc` file. You must also set the SASROOT environment variable to your SAS installation directory before setting the environment variables as shown in the following examples. Replace *your_rfclib_directory* with the directory where the RFC shared library is installed.

The location of the SAS RFC Server must be added to the PATH environment variable.

For AIX

- Set LIBPATH to point to the shared libraries:
    - For Bourne shell:
      ```
      LIBPATH=your_rfclib_directory:$LIBPATH

      export LIBPATH
      ```
    - For C shell:
      ```
      setenv LIBPATH your_rfclib_directory:$LIBPATH
      ```
- Set PATH to point to the SAS RFC Server:
    - For Bourne shell:
      ```
      PATH=$SASROOT/saspgm/dbi/bin:$PATH

      export PATH
      ```
    - For C shell:
      ```
      setenv PATH $SASROOT/saspgm/dbi/bin:$PATH
      ```

For HP-UX

- Set SHLIB_PATH to point to the shared libraries:
    - For Bourne shell:

        ```
        SHLIB_PATH=your_rfclib_directory:$SHLIB_PATH

        export SHLIB_PATH
        ```
    - For C shell:

        ```
        setenv SHLIB_PATH your_rfclib_directory:$SHLIB_PATH
        ```
- Set PATH to point to the SAS RFC Server:
    - For Bourne shell:

        ```
        PATH=$SASROOT/saspgm/dbi/bin:$PATH

        export PATH
        ```
    - For C shell:

        ```
        setenv PATH $SASROOT/saspgm/dbi/bin:$PATH
        ```

For Tru64 UNIX, Linux, and Solaris

- Set LD_LIBRARY_PATH to point to the shared libraries:
    - For Bourne shell:

        ```
        LD_LIBRARY_PATH=your_rfclib_directory:$LD_LIBRARY_PATH

        export LD_LIBRARY_PATH
        ```
    - For C shell:

        ```
        setenv LD_LIBRARY_PATH your_rfclib_directory:$LD_LIBRARY_PATH
        ```
- Set PATH to point to the SAS RFC Server:
    - For Bourne shell:

        ```
        PATH=$SASROOT/saspgm/dbi/bin:$PATH

        export PATH
        ```
    - For C shell:

        ```
        setenv PATH $SASROOT/saspgm/dbi/bin:$PATH
        ```

UNIX, Remote Server

1. Create a directory for the SAS RFC Server, for example `/usr/local/sas/sasrfc`.

2. Download the tar file from the machine where SAS/ACCESS Interface to R/3 software is installed into the installation directory on the UNIX machine. Select the appropriate file for your UNIX system. If you download the file from another UNIX machine, the files are located in `!SASROOT/misc/dbi`; if you download the file from a Windows machine, the file is located in `!SASROOT\access\sasmisc`; on an OpenVMS Alpha machine, the file is located in `SAS$ROOT[MISC.R3]`; on z/OS the file is in installed as an UNIX file system component and is located at `/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi`.

    a. Select **`aixrrfc.tar`** for AIX.

    b. Select **`aosfrfc.tar`** for Tru64 UNIX.

    c.   Select **hpuxrfc.tar** for HP-UX, and Select **h6irfc.tar** for HP-UX for the Itanium Processor.

    d.   Select **sol2rfc.tar** for Solaris.

    e.   Select **osrfc.tar** for UNIX System Services (USS) – Open Edition.

3.   Change to the target installation directory. For example, issue the following command:

```
cd /usr/local/sas/sasrfc
```

4.   To extract the files, issue the following command. Replace *hpuxrfc.tar* with the correct filename.

```
tar xvof hpuxrfc.tar
```

5.   For the RFC server on UNIX, the SAP RFC library must be installed. This shared library is provided by SAP AG. Download the shared library for your platform per instructions in SAP Note 413708. For the RFC server on Linux, download the 32-bit version; for all other UNIX platforms, download the 64-bit version of the RFC Library.

The SAS RFC Server uses the shared library for RFC and other shared libraries. You must add the location of the shared libraries to one of the system environment variables. Typically, these environment variables are set in a user's .profile, .kshrc, or .cshrc file. You must also set the RFCHOME environment variable to your SAS RFC Server installation directory before setting the environment variables as shown in the following example. Replace *your_rfclib_directory* with the directory where the RFC shared library is installed.

The location of the SAS RFC Server must be added to the PATH environment variable.

For AIX

- Set LIBPATH to point to the shared libraries:
    - For Bourne shell:

        ```
        LIBPATH=your_rfclib_directory:$LIBPATH

        export LIBPATH
        ```

    - For C shell:

        ```
        setenv LIBPATH your_rfclib_directory:$LIBPATH
        ```

- Set PATH to point to the SAS RFC Server:
    - For Bourne shell:

        ```
        PATH=$RFCHOME/sr3/saspgm/bin:$PATH

        export PATH
        ```

    - For C shell:

        ```
        setenv PATH $RFCHOME/sr3/saspgm/bin:$PATH
        ```

For HP-UX

- Set SHLIB_PATH to point to the shared libraries:
    - For Bourne shell:

        ```
        SHLIB_PATH=your_rfclib_directory:$SHLIB_PATH

        export SHLIB_PATH
        ```

- o For C shell:

  ```
  setenv SHLIB_PATH your_rfclib_directory:$SHLIB_PATH
  ```

- Set PATH to point to the SAS RFC Server:

  - o For Bourne shell:

    ```
    PATH=$RFCHOME/sr3/saspgm/bin:$PATH

    export PATH
    ```

  - o For C shell:

    ```
    setenv PATH $RFCHOME/sr3/saspgm/bin:$PATH
    ```

For Compaq Tru64 UNIX, Linux, and Solaris

- Set LD_LIBRARY_PATH to point to the shared libraries:

  - o For Bourne shell:

    ```
    LD_LIBRARY_PATH=your_rfclib_directory:$LD_LIBRARY_PATH

    export LD_LIBRARY_PATH
    ```

  - o For C shell:

    ```
    setenv LD_LIBRARY_PATH your_rfclib_directory:$LD_LIBRARY_PATH
    ```

- Set PATH to point to the SAS RFC Server:

  - o For Bourne shell:

    ```
    PATH=$RFCHOME/sr3/saspgm/bin:$PATH

    export PATH
    ```

  - o For C shell:

    ```
    setenv PATH $RFCHOME/sr3/saspgm/bin:$PATH
    ```

For UNIX System Services (USS) – Open Edition

- Set LIBPATH to point to the shared libraries:

  ```
  export LIBPATH=$RFCHOME:your_rfclib_directory:$LIBPATH
  ```

- Set PATH to point to the SAS RFC Server:

  ```
  export PATH=$RFCHOME:$PATH
  ```

z/OS, SAS System Host

The SAS RFC Server runs on UNIX System Services (USS).

1. The USSUNTAR process outlined in the *Configuration Guide for SAS 9.1.3 Foundation for z/OS* transfers the R3 files to HFS. If you have not run this process, refer to the section "Installing UNIX File System Components" in Chapter 1 of the *Configuration Guide* to complete this process first before continuing.

2. Use the following command to extract the files for the SAS RFC Server. The command should be issued in the target installation directory for the SAS RFC Server, for example `/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbiu`.

```
cd /usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi

tar –xvof osrfc.tar
```

3. For the RFC server on UNIX System Services, the SAP RFC library must be installed. This shared library is provided by SAP AG. Download the shared library for your platform per instructions in SAP Note 413708. For the RFC server on Linux, download the 32-bit version; for all other UNIX platforms, download the 64-bit version of the RFC Library.

   The SAS RFC Server uses the shared library for RFC and other shared libraries. You must add the location of the shared libraries to the LIBPATH environment variable. Typically, the environment variable is set in a user's `.profile` or `.kshrc` file. Replace *your_rfclib_directory* with the directory where the RFC shared library is installed.

   The location of the SAS RFC Server must be added to the PATH environment variable.

   ```
   export LIBPATH=/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi:your_rfclib_directory:$LIBPATH

   export PATH=/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi:$PATH
   ```

Post-Installation Setup for the BAPI Connector (CALLRFC)

Overview

The BAPI Connector was developed to allow call from SAS to any RFC function. This includes BAPIs implemented as RFCs in SAP. The SAP functions called using the BAPI Connector have to be RFC-enabled, synchronous, and have no user interaction.

The BAPI Connector can also be used to read data from SAP systems, perform certain calculations in SAP, and then load data into an SAP system.

Please note that certain BAPIs may require additional authorizations, depending on the way the BAPI is implemented and which authorization object it uses.

The BAPI Connector now uses the RFC Server. No further post-installation setup is required for the BAPI Connector (CALLRFC).

Installing SAS/ACCESS Interface to R/3 Software Components

Prerequisites

SAPGUI

The installation of the components in SAS/ACCESS Interface to R/3 software requires SAPGUI software to be installed on your PC or workstation.

Note: *Although it is not absolutely necessary to have the SAPGUI installed on the same PC or workstation where SAS/ACCESS Interface to R/3 software is going to be installed, you need access to the SAPGUI during the installation. Because the usage of the SAPGUI is to complement SAP functionality, it is recommended that the SAPGUI be installed on the same PC or workstation.*

SAP Administrator ID

A valid SAP user ID and password is required. The user must have permission to transport files and for RFC destination maintenance.

It is *strongly recommended* to get assistance from your SAP System Administrator to perform these tasks.

Step 1 - Install ABAP programs and function modules.

Transport files have been included in SAS/ACCESS Interface to R/3 software. These transport files include all of the components needed to run SAS/ACCESS Interface to R/3 software.

You can view the source code for the ABAP programs and function modules in `!SASROOT/misc/dbi/*.ab4` or `!SASROOT\access\sasmisc\*.ab4`.

Transport	Objects	Purpose	To be applied to
SAPKA91312INSAS *Note: This transport must be installed first.*	Package `/SAS/COMMON` Function group `/SAS/COMMON` includes function module `/SAS/Z_SAS_DIALOG` ABAP program /SAS/Z_SAS_READ	Supports SAS SAP libname engine	all SAP systems to be accessed by SAS
SAPKA91302INSAS	Package `/SAS/SETS` Function group `/SAS/SETS` includes function modules `/SAS/Z_SAS_G_SET_LIST_SELECT` and `/SAS/Z_SAS_G_SET_TREE_IMPORT`	Supports set/hierarchy extraction from SAP R/3 systems	Only SAP R/3 systems
SAPKB90101INSAS	Package `/SAS/BWMETADATA` Function group `/SAS/BWMETADATA` includes function module `/SAS/Z_SAS_IOBJ_GETDETAIL_LIST`	Supports metadata extraction for SAS/ACCESS to SAP BW software; optional	SAP BW systems
SAPKA90103INSAS	Package `/SAS/V8COMPAT` Function group `/SAS/V8COMPAT` includes function module `/SAS/Z_SAS_READ_TABLE_V8COMPAT`	Supports V8 compatibility of the V9 RFC Server and is used together with the ABAP programs installed with the SAS/ACCESS Interface to R/3, V8; optional	SAP systems that need to be accessed via V8 compatibility mode
SAPKA91202INSAS	Package `/SAS/UTILITY` Function group `/SAS/UTILITY` includes function module `/SAS/CALLBACK_METADATA` and `/SAS/PROCESS_VARIANT`	Utility routines for the CALLRFC procedure	all SAP systems
SAPKH91305INSAS	Package `/SAS/HRCL` Function group `/SAS/HRCL` includes function module `/SAS/HRCL_SUBMIT` ABAP program `/SAS/HRCL_EXTRACT`	Supports HR cluster table extraction	SAP R/3 systems; not for SAP BW systems

Transport	Objects	Purpose	To be applied to
SAPKA92004INSAS	Package `/SAS/V8BCOMPAT`	Supports V8 batch compatibility	SAP systems that need to be accessed via V8 batch compatibility mode
	Function group `/SAS/V8BCOMPAT`		
	ABAP program `/SAS/ZSASV8BCOMPAT`		
SAPKA91313INSAS	Package `/SAS/RFCMON`	RFC server monitor	all SAP systems
	Program `/SAS/RFCMON` and Transaction `/SAS/RFCMON`		

Table 2 – Transports

To upload the transport files to your SAP R3 systems, follow the instructions below. The instructions are based on the usage of the tp program (a utility for transport between SAP systems) on the operating system level.

1. Log in as SAP System Administrator to the SAP application server.

2. Move the transport files into the appropriate directories on your SAP systems.

   For SAP application servers on Windows

   Copy the `r3trans.exe` file located in `!SASROOT\access\sasmisc` (the SAS installation on Windows), in `!SASROOT/misc/dbi` (the SAS installation on UNIX), `SAS$ROOT[MISC.R3]` (the SAS installation on OpenVMS Alpha) or `/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi` (on z/OS UNIX File System) to your SAP application server and extract the self-extracting `.exe` file into the transport directory (for example, `<drive>:\usr\sap\trans`). The files for all transports will be put into the cofiles and data subdirectory.

   For SAP application servers on UNIX

   Copy the `r3trans.tar` file located in `!SASROOT\access\sasmisc` (the SAS installation on Windows) or in `!SASROOT/misc/dbi` (the SAS installation on UNIX), `SAS$ROOT[MISC.R3]` (the SAS installation on OpenVMS Alpha) or `/usr/lpp/SAS/SAS_9.1/USER.PRE.FIX/dbi` (on z/OS UNIX File System) to your SAP application server and extract the files into the transport directory (for example, `/usr/sap/trans`).

   Assuming the tar file is downloaded to the user's HOME directory, follow these procedures to extract the files into the cofiles and data subdirectory in `/usr/sap/trans`.

   ```
   cd /usr/sap/trans

   tar –xvf $HOME/r3trans.tar
   ```

3. Go to the transport program directory.

   For Windows:

   ```
   <drive>:
   cd \usr\sap\trans\bin
   ```

   For UNIX:

   ```
   cd /usr/sap/trans/bin
   ```

4. Load the transport into the transport buffer with the following command. Replace `<target sid>` with the system ID for your SAP system.

   ```
   tp addtobuffer  SAPKA91312INSAS <target sid>
   ```

Note: *Make sure you are using the correct profile for the transport control program tp. In some cases it might be necessary to use the parameter pf= to specify the TPPARAM file.*

Note: *Because the transport file uses a long name, the nbufform=true TP option must be set. The option can either be maintained in the SAP system using transaction STMS, or it can be specified as a parameter to the tp command. Additionally the TP option tp_version= must be set to at least 264 to allow the long names.*

Considering these two notes, the tp commands might require additional parameters. Replace `<sid>` with the system ID for the SAP system.

Important: *The tp commands listed on several lines in the following examples should be entered on a **single** command line. Be sure to include a space before adding the text from each of the following lines.*

For Windows:

```
tp addtobuffer SAPKA91312INSAS <sid>
pf=\usr\sap\trans\bin\TP_DOMAIN_<sid>.PFL –D"nbufform=true"
–D"tp_version=264"
```

For UNIX:

```
tp addtobuffer SAPKA91312INSAS <sid>
pf=/usr/sap/trans/bin/TP_DOMAIN_<sid>.PFL –D"nbufform=true"
–D"tp_version=264"
```

Note: *If the transport files are imported into a Unicode SAP system, use the transport profile parameter "setunicodeflag=true" to force setting the Unicode flags in the imported programs. Refer to SAP Note 330267 for more details.*

For Windows and Unicode SAP Server:

```
tp addtobuffer SAPKA91312INSAS <sid>
pf=\usr\sap\trans\bin\TP_DOMAIN_<sid>.PFL –D"nbufform=true"
–D"tp_version=264" –D"setunicodeflag=true"
```

5. Import the transport.

   Test your connection to the target system and then import the transport with the following commands. Replace `<target sid>` with the system ID for your SAP system.

   ```
   tp connect <target sid>
   ```

   ```
   tp import SAPKA91312INSAS <target sid> U2
   ```

   Note*: The U2 option allows the originals to be overwritten if the user has previously installed these ABAP objects.*

   Note: *Make sure you are using the correct profile for the transport control program tp. In some cases it might be necessary to use the parameter pf= to specify the TPPARAM file.*

   Note: *Because the transport file uses a long name the nbufform=true TP option must be set. The option can either be maintained in the SAP system using transaction STMS, or it can be specified as a parameter to the tp command. Additionally the TP option tp_version= must be set to at least 264 to allow the long names.*

   Note: *The transports contain only client-independent ABAP objects. The tp import can therefore use any existing client that is correctly set up for imports. Verify that the ABAP program RDDIMPDP is correctly scheduled in the client you use for the import.*

   Considering these notes, the tp commands might require additional parameters. Replace `<sid>` with the system ID for the SAP system.

For Windows:

```
tp import SAPKA91312INSAS <sid> pf=\usr\sap\trans\bin\TP_DOMAIN_<sid>.PFL
-D"nbufform=true" -D"tp_version=264"
```

For UNIX:

```
tp import SAPKA91312INSAS <sid> pf=/usr/sap/trans/bin/TP_DOMAIN_<sid>.PFL
-D"nbufform=true" -D"tp_version=264"
```

For Windows and Unicode SAP Server:

```
tp import SAPKA91312INSAS <sid> pf=\usr\sap\trans\bin\TP_DOMAIN_<sid>.PFL
-D"nbufform=true" -D"tp_version=264" -D"setunicodeflag=true"
```

Check the exit code. If you receive an error of 8 or higher, the import failed. You must resolve the problem and re-import the transport. Check the transport logs for more information.

6. Repeat steps 4 and 5 for each of the transports applicable to your SAP installation.

Step 2 - Maintain RFC destinations.

Note: *If the SAS RFC Server will execute requests using the SAP batch processing facility (***recommended***), you must complete this step.*

SAP uses RFCs to communicate with other computers and programs on its network. In order for this to take place, there are administrative setup steps to define these computers and the logical processes that run on the network. The transaction where this setup takes place is SM59. For the purpose of the batch RFC server, we are only concerned with the TCP/IP connection setup.

In order to use the batch RFC functionality, you will need to set up RFC destinations. A destination must be set up on the SAP system for each SAS RFC Server that is accessing the SAP application server.

The RFC destination (located under SM59, TCP/IP connections) allows the batch program running in SAP to know where the batch RFC server is running. The batch program uses this destination to send back the requested data.

For example, if two SAS RFC Servers will access data from a SAP system, two destinations have to be set up. In this example, two destinations—SASDEST1 and SASDEST2—could be created to represent the location "test" with the following attributes:

RFC Destination	SASDEST1
Connection Type	T (TCP/IP Connection)
Activation Type	Registration
Program ID	TEST.1SASRFCEX

RFC Destination	SASDEST2
Connection Type	T (TCP/IP Connection)
Activation Type	Registration
Program ID	TEST.2SASRFCEX

Table 3 – RFC Destinations

The program ID must be globally unique.

Note: *On Unicode SAP Systems the destination must be defined as a Unicode destination. Check the Unicode flag in the Special Options tab of the RFC Destination definition screen.*

Step 3 - Create variants.

Note: *This step is only required if the SAS RFC Server will execute requests using the SAP batch processing facility.*

For each defined RFC destination, a variant needs to be created that references the destination. Note that variants are client-dependent.

A variant is a SAP convention of allowing parameters to be passed to an ABAP program at runtime. It offers a flexible method of setting ABAP parameters without making a change to the ABAP program. A variant contains the values that are expected by the ABAP program at runtime. By going to transaction SE38 and selecting the variant radio button for a given program, the user can set the runtime values. The ABAP variant is written using Select-Options statements where the input variables are defined.

Using the example for creating destinations, one variant would be created for Program /SAS/Z_SAS_READ (go to transaction SE38, select the variant radio button, select Change, and select Create Variant/Sub-Objects Values). The default value for G_BUFMAX is 10000. Worthwhile performance gains can be made in fast network configurations by specifying larger values for G_BUFMAX (for example, 1000000).

ZVARIANT1	
G_BUFMAX	10000
G_DEST	SASDEST1

ZVARIANT2	
G_BUFMAX	10000
G_DEST	SASDEST2

Table 4 – Variants

In the example below, two batch RFC servers could be started on two different hosts.

Server1:

```
sasrfc_server –p 6999 –V ZVARIANT1 –d 1
```

Server2:

```
sasrfc_server –p 6999 –V ZVARIANT2 –d 1
```

Refer to the SAS*/ACCESS 9.1 Interface to R/3: User's Guide*, Chapter 5, "Using the RFC Server" for more details.

The Data Dictionary Extract

Note: *If you are using the SAS Data Surveyor for SAP as the front-end to manage the SAP data access, use the SAS Management Console for the data dictionary extract.*

SAS/ACCESS Interface to R/3 software uses a copy of metadata from the SAP system for navigation and to generate the program to read SAP data. Extracting the necessary metadata from the SAP data dictionary is part of the installation process. Before starting the dictionary extract process, the SAS RFC Server must be installed and the SAP system must be configured for SAS/ACCESS Interface to R/3 software.

If the SAP systems, such as Development and Production, are at the same level/version/release, then extract only the data dictionary from the SAP Development system. However, if the level/version/release of other system(s) are different from that of the Development system, extract

the data dictionary for each different system. This is necessary because metadata is different for each level/version/release of the SAP system.

If new SAP system structures are added or existing ones are changed, re-extract the metadata to reflect those changes.

Step 1 - Start the SAS RFC Server.

Make sure the environment is set up as described in "Post-Installation Setup for the SAS RFC Server" on page 9. For a complete description of the SAS RFC Server command, refer to *SAS/ACCESS 9.1 Interface to R/3: User's Guide*, Chapter 5, "Using the RFC Server."

To start the SAS RFC Server on UNIX, the following example command could be issued:

```
sasrfc_server –d 1 –p 6999
```

To start the SAS RFC Server on Windows, simply start the RFC service.

Step 2 - Log on to the SAP system.

Use the graphical user interface—the Application—of SAS/ACCESS Interface to R/3 software to connect to the SAP system. To start the graphical user interface, enter **%r3access** on the command line of the SAS session. Double-click the **Logon** icon. In the **Logon to R/3** window and in the **Advanced Parameters** window, enter the connection parameters. Table 5 lists the connection parameters and corresponding comments.

Note: *Some of the logon parameters previously used in Version 8 of the SAS System are obsolete in Version 9.*

Parameter	Comment
Connection ID	SAS internal connection identifier (7 characters, SAS name); default: `CONN1`
TCP/IP host	name of the SAS RFC Server host; default: `localhost`
TCP/IP port	port number for SAS RFC Server; default: `6999`
User ID (RFC)	mandatory SAP user ID
Password (RFC)	mandatory SAP password
Client (RFC)	mandatory SAP client. Client is always three characters and includes leading zeros, for example 040.
Language (RFC)	mandatory SAP logon language
Destination (RFC)	name of the RFC destination as defined in a sideinfo file. If a sideinfo file is used, specify the RFC destination and leave the RFC host field blank. Either the RFC destination or the RFC host must be specified, but not both.
Host (RFC)	host name of the SAP target system. Specify the host name in this field only if no sideinfo file is used. Either the RFC destination or the RFC host must be specified, but not both.
System number	system number of the SAP target system; default: `00`
Gateway service	the gateway service of the intermediate gateway of the form sapgw*nn*, where *nn* is the system number; default: `sapgw00`
Gateway host	the hostname of the intermediate gateway

Table 5 – Connection Parameters

Note: *Two SAP systems, such as Development and Production, can run on one machine. If no sideinfo file is available, set the system number (SYS) and gateway service (GWSERV) fields in the connection parameters to access the correct SAP system.*

Note: *The sideinfo file contains side information for the SAS RFC Server to communicate with the SAP System Application Server (ABAP function module). For example:*

```
DEST=mydest
LU=host1
TP=sapdp00
GWHOST=host1
GWSERV=sapgw00
PROTOCOL=I
```

Using a `sideinfo` File with the SAS RFC Server on UNIX

1. Edit/create the sideinfo file (named `sideinfo`).

2. Copy the sideinfo file into the desired location (for example, `!SASROOT/saspgm/bin`).

3. At a command prompt or in the user/system environment, set the environment variable `SIDE_INFO` to the fully qualified path name, for example:

   for csh:

   ```
   setenv SIDE_INFO /usr/local/sas/saspgm/bin/sideinfo
   ```

   for ksh:

   ```
   export SIDE_INFO=/usr/local/sas/saspgm/bin/sideinfo
   ```

Using a `sideinfo` File with the SAS RFC Server on Windows NT

1. Edit/create the sideinfo file (named `sideinfo`).

2. Copy the sideinfo file into the desired location (for example, `!SASROOT\access\sasexe`).

3. Set the environment variable `SIDE_INFO` to the fully qualified path name (for example `SET SIDE_INFO=c:\sas\sr3\sideinfo`).

Step 3 - Start the extraction program.

A wizard interface guides you through loading the metadata into SAS. To start the wizard, double-click the **Wizard to Load Metadata** icon.

In the **Select Import type** window, choose either **Data Dictionary** or **R/3 Hierarchy** and click **Next**.

In the **Connection** window, enter the connection ID, the language for the metadata extract, and the SAP release. Select if the new metadata should be merged into the existing extract. Click the **Next** button.

In the **Metadata Destination** window, select the SAS library for the metadata extract. The library R3LIB is the default value used in SAS/ACCESS Interface to R/3 software. Click the **Next** button.

In the **Metadata Selection** window, select the metadata to be extracted from the SAP system. You can subset the metadata extract by selecting or deselecting components of the metadata. To subset the table and field extraction, select the **Range** button and enter a range of tables in the **Table Subset** window. In the **Metadata Selection** window, click the **Next** button.

In the **Select File** window, you can enter a file name for the SAS extraction program to be saved to. You can use the file to repeat the metadata extract or set up SAS batch jobs for the extract. Click the **Next** button.

In the **Begin Metadata Extract** window, review your settings and click the **Finish** button to start the metadata extract.

Step 4 - Log off from the SAP system.

Use the graphical user interface—the Application—to log off.

Installation of the basic configuration is now complete. To ensure it has been successful, follow the directions in "Chapter 4 — Start SAS/ACCESS Interface to R/3 Software" to start and test the installation.

Data Dictionary Extract in Batch

The SAS sample program `sr3bprof.sas` contains an example of how to create a profile entry with the connection parameters and how to log on to SAP using the profile.

Modify the sample program `sr3bprof.sas` to log on to SAP in batch. For example:

```
/* Use sr3bprof.sas to create the profile. */
/* Logon to R/3. See program sr3bprof.sas */
%r3connb(profile=&profile, libref=&library, function=OPEN);
/* Assign the libref for the Data Dictionary Extract(s). */
libname r3lib 'the-location-of-the-Extracts';
/* Extract the Data Dictionary Information. */
%extrr3dd(conn=&cconn, language=E, merge=N, outlib=R3LIB);
/* Logoff. */
%r3connb(conn=&conn, function=CLOSE);
```

Chapter 4 — Start SAS/ACCESS Interface to R/3 Software

To start SAS/ACCESS Interface to R/3 software from SAS 9.1.3, enter `%r3access` on the SAS command line.

Test the Installation

1. Using the graphical user interface—the Application—**Click** the **List of tables** icon.

2. Enter the table name `T000`.

3. Click the **Properties** button.

4. Click the **Show Data** button.

If table `T000` is displayed correctly, then the installation is working correctly.

Functionality

If no connection to the SAP system is available, most of the functionality of SAS/ACCESS Interface to R/3 software, like navigating the data model, creating SAS Views to SAP tables, and exporting metadata, is unaffected.

However, data extraction requires that the SAS RFC Server is running. If the SAS RFC Server is not running, a return code is generated. For more information, see "Step 1 - Start the SAS RFC Server." For a complete description of the SAS RFC Server command, refer to *SAS/ACCESS 9.1 Interface to R/3: User's Guide*, Chapter 5, "Using the RFC Server."

Appendix A — Selected SAP Transaction Codes

Below is a list of transaction codes that might be useful during installation.

Enter the transaction code in the SAPGUI command line preceded by /n (a slash followed by the letter n). For example, to call the ABAP editor, enter /nse38.

Note: *Commands are not case-sensitive.*

Authorizations, Profiles, and Users	
SU01	Maintain Users
SU02	Maintain Profiles
SU03	Maintain Authorizations

ABAP Functions and Programs	
SE37	Function Library Alternatively, from the SAP system main menu, select **Tools**, then **ABAP Workbench**. Click the **Function Library** button to view the **ABAP Function Library: Initial Screen** window.
SE38	ABAP Editor Alternatively, from the SAP system main menu, select **Tools**, then **ABAP Workbench**. Click the **ABAP Editor** button to view the **ABAP Editor: Initial Screen** window. **Transaction SE38 is also used to define variant for an ABAP program.**
SE80	Repository Browser Alternatively, from the SAP system main menu, select **Tools**, then **ABAP Workbench**. Click the **Repository Browser** button to view the **Repository Browser: Initial Screen** window.

View Tables and Table Maintenance	
SE16	Display a table
SM31	Table maintenance

Job Maintenance	
SM37	Can be used to display the job status.

System Log	
ST22	ABAP dump analysis
SM21	System log

RFC Destinations	
SM59	Display and maintain RFC destinations

Appendix B — Error Messages

All Operating Systems

Gateway Service not found

ERROR: Gateway service sapgwnn not found

Check that the TCP/IP services file contains the required entries. Also see the section "Connectivity" in Chapter 2.

Hostname not found

ERROR: Host hostname not found

Check that the TCP/IP hosts file contains an entry for the specified host or use the IP address. Also see the section "Connectivity" in Chapter 2.

Appendix C — Pre-Installation Checklist

Before installing SAS/ACCESS Interface to R/3 software, the following information must be available. Documenting the information identified in Appendix C and Appendix D significantly simplifies installation and on-going maintenance.

The checklist is broken down into sections A, B, and C. Section A is general information and can be provided by the SAS Account Representative. Section B should be completed by the person maintaining the SAS environment. Section C should be completed by the person maintaining the SAP environment.

Section B clarifies where SAS/ACCESS Interface to R/3 software is to be installed and where the extracted SAP metadata is to reside. Section C clarifies which SAP systems you want to access.

Section A - General Information

Date:
Company Name:
Address:
Name of SAS Account Representative: Phone Number: E-mail:
Name of SAS Contact (responsible for the installation): Phone Number: E-mail:
Name of Customer Contact: Phone Number: E-mail:

Section B - SAS Environment

SAS/ACCESS Interface to R/3 Software – Application

Name of SAS Contact: Phone Number: E-mail:
Name of Network Contact: Phone Number: E-mail:
Host Name:
IP Address:
Operating System Version:
Operating System User ID and Password: If Windows, does the User ID has administrator rights? ☐ Yes
Windows Screen-saver Password:
Path where SAS 9.1.3 is installed, for example `c:\Program Files\SAS\SAS 9.1` **or** `/usr/local/sas`:
Does SAS Installation Data (SETINIT) include SAS/ACCESS to R/3 software (provided by SAS)? ☐ Yes
If UNIX, does it have X Windows? ☐ Yes
UNIX Root Password:

Data Dictionary Extract(s)

If you have multiple versions of SAP (for example, release 4.0B and 4.5B), then SAP metadata has to be extracted from each version of the system. Complete one of these tables for each metadata extract.

Host Name: IP Address (typically from the machine that has SAS/ACCESS Interface to R/3 software):
Drive/Path where Data Dictionary is to be installed:
For SAP, Release 4.x or higher, 500 MB of disk space is required. Is the disk space available? ☐ Yes

SAS Views on Separate Machine

Host Name:
IP Address:
Operating System Version:
Operating System User ID and Password: If Windows, does the User ID has administrator rights? ☐ Yes
Windows Screen-saver Password:
UNIX Root Password:
Path where SAS 9.1.3 is installed, for example `c:\Program Files\SAS\SAS 9.1` or `/usr/local/sas`:
Does SAS Installation Data (SETINIT) include SAS/ACCESS to R/3 software (provided by SAS)? ☐ Yes

Section C - SAP System Environment

General Information

Name of SAP Administrator (available to help with installation): Phone Number: E-mail:
Name of SAP System Developer (available to help with installation): Phone Number: E-mail:
SAPUser ID: Client: User ID: Password:

SAS RFC Server

Complete one of these tables for each SAS RFC Server.

Host Name:
IP Address:
Windows NT Location of `librfc32.dll` (for example `c:\sappc\sapgui\rfcsdk\bin`):
UNIX location of the thread safe shared library for RFC (download the shared library for your platform per instructions in SAP Note 413708):
TCP/IP Port Number (default 6999):
TCP/IP hosts File Entry for SAP System Application Server (for example, 1.2.3.4 r3server):
TCP/IP services File Entries (for example, `sapdp00 3200/tcp`):

SAP System

This is information about the SAP system from which you want to pull data. Complete one of these tables for each SAP system you want to access.

SAP System Application Server Host Name:
IP Address:
SAP System Release (for example, 4.5B):
System ID (for example, A01):
Is the sideinfo file used for communication parameters? ☐ Yes If yes, full path and name of sideinfo file:
RFC Dialog User ID: Client: User ID: Password:
System Number (SYS) (for example, 00):
Language (for example, EN for English):
Gateway Host (if different):
Gateway Service (for example, sapgw00):
Transaction Program (for example, sapdp00):

SAPGUI

Host Name where SAPGUI is installed:
If UNIX, does it have X Windows? ☐ Yes?

Appendix D — Installation Checklist

During installation, make a note of the following information.

Location of Data Dictionary Extract(s) (for example, `c:\Program Files\SAS\SAS 9.1`):
Transport Request Number (for example, A01K902092):

Appendix E — For mySAP ERP 2004: Installing the Add-On

For mySAP ERP 2004, SAS provides an add-on for the installation of the ABAP objects in the SAP System. Contact your SAS representative to request the CD for the add-on.

Note: *The add-on is only available for mySAP ERP 2004. Installing the add-on is an alternative to installing the ABAP objects by using the transport files as described in "Chapter 3 — Installing SAS/ACCESS Interface to R/3 Software." You should either install the add-on or you should apply the SAS-provided transport files, but not both.*

Use the SAP Add-On Installation Tool (transaction SAINT) to import the objects for the SAS/ACCESS Interface to R/3 into the SAP System.

1. Log in to client 000 of the SAP system with an administrator account.

2. Call the Add-On Installation Tool with transaction SAINT.

3. Choose **Installation Package** → **Load packages** → **From front end** from the menu. The system displays a dialog box for selecting the archive. Traverse the path on the CD to the `SAS42AA.SAR` file and select it.

4. To copy the archive to the application server and decompress it, select **Decompress**. The SAS/ACCESS to R/3 add-on is now listed in the Add-On Installation Tool as an installable add-on.

5. To prepare the installation queue for the add-on, select the SAS add-on, and choose **Continue**.

   a. If all import requirements are met, the installation queue is displayed.

   b. If all of the import requirements are not met, you cannot install the add-on in this SAP system. The import requirements are listed. As an alternative you can install the transport files as described in "Chapter 3 — Installing SAS/ACCESS Interface to R/3 Software."

6. To start the installation, choose the **Continue** button.

Repeat these steps to install the `SAS42AB.SAR` add-on.

Glossary

ABAP Development User

An ABAP Development User is a SAP user ID with ABAP developer permission. It is used to create the ABAP function group, the function module, and the report that are part of SAS/ACCESS Interface to R/3 software. For SAP, Release 3.0 and above, a developer user also requires an OSS Access Key. A development user ID is only required while installing SAS/ACCESS Interface to R/3 software.

Authorization

The SAP system has a powerful tool to restrict or grant permission to access certain objects in the SAP system or to perform certain actions. SAS/ACCESS Interface to R/3 software requires the permission to read tables and the permission for communication.

Client

In commercial, organizational, and technical terms, a client is a self-contained unit in an SAP system (for example, a company group, a business unit, or a corporation) with separate master records and its own set of tables.

Data Dictionary Extract

SAS/ACCESS Interface to R/3 software provides a navigation tool based on metadata from the SAP Data Dictionary. The tool operates on a copy of the metadata - the Data Dictionary Extract.

OSS Access Key

An OSS Access Key is a string of characters ABAP developers must enter the first time they create or modify ABAP objects like programs, function modules, and function groups. An OSS Access Key can be obtained from SAP AG's Online Service System (OSS).

SAP System Application Server

The components of the three-tier client/server architecture of the SAP system are database, application, and presentation layer. SAS/ACCESS Interface to R/3 software communicates with the SAP System Application Server.

RFC

The Remote Function Call (RFC) interface is SAP AG's implementation of a remote procedure call. It is provided for the integration of R/2 and R/3 systems and external programs. SAS/ACCESS Interface to R/3 software uses the RFC interface for communication and data transfer between the SAP system and the SAS RFC Server.

RFC SDK

The RFC Software Development Kit (RFC SDK) contains a library and source files to implement the communication between an external program and a function module in the SAP system.

RFC Destination

RFC destinations are used to define the location of a remote system to SAP.

RFC User

References to a RFC user indicate a SAP user ID that is used by SAS/ACCESS Interface to R/3 software for the communication between the SAS RFC Server and the function module in the SAP System Application Server.

SAS/ACCESS Interface to R/3 Software, Application

This is the graphical user interface of SAS/ACCESS Interface to R/3 software. The graphical user interface is used to navigate the metadata extracted from SAP. It generates SAS source code to read data from an SAP system.

SAS RFC Server

The SAS RFC Server is a program provided with SAS/ACCESS Interface to R/3 software. It is the component for the communication between SAS 9.1.3 and the SAP system. Several configurations are possible: the SAS RFC Server can be installed on the machine where SAS 9.1.3 is installed; the SAS RFC Server can be installed on the machine where the SAP System Application Server is installed; or the SAS RFC Server can be installed on any machine in the network. It is recommended to use one of the first two options.

SAPGUI

The SAPGUI is the front-end for the SAP system. During the installation of SAS/ACCESS Interface to R/3 software, a SAPGUI is required to install parts of the interface in the SAP system.

sideinfo File

The sideinfo file contains connection parameters. The environment variable SIDE_INFO defines the path for the sideinfo file. If the environment variable SIDE_INFO is not set, the sideinfo file must be located in the working directory. For SAS/ACCESS Interface to R/3 software, the sideinfo file can be used to define the parameters for the communication between the SAS RFC Server and a SAP system.

Variants

Variants are used to save sets of input values for ABAP programs.