Remote Communications



Release 4.6C



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Icons

lcon	Meaning
Δ	Caution
	Example
\mathbf{P}	Note
Ø	Recommendation
SYID	Syntax

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Remote Communications

Remote Communications

Overview of Remote Communications

Overview of Remote Communications

This document is a programmer's guide to remote communications that involve SAP Systems. The types of remote communications which are covered include:

- communications between two independent SAP Systems
- client-server communications between an external client and an SAP System acting as the server
- client-server communications between an SAP System acting as the client and an external server.

A major part of this document contains material which is applicable to all the SAP-supported platforms. These are the sections dealing directly with the **Remote Function Call** (RFC). RFC is SAP's platform-independent core technology for all the three types of remote communications mentioned above.

To understand the basics of RFC, you can read the section on <u>RFC Programming in ABAP [Ext.]</u>. Although it mainly deals with SAP-to-SAP communication, it also contains useful information for the programmer of external systems who uses an RFC API.

For Windows frontends, SAP provides interfaces based on Microsoft's Object Linking and Embedding technology (OLE Automation).

Interfaces Used

Communications between SAP Systems or between SAP Systems and external systems use different types of interfaces.

ABAP Interfaces [Page 7]

This section describes the Remote Function Call interfaces provided for communication between SAP Systems and with external partners. It also contains a lot of useful information for the programmer of external systems who uses an RFC API.

External Interfaces [Page 8]

This section describes the communications interfaces provided for integrating external applications and SAP Systems.

If one of the communications partners does not support RFC, you must use the underlying CPI-C interfaces. For more information on CPI-C programming, see <u>CPI-C Programmer's Guide [Ext.]</u>



ABAP Interfaces

ABAP Interfaces

RFC Programming in ABAP [Ext.]

This section explains how the RFC interface works within SAP Systems, what functionality is provided and what the technical requirements are.

ABAP as OLE Automation Controller [Ext.]

An ABAP program can call up an OLE Automation Server (such as Excel) on the desktop. The ABAP OLE Automation Controller consists of a set of ABAP language elements that an ABAP client program can use to drive an OLE Automation server on either Windows or Apple Macintosh frontends. Special OLE functions contained in the SAPGUI are called via RFC. SAPGUI represents the actual OLE client that calls the server program.

External Interfaces

External Interfaces

SAP provides several programming interfaces for integrating external applications with an SAP system. Using these interfaces you can write client/server applications that communicate with an SAP system. Your external application can act as either the client or the server to the SAP system (or sometimes both).

The following table describes the types of external interfaces to an SAP system:

Interface Type	Description
GUI	Using the GUI interfaces to R/3 you can write a client program that accesses the data stream that is communicated between the R/3 application server and its SAPGUI.
	By using the GUI interfaces your external client program can provide an alternative interface to the standard SAPGUI. This alternative interface can be either graphical or non-graphical (for example, it can be voice driven or Web-based).
	Programming using the GUI interfaces also allows your client program to monitor or record an end user interaction with SAPGUI screens.
RFC	The SAP Remote Function Call (RFC) protocol allows you to call ABAP function modules from external applications. An external application using the RFC interface can act as both the client and the server to an SAP system.
	Calling an RFC function that resides in an SAP system from an external program is similar in principle to calling an RFC function from another SAP system (from ABAP). Therefore, to learn the basic principles of RFC programming you can read the section on <u>RFC Programming in ABAP</u> [Ext.].
BAPI	SAP Business Objects provide an object-oriented view of SAP data structures and functions. The Business API (BAPI) is an interface that allows you to call the methods of these SAP Business Objects.
IDoc	Intermediate Document (IDoc) interface is an SAP standard format for exchanging data between SAP systems and between an SAP system and an external application. An IDoc document defines a SAP standard data container (template) for sending or receiving data from an SAP system.
Batch Input	Allows you to feed data into R/3 using R/3 transactions.

Tools for Programming External Applications that Integrate with SAP Systems

To help you use the above interfaces for integrating your applications with SAP systems, SAP provides various programs, tools, ActiveX components, class libraries, and templates.

The following table describes some of these tools.

Tool/Library	Description
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External Interfaces

<u>RFC API [Ext.]</u>	The RFC API is a C API (Application Programming Interface) for programming applications that use the RFC interface, that is, it allows external programs written in C to call RFC function modules in an SAP system. Using the RFC API you can develop client/server applications that act as both the client and the server to the SAP system.
<u>SAP DCOM</u> Connector [Ext.]	The SAP DCOM Connector uses services from Microsoft MTS to provide a DCOM interface for working with SAP RFC function modules and BAPIs. It provides a C++ template library for creating COM objects from the SAP business objects. Using the DCOM Connector allows you to take advantage of the distributed computing, resource sharing, and other benefits of using MTS when integrating your application with an SAP system.
SAP Automation [Ext.]	SAP automation is a suite of ActiveX components, class libraries, and other tools to help you develop applications that integrate with an SAP system from outside.
	The various SAP Automation tools allow you to take advantage of the various interface types as mentioned above (GUI, RFC, BAPI, IDoc, Batch input). The different tools offer a variety of functionality with some overlap of functionality for the different programming languages.
	Several of the SAP Automation tools allow you to program using the GUI interfaces to an SAP system.
	Other SAP Automation tools expand the functionality of the RFC API to support programming with RFC function modules, business object methods (BAPIs), IDoc interface, or batch input.
	Some of the SAP Automation tools that are based on the RFC API are also based on the SAP DCOM Connector to support distributed programming when using business objects methods (BAPIs) and RFC function modules.

Detailed Product Documentation

The documentation for the <u>RFC API [Ext.]</u> and the <u>SAP DCOM Connector [Ext.]</u> is included here, under the Remote Communications (BC-SRV-RC) component.

The complete documentation for the **SAP DCOM Connector** is available in HTML page format after you install the SAP DCOM Connector product.

The documentation for the <u>SAP Automation suite of products [Ext.]</u> includes an overview, which introduces the various tools that are part of the suite and describes when to use the various products. Detailed documentation is also available for each of the SAP Automation products.

The documentation for the SAP Automation suite of products is included here, under the Remote Communications (BC-SRV-RC) component. The same documentation also appears under the Frontend Services (BC-FES) component. The SAP Automation products and the above-mentioned documentation are also available with the SAP presentation CD.