RFC Monitoring: RFC Destinations

SAP

Transaction SM59

RFC Destination DIL_800

Remote Login | Test Connection | Unicode Test

| RFC Destination | DIL_800 |
| Connection Type | 3 | R/3 connection |

Description

R/3 Backend

Caution: Logical system for B2B -->IDES R/3

Technical Settings | Logon/Security | Special Options

Load Distr.	○ Yes	● No
Target Host	iwdf9080.wdf.sap-ag.de	01
Save As	○ Host Name ● IP Address	iwdf9080.wdf.s..

Gateway Options

| Gateway Host | | Delete |
| Gateway Service | |

R F C - Connection Test

	Connection Test DII_800	
Connection Type	R/3 connection	
Logon:	303	msec
0 Kbytes:	4	msec
10 Kbytes:	5	msec
20 Kbytes:	6	msec
30 Kbytes:	8	msec

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■ You have two options for testing a destination:

- You can attempt to log on to the remote system. To do this, choose Remote Login. A new session is opened for the remote system. Enter the client, your user name, and your password.

- With a connection test (*Test Connection*), the system attempts to create a connection to the target system and displays a table with response times. If an error message appears, check your settings.

Outlook: Types of RFC communication

SAP

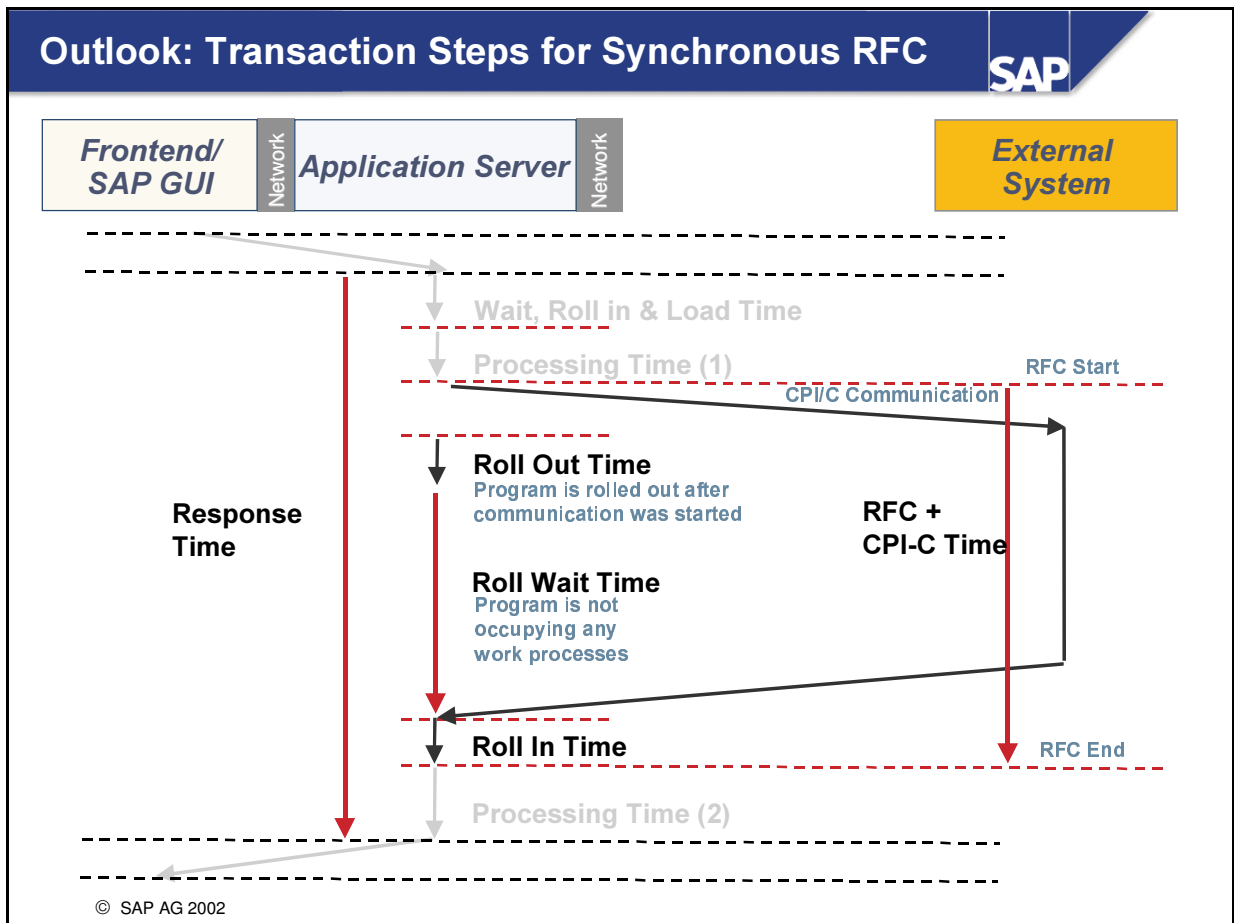- **There are four types of RFC communication:**
  - **Synchronous RFC**
    - **For communication between systems**
    - **For communication from SAP Web Application Server to SAP GUI**
  - **Asynchronous RFC**
    - **For communication between systems**
    - **For parallel processing**
  - **Transactional RFC**
    - **Extension of asynchronous RFC**
    - **For secure communication between systems**
  - **Queued RFC**
    - **Extension of transactional RFC**
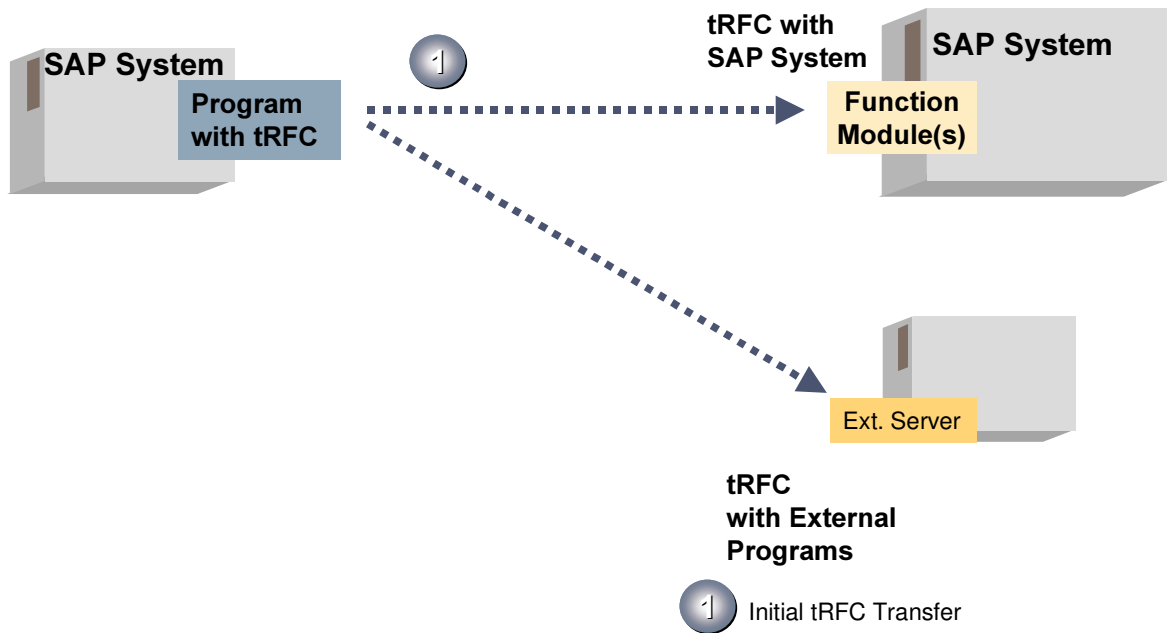   - **For a defined processing sequence**

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- RFC is a superordinate term for various implementations. **sRFC** is the synchronous call of function modules. This means that the client waits until the server has completed its processing. In an SAP system, an RFC can also be performed asynchronously in another work process. This variant is called **aRFC**.

- There is also **tRFC**, the transactional Remote Function Call. Transactional RFC is asynchronous and ensures that data that is sent more than once due to network problems can be recognized at the server side, by assigning a Transaction Identifier (TID). This allows you to prevent data being processed more than once, leading to erroneous information in the application. Due to the asynchronous processing, however, parameters can only be transferred from the client to the server in this case. Returning information or status information directly is not possible.

- qRFC with Send Queue is an extension of tRFC. It creates a layer between applications and the tRFC and only allows the tRFC to transfer a Logical Unit of Work (LUW) to the target server when its predecessors are no longer in the associated wait queues. After a qRFC LUW is executed, the qRFC manager automatically processes the next waiting qRFC LUW in accordance with the sequence in the wait queue.

Outlook: Transaction Steps for Synchronous RFC

Frontend/ SAP GUI | Network | **Application Server** | Network | **External System**

Wait, Roll in & Load Time

Processing Time (1)   RFC Start

CPI/C Communication

Roll Out Time
Program is rolled out after
communication was started

Response Time

RFC + CPI-C Time

Roll Wait Time
Program is not
occupying any
work processes

Roll In Time   RFC End
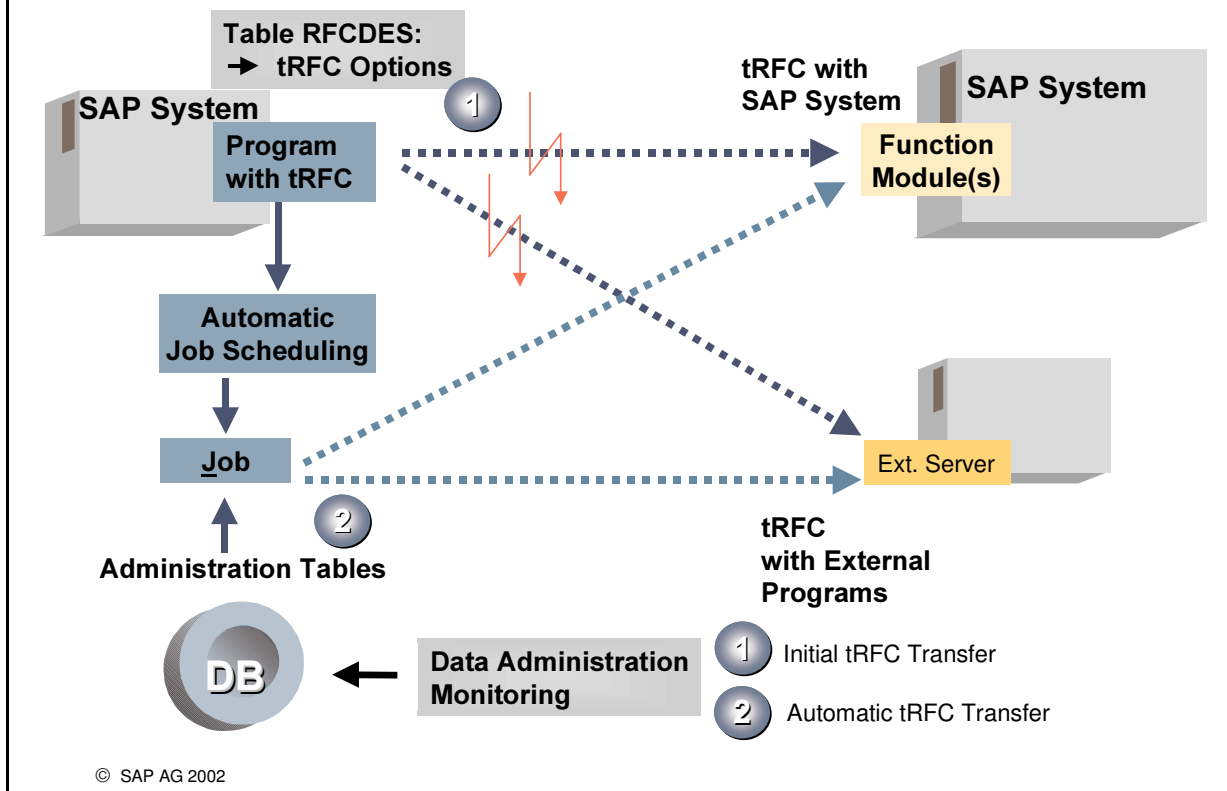
Processing Time (2)

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- In the case of synchronous communication with an external system (such as SAP GUI), the dispatcher rolls the program of the current dialog user out of the dialog work process as soon as the RFC request was sent to the external system. The reason for this is that the length of time that the external system requires to process the request is not known. As soon as the response comes back from the external system, it is placed in the normal request queue for dialog requests and is then processed by a dialog work process, which continues the user's program from the same point. During this time, the user sees the hourglass.

- The user is not rolled out for any type of asynchronous communication, as the system deals with creating the connection and sending the RFC request. The dialog work process can continue processing the program immediately. No direct queries can be sent to an external system using asynchronous RFC, but can certainly be used for actions, such as storing data.

Outlook: Transactional RFC 1/2

SAP

SAP System

Program with tRFC

tRFC with SAP System

SAP System

Function Module(s)

Ext. Server

**tRFC with External Programs**

1️⃣ Initial tRFC Transfer

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- So that RFC functions can be performed reliably, securely, and irrespective of the availability of the RFC server or RFC server system, **transactional RFC (tRFC)** was introduced with SAP R/3 3.0. This ensures that the called function module is performed **only once** in the RFC server system.

- For transactional RFC calls, the data for an RFC function must first be stored temporarily in the SAP system database in the RFC client system. Once the process is complete, this must be reported to the calling ABAP program. The tRFC component in the SAP system handles everything else.

- As a database on an external system is not always available, the connection to the tRFC interface is implemented in such a way that the client or server programs must perform a number of administration functions on the RFC API basis to ensure that the function module is executed **only once**.

Outlook: Transactional RFC 2/2

Table RFCDES:
→ tRFC Options

SAP System
Program with tRFC

Automatic Job Scheduling

Job

Administration Tables

DB ← Data Administration Monitoring

tRFC with SAP System

SAP System
Function Module(s)

Ext. Server

tRFC with External Programs

1 Initial tRFC Transfer

2 Automatic tRFC Transfer

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- If a connection error occurs during a synchronous RFC, the client repeats the call without knowing whether the processing has already been performed. tRFC solves this problem.

- tRFC calls can even be transferred when the target system is not available. In this case, the data is transferred at a later time, and is stored locally in the source system until then.

- Automatic job scheduling is used in the SAP system for this purpose. The job starts the function module(s) in the partner system at a later time.

- In the case of an external tRFC client, the tRFC client itself must repeat the calls at a later time itself.

- In the SAP system, you can set tRFC parameters for the relevant connection in table RFCDES (for connection types T, 3, and I) (Transaction *SM59 - Display and Maintain RFC Destinations*):

  • Suppress background job if communication errors occur (manual start required in transaction *SM58*).

  • Number of attempts to create the connection.

  • Interval in minutes between renewed attempts to transfer the data.

Outlook: Monitoring Transactional RFC

SAP

| SAP System | ······ tRFC ······▶ | SAP System |
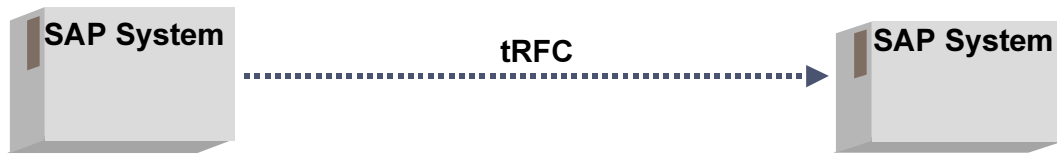
SM58

Transactional RFC

Transactional RFC

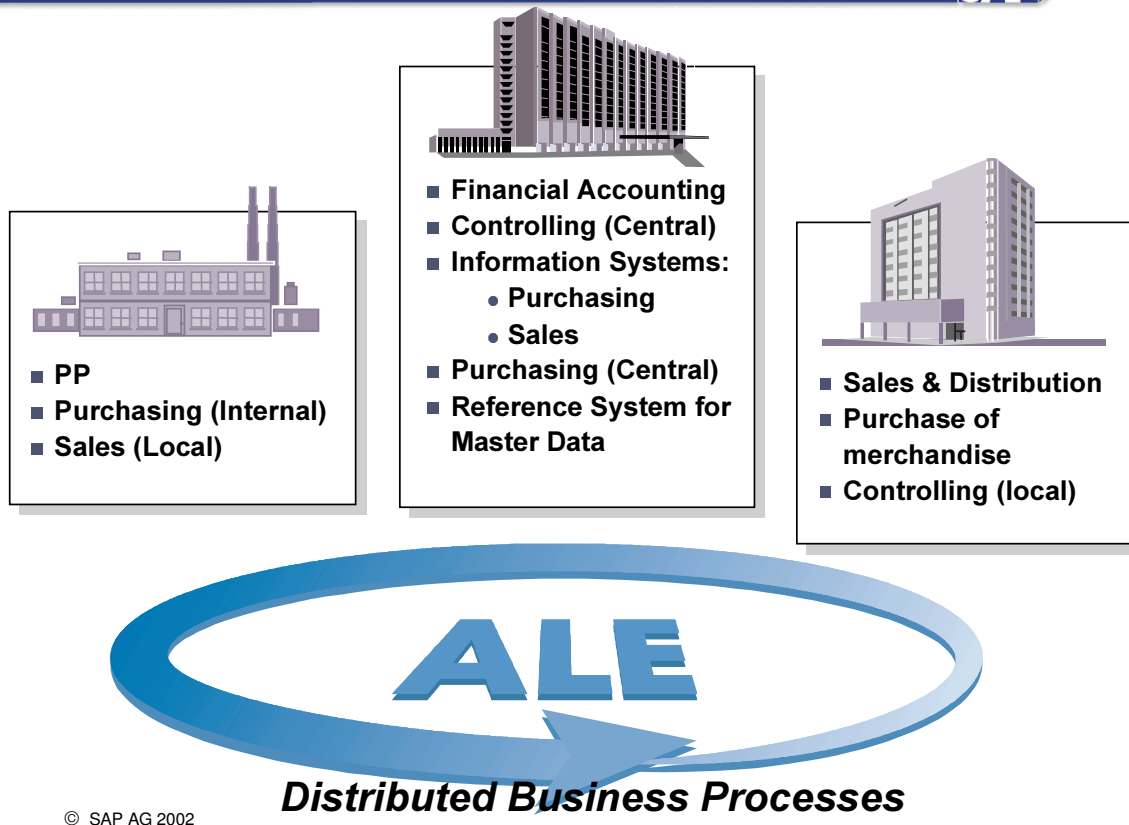| Display Period | 16.11.2001 | 16.11.2001 | ➡ |
User Name	*		➡
TRFC Function	*		➡
TRFC Destination	*		➡
TRFC Status	*		➡

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- All calls are recorded in tables ARFCSSTATE and ARFCSDATA. Every LUW is identified with an ID that is unique worldwide. At COMMIT WORK, the calls stored under this ID are executed on the corresponding target system. To do this, the system function module ARFC_DEST_SHIP transports the data to the target system and the function module ARFC_EXECUTE performs the recorded function calls. If an error or an exception occurs during one of the calls, all of the previously performed database operations are rolled back and an appropriate error message is written to the file ARFCSSTATE. You can evaluate this error message using transaction *SM58*.

- If it was possible to successfully perform a LUW on the target system, the function module ARFC_DEST_CONFIRM, which confirms the successful execution on the target system, is called. Finally, the corresponding entries in ARFCSSTATE and ARFCSDATA are deleted.

- If the target system was not available, because, for example, the connection is currently inactive, the report RSARFCSE is scheduled in the background with the ID as a parameter, and is called at regular intervals. You can display the default values that take effect in this case by choosing *Information → System Setting* in *SM58*. If you want to use your own setting for each destination, you can define this using the tRFC options in transaction *SM59*. You can also override this setting for each destination, user name, and so on, using the extension SAPBP0003 (maintained using transaction *CMOD*). If no connection is created during the designated time, the entry in ARFCSSTATE is deleted after a certain time (defined by you in the extenstion). Scheduling the report RSARFCDL in the background performs the deletion.

- **Financial Accounting**
- **Controlling (Central)**
- **Information Systems:**
    - **Purchasing**
    - **Sales**
- **Purchasing (Central)**
- **Reference System for Master Data**

- **PP**
- **Purchasing (Internal)**
- **Sales (Local)**

- **Sales & Distribution**
- **Purchase of merchandise**
- **Controlling (local)**

Distributed Business Processes

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- ALE is an interface technology developed by SAP that connects application systems (SAP systems and external systems) with a loose connection. ALE allows the systems on different platforms to communicate. The data exchange is performed asynchronously using a data format defined by SAP, the Intermediate Document (IDoc). SAP provides the interface technology and predefined business processes. Customer-specific enhancement and development of scenarios is possible. ALE is one of the main modules of the SAP Business Framework Architecture (BFA). BAPIs were integrated into the ALE environment with SAP R/3 4.0. BAPIs have been offering a new type of interface technology since SAP R/3 3.1G. This is an object-oriented technology and is provided with special guarantees concerning changes by SAP. BAPIs can be used for synchronous or asynchronous communication. For asynchronous use, BAPIs utilize ALE (and therefore IDocs as data containers).

Outlook: ALE Integration
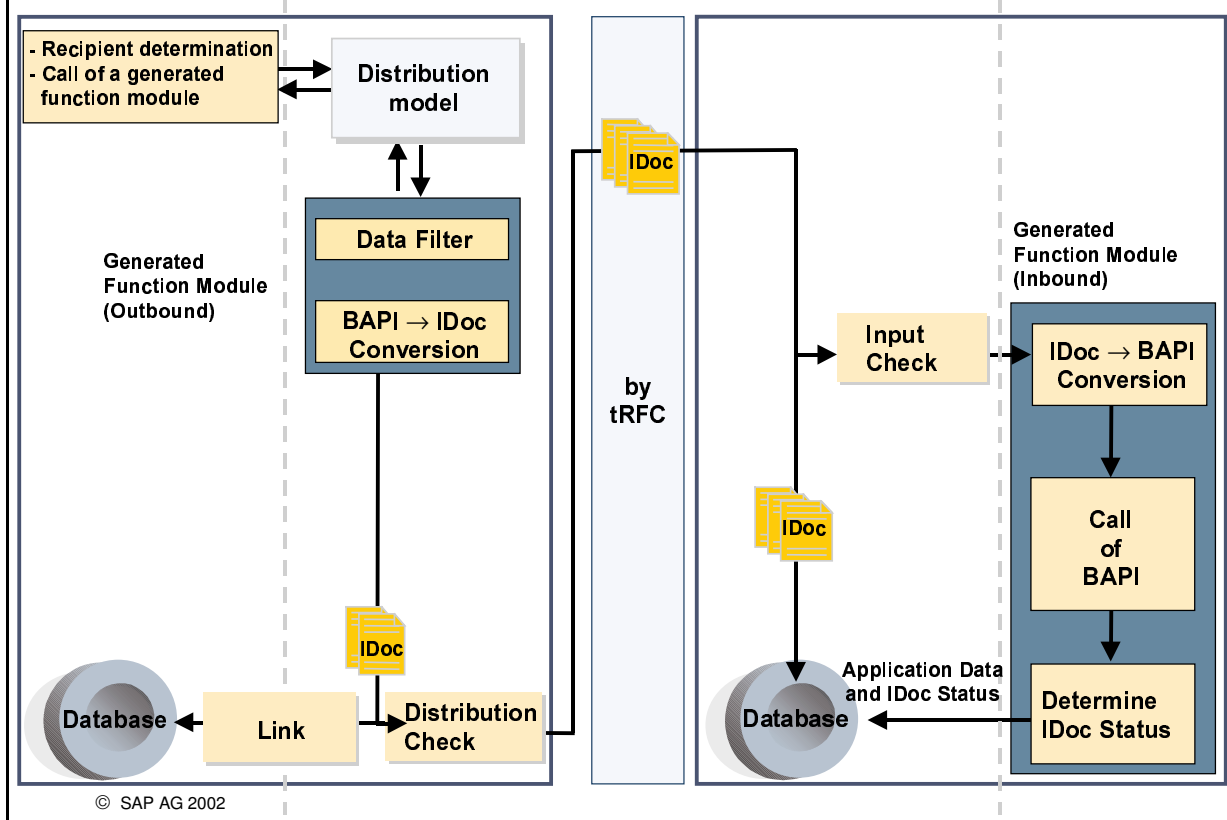
- IDoc, or Intermediate Document, is a document format standardized by SAP. IDoc allows you to connect various application systems using a message-based interface. This is a data container for the exchange between SAP systems or SAP systems and external systems. The technical characteristics of the connection between the two systems are stored in a port description. The following port types, that is communication channels, are supported: File interface, RFC interface, CPI-C interface, and Internet interface.

- An IDoc can therefore be transferred using a transactional Remote Function Call (tRFC):

  • Output to an SAP system: Call the transactional remote function module 'INBOUND_IDOC_PROCESS' or 'IDOC_INBOUND_ASYNCHRONOUS (as of SAP R/3 4.0) in the receiving SAP system. The function module reports the correct processing of the function module to the caller.

  • Output to an external system: Call the function 'INBOUND_IDOC_PROCESS' in a receiving external program that uses routines from the RFC library delivered by SAP. The function reports the correct processing of the function to the caller.

  • Inbound: Inbound processing is triggered by calling the inbound function ('INBOUND_IDOC_PROCESS' or 'IDOC_INBOUND_ASYNCHRONOUS' (as of SAP R/3 4.0) in the SAP system. An SAP system or an RFC-compatible external system makes the call.

Transaction *BD87*

IDoc Selection   Edit   Goto   Settings   System

Status Monitor for ALE Messages

| | Select IDocs | Display IDocs | Trace IDocs | Process |

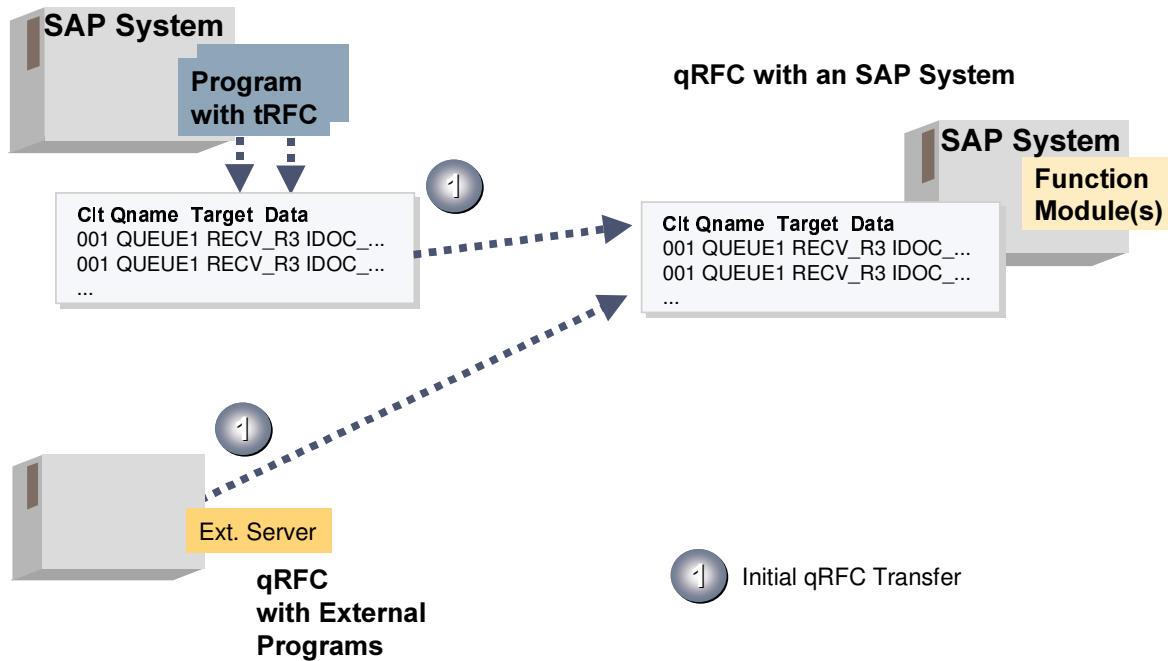| IDocs	IDoc Status	Number
▽ 🔽 IDoc Selection		
📄 Change date is in interval 16.10.2001 to 16.10.2001.		
▽ 🖥 IDES B2B 20B		70
▽ 🗐 IDocs in outbound processing		70
🟥 IDocs entries in the tRFC queue		46
▽ 🟢 Data transfer to port OK	03	24
▷ 📇 ACC_GOODS_MOVEMENT		12
▷ 📇 ACLPAY		7
▷ 📇 BBPCO		3
▽ 📇 MBGMCR		2
ℹ️ IDoc sent to R/3 system or external program		2

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- Transaction *BD87* is a tool used to monitor ALE communication.

- You can process inbound and outbound IDocs in a logical system using this tool. The IDocs are structured hierarchically by status groups, individual status, message type, and error message and can be selected at each of these levels. Selected IDocs can be displayed, processed immediately, or selected using a status group-specific selection screen and then processed.

- To restrict the quantity of IDocs displayed, you can filter the status display by IDoc number, date, message type, and partner system.

Outlook: Queue RFC with Send Queue
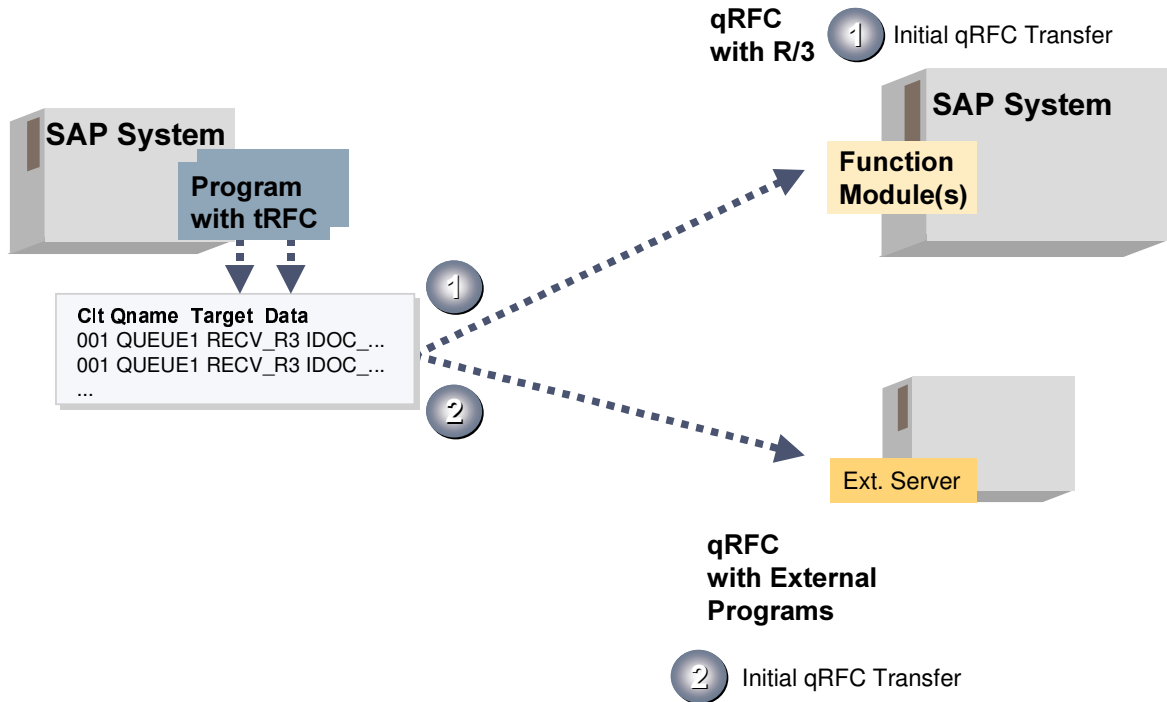
- **■** Serialization of tRFC LUWs:

  - qRFC with Send Queue is an extension of tRFC. It creates a layer between applications and the tRFC and only allows the tRFC to transfer a Logical Unit of Work (LUW) to the target system when its predecessors are no longer in the associated wait queues. After a qRFC LUW is executed, the qRFC manager automatically processes the next waiting qRFC LUW in accordance with the sequence in the wait queue.

  - qRFC with Send Queue allows the serialization of tRFC LUWs in the sending system.

  - qRFC can be used with any target system that supports tRFC (SAP systems, or external systems that use the RFC library).

Outlook: Queue RFC with Receive Queue

SAP System

Program with tRFC

qRFC with an SAP System

SAP System

Function Module(s)

Clt Qname Target Data
001 QUEUE1 RECV_R3 IDOC_...
001 QUEUE1 RECV_R3 IDOC_...
...

Clt Qname Target Data
001 QUEUE1 RECV_R3 IDOC_...
001 QUEUE1 RECV_R3 IDOC_...
...

Ext. Server

qRFC with External Programs

1 Initial qRFC Transfer

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- Use qRFC with Receive Queue if an application wants to determine the processing time of incoming qRFC LUWs in the target system itself, or if all LUWs are to be stored as quickly as possible in the SAP target system.

- Using qRFC with Receive Queue requires a number of enhancements to the tRFC protocol, so that the target system can be informed that the currently incoming LUW should only be stored in the qRFC Receive Queue.

- The application must use the standard qRFC function modules to inform the qRFC manager of the sending system that qRFC is to be used with the Receive Queue in the target system. Depending on the sending system, an application must then call a function module in an SAP system or a new API provided in the RFC library to transfer a wait queue name and optionally a wait queue counter to the target system.

Outlook: Monitoring qRFC
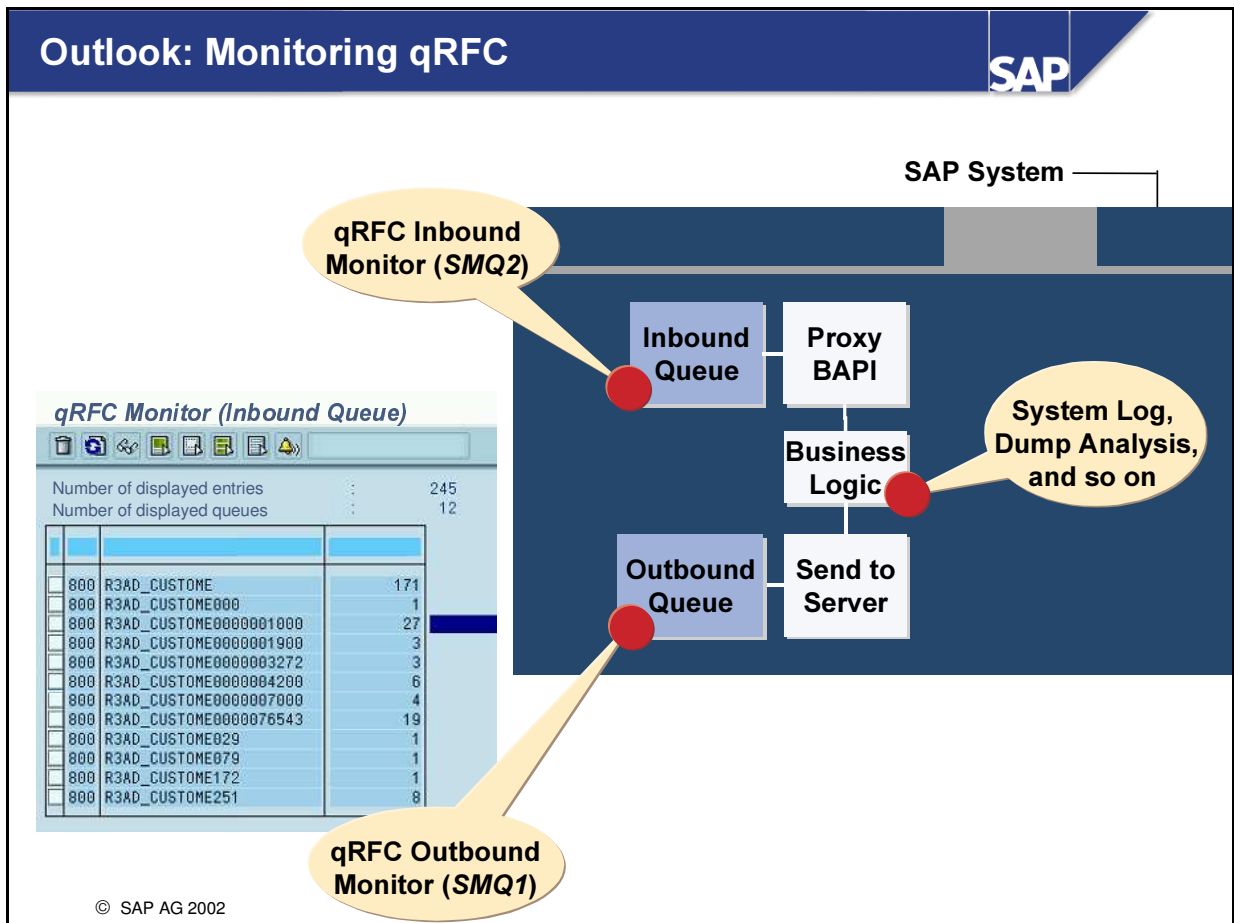
- Monitoring tools are implemented in the qRFC area to allow better monitoring and error analysis:

  - *SMQ1:* Monitor the Outbound Queue

  - *SMQ2:* Monitor the Inbound Queue

  - SMQR QIN Scheduler: Display the Registered Queues

- For detailed documentation, see the following Word document on the SapservX in the directory:
  ftp://sapserv3/general/R3server/abap/note.0390592/QRFCMonitoring46D25.doc.
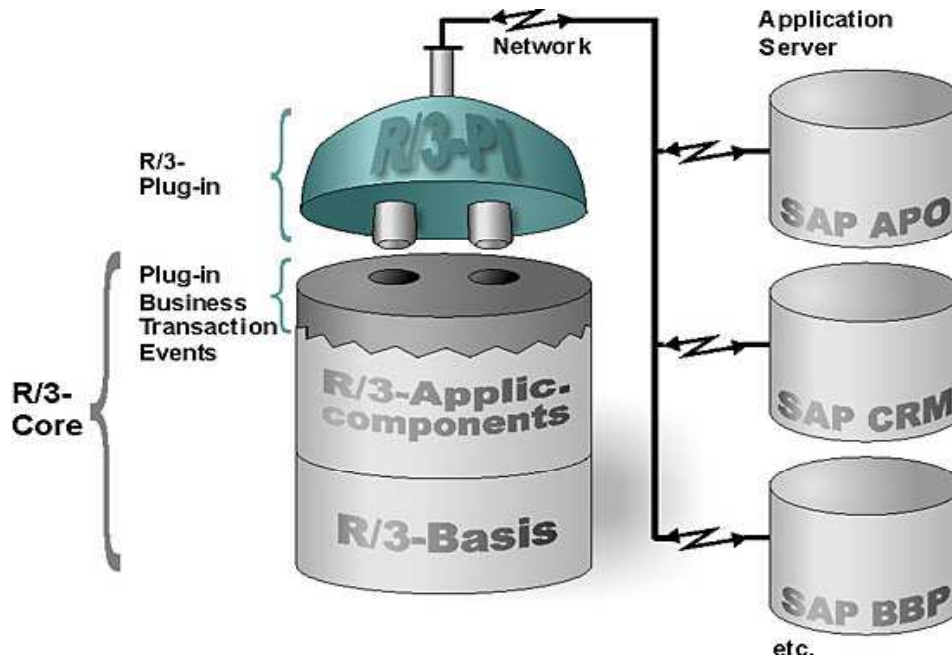
© SAP AG 2002

- A loose connection of components is not the appropriate solution in all cases. Some components require a close integration to avoid delay times. Creating a close integration of different components manually can affect the flexibility and reliability of the systems. The SAP R/3 Plug-Ins for mySAP.com components solve this problem by combining the flexibility of separate components with the advantages of close, automated, cross-component integration. SAP R/3 Plug-Ins are provided and maintained by SAP and they are closely integrated into mySAP.com components. SAP R/3 Plug-Ins support the extraction of data and information that is relevant for each business process and supports the transport at the right time to the appropriate mySAP.com components.

- For this data transport, the qRFC interface is very often used for the individual mySAP.com components. However, as the SAP R/3 System does not send any data to other component systems without Plug-Ins, the Plug-In implements the sending of the data from the application functions using Business Add-Ins (BAdIs).

- For example, this is done for the communication between an SAP R/3 System and a CRM server for any kind of data exchange (such as orders, customers, and so on).

Remote Connections: Summary
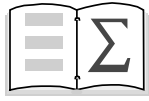
You are now able to:

- **List applications for RFC communication**
- **Set up an RFC connection**
- **Monitor RFC connections**

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Exercises

No.	Exercises
1	**Set up a remote connection**
1.1	You are to set up a remote connection to the other system on your server.
	The group that is using the *DEV* system sets up a connection to the *QAS* system.
	The group that is using the *QAS* system sets up a connection to the *DEV* system.
2	**Test the created remote connection**
2.1	Test the connection.
2.2	Attempt to log on to the remote system.

Solutions

No.	Solutions
1	**Set up a remote connection**
1.1	**You are to set up a remote connection to the other system on your server.** **The group that is using the *DEV* system sets up a connection to the *QAS* system.** **The group that is using the *QAS* system sets up a connection to the *DEV* system.** To set up a remote connection, switch to the window *Display and Maintain RFC Destinations*. To do this, choose *Tools → Administration → System Administration → Administration → Network → RFC Destination* (transaction *SM59*) and choose *Create.* Enter a name for the destination (such as `<SID>_test`, the connection type **3**, and a short description. Choose *Save*. Under *Technical Settings,* enter the name of your server in the field *Target host* and the instance number of the target system in the *System number* field. Under *Logon/Security*, enter a valid user and password for the remote system.
2	**Test the created remote connection**
2.1	**Test the connection.** Choose *Test connection*. The system attempts to create a connection to the remote system, and, if the connection is correctly set up and the target system is accessible, displays a list of response times.
2.2	**Attempt to log on to the remote system.** Choose *Remote Login*. The system opens a new session for the SAP system, if the connection is correctly set up. If you have not defined any user data when setting up the connection, enter client, user name and password now.

9. **Support Packages and Industry Solutions**

10. **Scheduling background tasks**

11. **Printing from SAP systems**

12. **Basics of user administration**

13. **Remote connections**

14. **SAP Solution Manager**

15. **System monitoring**

16. **Introduction to system security**

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Contents:

- **SAP Solution Manager**
- **EarlyWatch Alert**
- **IT Reporting**

Objectives:

At the conclusion of this unit, you will be able to:

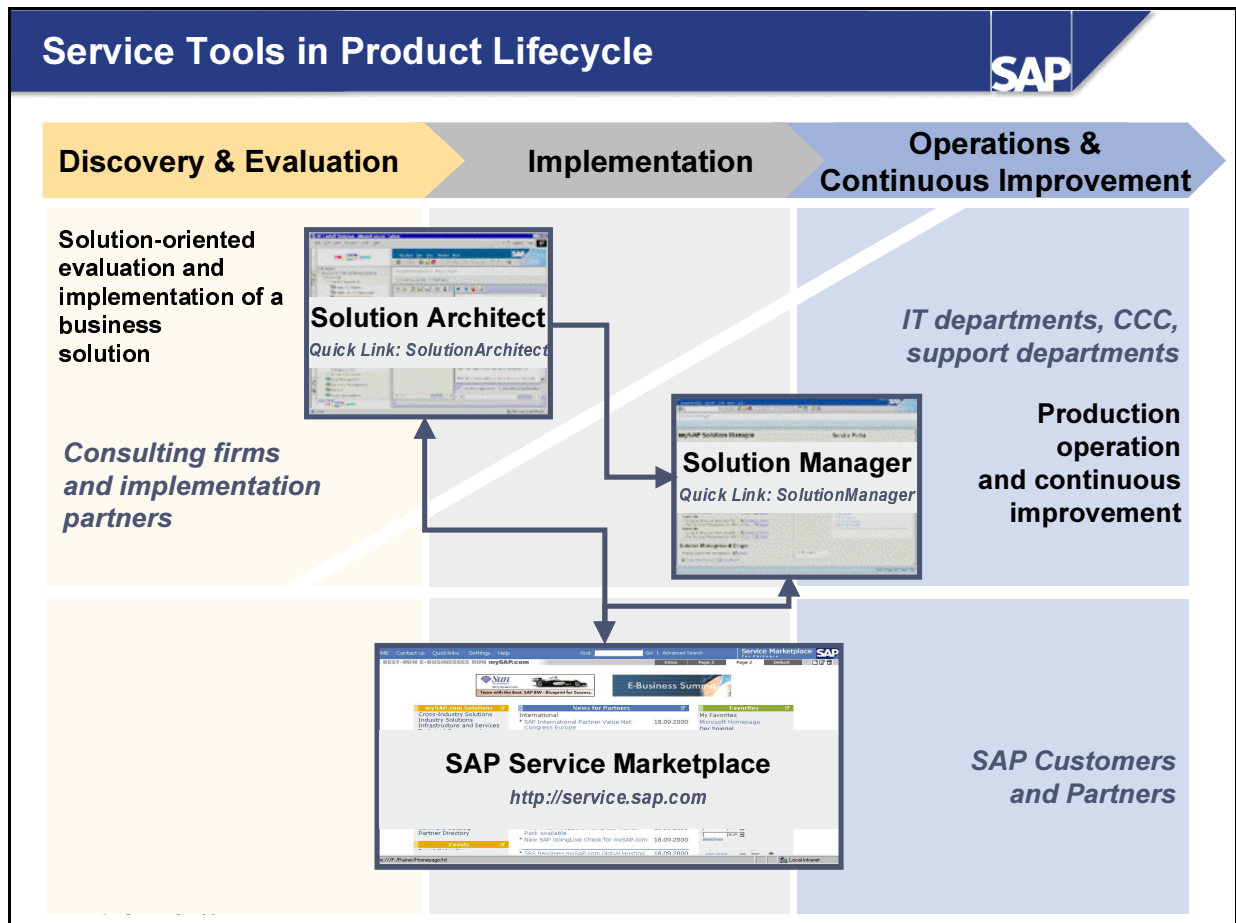- **Describe the added value of the Solution Manager in an SAP landscape**
- **Configure the EarlyWatch Alert**
- **Perform IT reporting**

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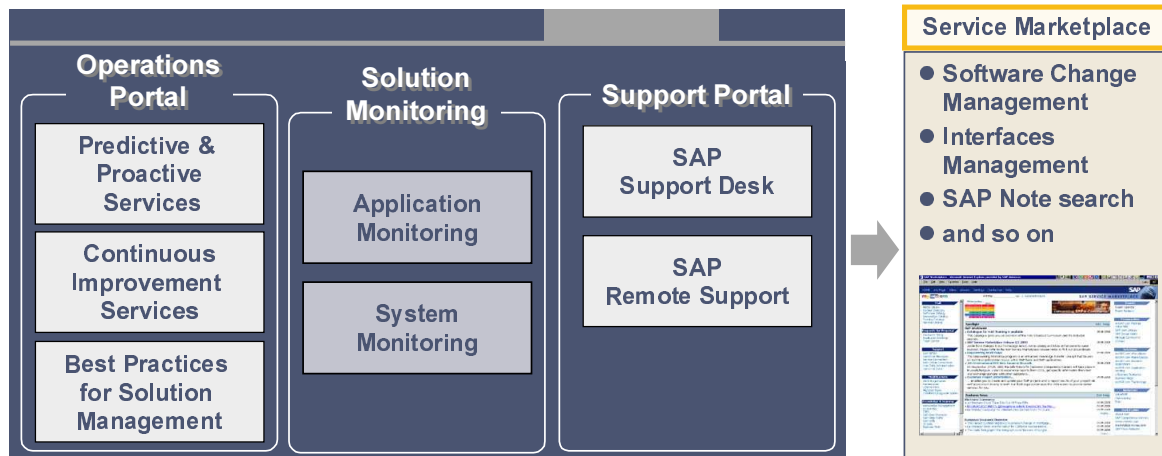**SAP**

Part 1 - Solution Manager

Service Tools in Product Lifecycle

- The Solution Architect is the evaluation and implementation portal for mySAP.com solutions that provides tools, content, and methods for a quick and effective implementation of mySAP.com. The first version of the Solution Architect concentrates mainly on supporting the implementation phase in the Customer Engagement Lifecycle. The contents of the Solution Architect are based on Best Practices for mySAP.com, where the focus is on mySAP CRM and mySAP SCM. However, the Solution Architect can also be used to implement mySAP.com Solutions without Best Practices content, to perform all important tasks during a mySAP.com implementation project with the Solution Architect. In general, we expect the tool to be available as of Q1/2002.

- The Solution Manager (SAP Standard Software) provides a central service and Support Portal for the optimal technical implementation and the cost-effective and effective operation of a mySAP.com solution. This is ensured using standardized (self) services that lead the customer through the Solution Management Scope, Solution Management Implementation, and Solution Management phases, and facilitates the transfer of knowledge in the context of mySAP.com operation. In addition to the actual software portal, there is a philosophy behind the Solution Manager concerning the implementation and securing of the operation of a mySAP.com solution. SAP has therefore developed a program that is specially tailored to customers with complex processes and system landscapes. To extend the integration and consistency throughout the lifecycle, the Solution Architect and the Solution Manager permanently widen their data integration, to share or exchange information about the scope of implementation processes or the installed mySAP.com system landscape.

SAP Solution Manager: Introduction

The SAP Solution Manager is more than just another software tool.
**It represents SAP's philosophy for operational use of mySAP.com solutions:**

- **(Self) Services and Best Practices for support of production operation**

- **Business process-oriented application and system monitoring**

- **Integrate support functions (Support Desk and Remote Support)**

Operations Portal	Solution Monitoring	Support Portal	Service Marketplace
Predictive & Proactive Services	Application Monitoring	SAP Support Desk	● Software Change Management
Continuous Improvement Services	System Monitoring	SAP Remote Support	● Interfaces Management
Best Practices for Solution Management			● SAP Note search ● and so on

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The SAP Solution Manager provides the following functions to support your mySAP.com solution.

- Predictive and Proactive Services: EarlyWatch Alert ,GoingLive Check, GoingLive Functional Upgrade Check, and GoingLive Euro Conversion Check.

- Continuous Improvement Services: Solution Management Review Service (SMR), and Solution Management Optimization Services (SMO)

- Best Practices for Solution Management: Documents and services that are based on SAP's experience from productive customer installations.

- Application and System Monitoring: Technical monitoring of your mySAP.com solution including the availability of interfaces, individual system components, business process monitoring, Service Level, and a graphical alert monitor.

- SAP Support Desk: Central message management for all mySAP solutions (including attached files or error contexts), interface to SAPNet - R/3 Frontend, SAP Notes database search and automatic import of SAP Notes (Note Assistant), and the customer solution database for customer-specific questions and answers.

- SAP Remote Support: Security solution for Microsoft NetMeeting using SAProuter, remote access through Internet connections, and end user *desktop application sharing* with SAP experts.

Installation of the SAP Solution Manager
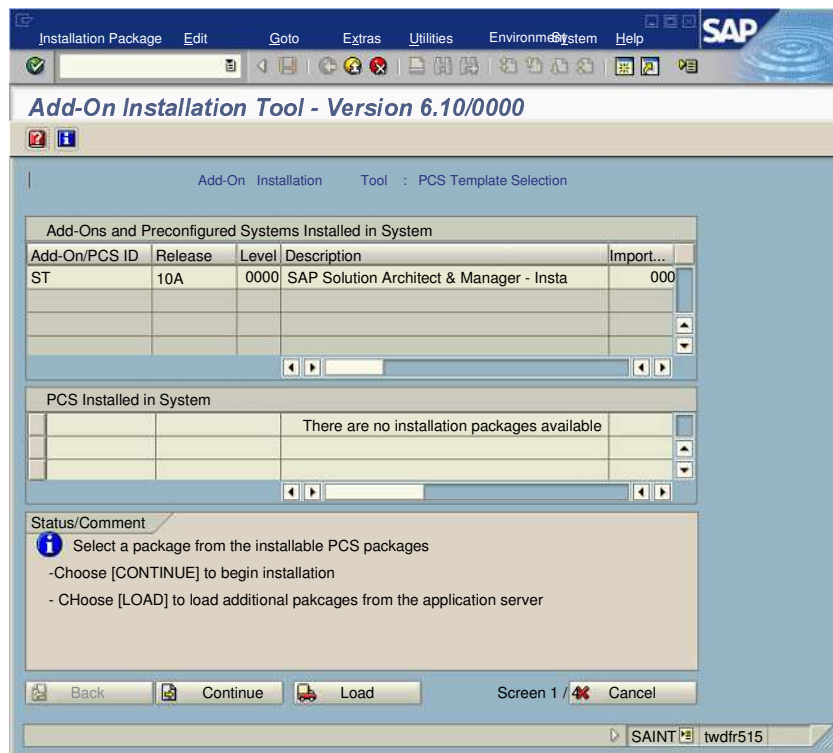
Implementation as Stand-Alone Add-On

No additional memory or performance requirements

Prerequisites:

- **Example: Stand alone server as of 4.6C**

Solution Manager

SAINT

Add-On Installation Tool - Version 6.10/0000

Add-On Installation Tool : PCS Template Selection

Add-Ons and Preconfigured Systems Installed in System

Add-On/PCS ID	Release	Level	Description	Import...
ST	10A	0000	SAP Solution Architect & Manager - Insta	000

PCS Installed in System

There are no installation packages available

Status/Comment

Select a package from the installable PCS packages

-Choose [CONTINUE] to begin installation

- CHoose [LOAD] to load additional pakcages from the application server

Back   Continue   Load   Screen 1 /4   Cancel

SAINT twdfr515

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- The SAP Solution Manager can be installed in a mySAP Workplace system with SAP Basis 4.6D or higher. In this case, the functions of the Solution Manager are provided in the context of a mySAP Workplace role. Alternatively, the SAP Solution Manager can be installed in an SAP R/3 System with SAP R/3 4.6C. In this case, the functions of the Solution Manager are provided in the context of an SAP transaction. Each alternative is different in terms of its system requirements and the function of the *SAP Support Desk* component.

- The *SAP Support Desk* component allows you to build efficient internal support for SAP problems. In the context of a mySAP Workplace installation of the SAP Solution Manager, it provides message processing (SAP Support Message) that is optimized from performance and utilization points of view. In the context of an installation on an applicaton server, SAP Support Line Feedback is introduced, providing extensive functions for the provision of professional support services. For more detailed information about the functions of the SAP Support Desk, see SAP Note 383069. On this basis, there are three ideal types of system configuration for the installation of the SAP Solution Manager:
  Option 1: Installation in a mySAP Workplace system or SAP Web Application Server 6.10 or higher.
  Option 2: Installation in a standard SAP R/3 application system.
  Option 3: Installation in a mySAP Workplace system and additional installation of a standard SAP R/3 application system for dealing with the extended functions of the SAP Support Desk.

Setting Up a Solution Landscape
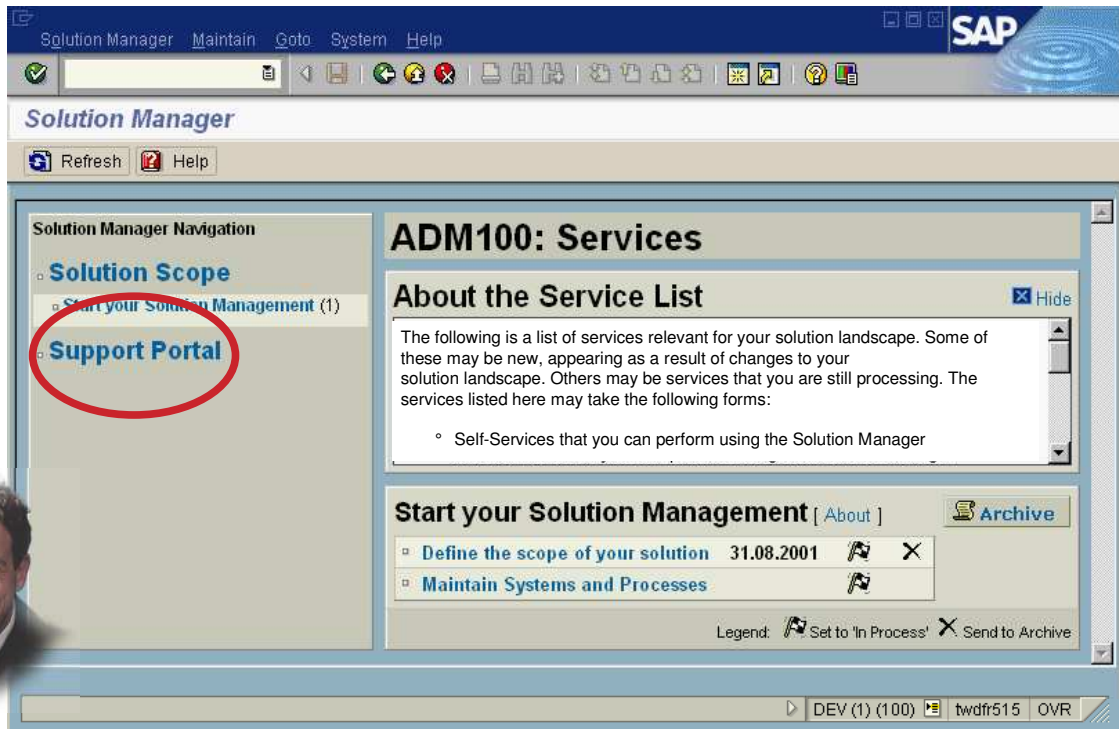
Definition of the new Solution Landscape

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- The basic information that the Solution Manager requires is defined in the Solution Scope area. In the first step you define a new system landscape to describe your mySAP.com solution. You can create the requirements and the technical realization using your SAP systems in this Solution Landscape.

Definition of the Implemented Systems

Component View - Change Mode

View | System | Link | Graphical Attributes

Object/Attribute Maintenance

DEV

Attribute	Value	
Installation number	0120003412	
RFC destination for distributed statisti		
Server (DB and application server)	[0 vof N values maintained]	
System group		
System Type (SAP R/3, SAP APO;SA	SAP R/3	

Expert Mode

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DEV   QAS   PRD

Introduction of the Systems

■ All systems that are to be monitored must be defined with a graphical tool. At least one system must be defined in this way so that you can use Service Level Reporting. You must enter descriptive attributes such as: the SID, the installation number (for SAP systems), and the system type (SAP R/3, SAP CRM, SAP BW, and so on) for every system. Creating a system has other consequences. You can schedule and monitor weekly EarlyWatch alerts for these systems.

Access to Services for Your Solution

SAP

Solution Manager

🔄 Refresh ❓ Help

Solution Manager Navigation

Solution Scope
◦ Start your Solution Management (1)

Operations Portal
◦ Predictive & Proactive Services (7)
◦ Continuous Improvement Services (8)
◦ Best Practices (2)

Monitoring
◦ Service Level Management (3)

Support Portal

ADM100: Services

❌

The following is a list of services that are relevant for your solution landscape.
Some of these may be new, appearing as a result of changes to your solution landscape.
Others may be services that you are still processing. The services listed here
may take the following forms:

* Self-Services that you can perform using the Solution Manager

Predictive & Proactive Services 📄 Create 🗄 Archive

Implementation [Additional Information]

◦ Solution Management Session	31.08.2001		📄	✕
◦ GL Functional Upgrade			📄	✕
◦ GL Euro Conversion			📄	✕
◦ GL OS/DB Migration			📄	✕
◦ GoingLive Package		DEV	📄	✕

Operation [Additional Information]

◦ Solution Management Review Service	31.08.2001	DEV	📄	✕
◦ EarlyWatch remote		DEV	📄	✕

Execution by certified consultants at customer site

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- The Operations Portal area allows you to access various SAP services directly. Various service types are offered in these three areas:

  • Self services, such as IT reporting, SQL cache analysis, ABAP coding analysis, but also Upgrade Guides, technical implementation guides, and the operations handbook.

  • Remote services, such as the SAP EarlyWatch Alert Service, SAP EarlyWatch service, SAP Going Live Check, and SAP Going Live Functional Upgrade Check.

Service Ordering and Delivery

Customer | **SAP**

Service Order

1

Range of Services
Through Service Providers

SAP Solution Manager

SAP Service Marketplace

Service catalogs with certified service partners

Project Data
Service Products
Best Practices DB

Transfer
Required System Data

2

Send
Configured Service

SAP Support

Certified Consultant

Uses if Required

3

Sends the Service
Performance Feedback

- Supplies service at customer site
- Writes a service report

- Individual service product
- Supports service performance

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- You can easily order services using the SAP Solution Manager. The consultant performing the service with employees has two options for performing the service. It can be performed in the Solution Manager system with the Service Session Workbench at the customer site. A second option is the consultant loads data about the customer system onto his or her laptop. The consultant can then perform the service on this laptop offline at the customer site or elsewhere. SAP provides back office support during the performance of the service (for example, for a check of the generated report).

Monitoring Using Self Services

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- There are services to monitor your systems in the monitoring area. These include the EarlyWatch Alert or the Service Level Report, which automatically provide you with regular reports (in HTML or Microsoft Word format) about the current status of your mySAP.com solution. You only need to schedule these services once. They then collect data about your systems regularly, aggregate it, and evaluate it.

SAP Support Desk

SAP

Solution Manager

| Refresh | Other Solution Landscapes | Settings | SAP Service Marketplace | Help |

Solution Manager Navigation

- **Solution Scope**
  - Start your Solution Management (1)
- **Operations Portal**
  - Predictive & Proactive Services (7)
  - Continuous Improvement Services (8)
  - Best Practices (2)
- **Monitoring**
  - Service Level Management (3)
- **Support Portal**

ADM100: Support Portal

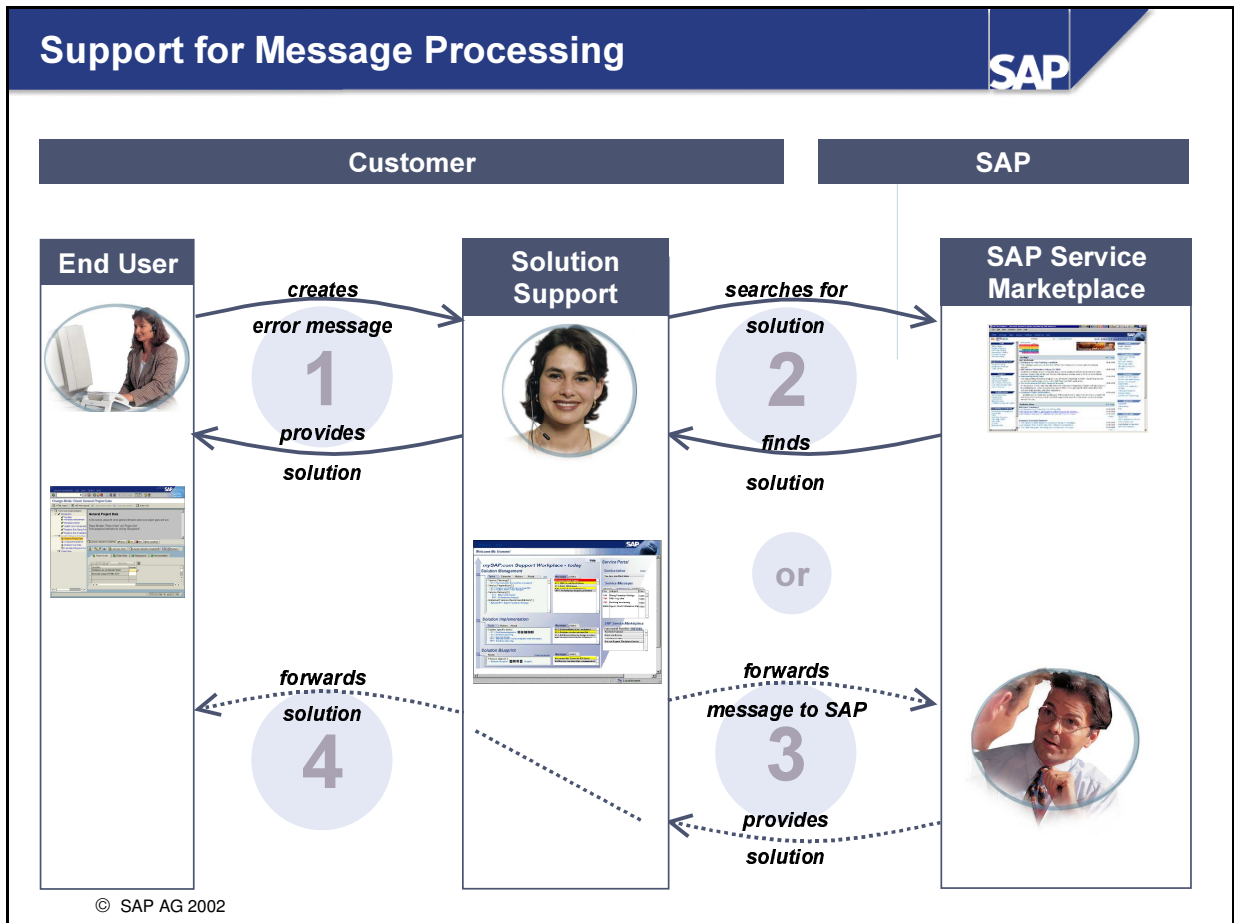| Excepti	Se	Notification	Required st	Required	Priority text	Description
●●●		300000290	04.01.2001	01.02.2001	4: Low	cmcm
●●●		300000292	05.01.2001	02.02.2001	4: Low	Problems during Goods Receipt
●○●		300000301	08.01.2001	15.01.2001	2: High	Test
●●●		300000302	08.01.2001	05.02.2001	4: Low	dsvsad
●●●		300000303	08.01.2001	05.02.2001	4: Low	scasca
●●●		300000306	08.01.2001	05.02.2001	4: Low	Produktionsausfall im System ABC
●●●		300000307	08.01.2001	05.02.2001	4: Low	adsva
●●●		300000310	16.01.2001	13.02.2001	4: Low	test 3
●●●		300000311	16.01.2001	13.02.2001	4: Low	test 3
●●●		300000312	17.01.2001	14.02.2001	4: Low	I like the SolMan
●●●		300000313	18.01.2001	15.02.2001	4: Low	Problems during Sales Order Creation
●●●		300000314	18.01.2001	15.02.2001	4: Low	Problems during Sales Order Creation
●●●		300000315	18.01.2001	15.02.2001	4: Low	Test
●●●		300000316	19.01.2001	16.02.2001	4: Low	Test 35
●●●		300000320	24.01.2001	21.02.2001	4: Low	Testmeldung

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- The Support Portal of the SAP Solution Manager provides a complete IT infrastructure for providing back office support with message handling for your mySAP.com solution. The system on which the SAP Solution Manager is installed is used here as a central collection point for all support messages that are created in your SAP systems.

End User Message Creation
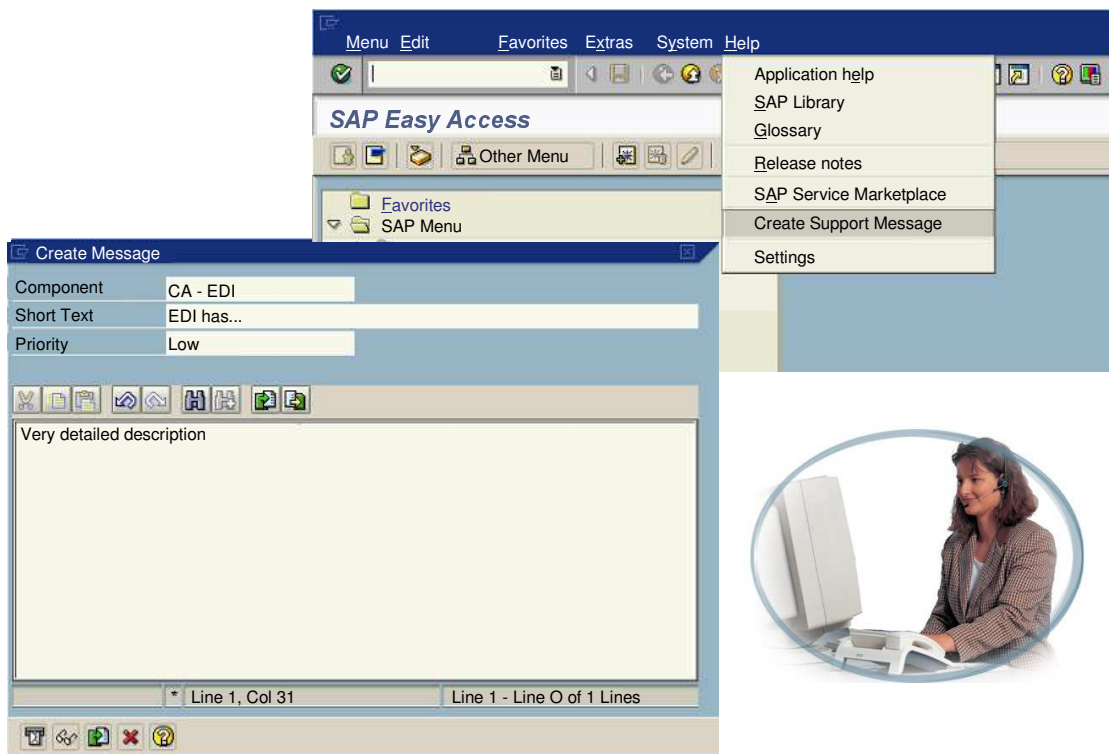
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■ All end users can send a message to your back office from any SAP transaction by choosing *Help → Create Support Message*. This message is sent directly to the Solution Manager using an RFC connection. It is possible to sort the message using components and to assign an urgency level to the message. External files can, of course, be included.

Support for Message Processing

Customer | **SAP**

End User — **Solution Support** — **SAP Service Marketplace**

1. creates error message
2. searches for solution / provides solution / finds solution
3. or / forwards message to SAP / provides solution
4. forwards solution

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■ The back office department can view and process the messages created by the end users in the Solution Manager. To solve any end user problems, support has direct access to all SAP Notes, their own customer solutions database, and other documents and tools that are provided by SAP on the SAP Service Marketplace. After a successful search for a problem solution, support can send the message back to the user with a description of the solution. In urgent cases or for very special problems, support can forward the error message to SAP through the SAP Service Marketplace.
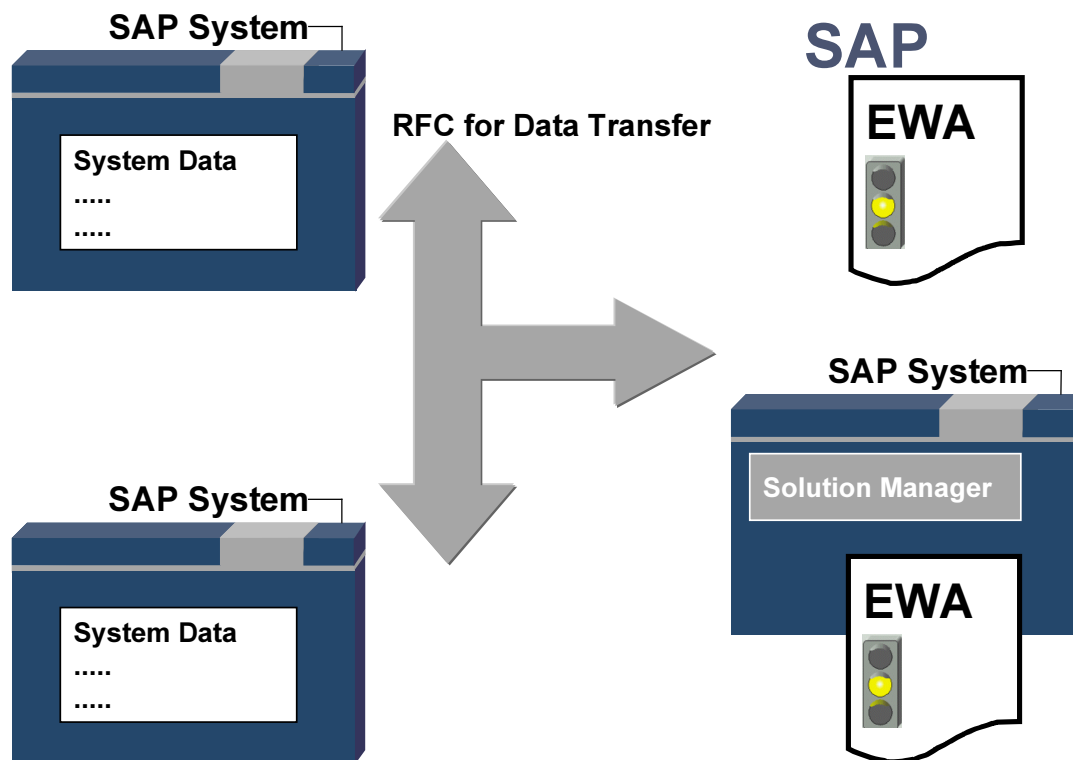
EarlyWatch Alert

SAP

Part 2 - EarlyWatch Alert

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Concept of the EarlyWatch Alert

SAP System

System Data
.....
.....

RFC for Data Transfer

SAP

EWA

SAP System
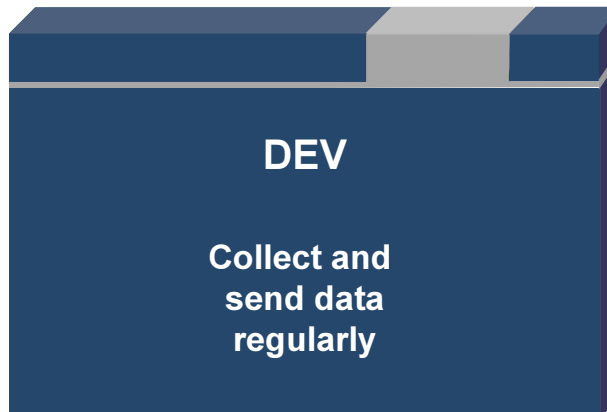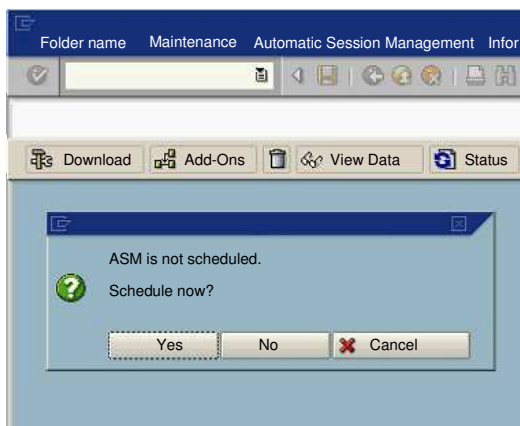
System Data
.....
.....

SAP System

Solution Manager

EWA

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■ Large sums of money are lost every year due to IT failures that are apparently unpredictable and occur without warning. The new SAP EarlyWatch Alert service applies itself to exactly this situation. This proactive service monitors your SAP system at regular periods. You are therefore always informed about the current status and performance of your system, meaning that system bottlenecks and possible problems can be identified and avoided in advance. Once set up, the SAP EarlyWatch Alert Service runs fully automatically. The results of the SAP EarlyWatch Alert Service provide you with a status report on your system and form the basis of other SAP services. The SAP EarlyWatch Alert, like all other SAP remote services, uses the Service Data Control Center for data collection and transfer. You specify the time and frequency of the service once. After this, the service runs automatically, from the collection of the data to the provision of the results. You can view the collected data or change the service at any time. The EarlyWatch Alert Service is part of the new SAP service and support infrastructure, and is provided free of charge. It is available as of SAP R/3 3.0D, and includes all mySAP.com components. The data transferred by the EarlyWatch Alert Service is used to update system-related data in SAPNet, which is used for many other SAP services. The maintenance effort of this data is therefore greatly reduced. Likewise, customer messages can be processed more efficiently, as the SAP support employees always have access to the most up to date data about your system internally at SAP. SAP also uses the transferred data from production customer systems in aggregated and anonymized form for the continual extension and improvement of SAP services and products.

Folder name   Maintenance   Automatic Session Management   Infor

Download   Add-Ons   View Data   Status

ASM is not scheduled.

Schedule now?

Yes   No   Cancel

DEV

**Collect and
send data
regularly**

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■ You install and start the EarlyWatch Alert by installing and setting up the *Service Data Download* (SDCC) component. The component must be set up on the system on which the Solution Manager is to be run and on all systems that supply it. All of the steps listed below must be performed on all of these systems, unless explicitly stated otherwise. The necessary transports to install this component are in the Basis transport in SAP Note 116095. This step can be skipped if you are already using version 2.2 or higher. You can check this by viewing the dialog box displayed by calling transaction *SDCC* and choosing menu path *Information → About → About SDCC* (if the menu path does not exist, you are using an older version). Ensure that the RFC destination *SAPOSS* exists in your system and that it is possible to connect to the SAPNet - R/3 frontend system with it. Ensure that a *SOLUTION_MANAGER* RFC destination that points to the Solution Manager system exists in all of the SAP systems to which the Solution Manager is to deliver analysis data. The RFC destination must have a valid user and password, as the logon is performed in a background job. Call transaction *SDCC*. If a dialog box appears, asking whether the *Automatic Session Manager* (ASM) should be started, answer *Yes*. Enter the valid RFC destinations that transaction *SDCC* is to use. To do this, call transaction *SDCC* and start the *Default RFC Destination* dialog by choosing *Maintenance → Remote Environment → Predefined Target Destinations*. In the *SAP Service Systems* area, enter the RFC destination *SAPOSS*. In the *mySAP.com Support Workplace system* area, enter the RFC destination *SOLUTION_MANAGER*. Leave this field empty on the system on which the Solution Manager component is to be operated. Update the service definitions using transaction *SDCC* by choosing *Maintenance → Update → Service Definitions*.

SAP

System Status

During this EarlyWatch Alert Session, we detected potential problems concerning your system.
We recommend that you take corrective action as soon as possible.
If you would like further information, create a customer message on component XX-SER-TCC, or call your SAP Local Support organization.

Note: All recommendations provided in this report are base... test our recommendations before using them in your ... is an automatic service.

Service Contents

Rating	Performed Check
✓	Performance Evaluation
✓	Performance Overview
✓	Table Reorganization
✓	Number of Jobs in the Spool
✓	Update Errors
✓	Missing Indexes
✓	Database Growth
✓	Optimizer statistics (Database Options)
✓	Hardware Capacity

Overview: Alert Messages
The following table contains an overview of all alerts.

Priority	Description
High	The product was not recognized as an SAP pr...
Medium	Some checks could not be performed.

2 Performance Overview

The performance of your system was analyzed with respect to the average response times and total workload. We did not detect any major problems that could affect the performance of your system.

The performance of your system was analyzed with respect to average response times and total workload. The following table shows the average response times for various task types:

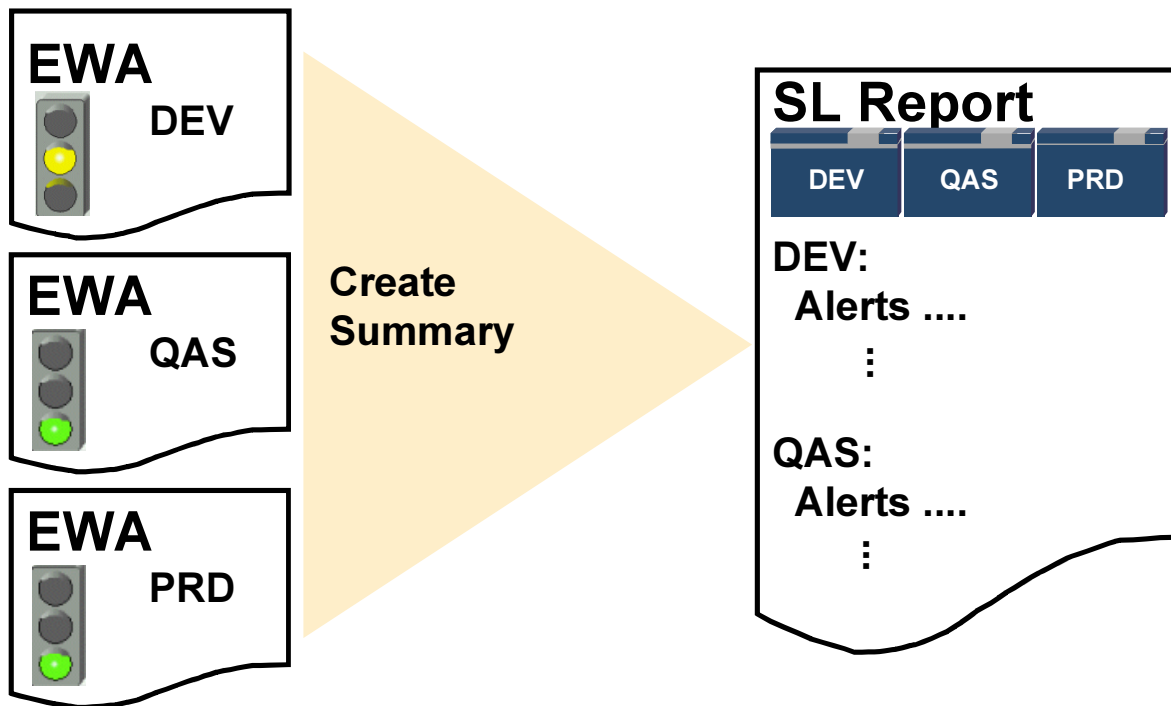| Task type	Dialog Steps	Avg. Resp. Time in ms	Avg. CPU Time in ms	Avg. Wait Time in ms	Avg. Load Time in ms	Avg. DB Time in ms
DIALOG	1307	611.3	178.2	40.6	86.2	229.4
RFC	526	127.4	60.7	110.3	712.2	398.7
UPDATE	7	5679.6	93.9	1625.0	1318.1	2012.9
UPDATE2	2	407.0	109.5	0.0	40.0	196.5
BATCH	7102	1667.8	80.1	1.4	17.2	52.9

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■ The data about your system collected by the EarlyWatch Alert and automatically analyzed by SAP is provided for you in the form of a report. You can download this report quickly and easily from the SAP Service Marketplace. Alternatively, the results are displayed in your mySAP.com Support Workplace. The Service Report provides you with current information about the status and performance development of your system at any time, so you can identify and avoid system bottlenecks in advance. It also serves as a weekly status report for your SAP system.

■ The report covers the following areas:

- General system status

- System configuration

- Performance development

- Critical error messages and process terminations

- Database administration

SAP

Part 3 - IT Reporting

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IT Reporting for a Complete Solution Landscape

SAP

```
EWA
  DEV

EWA
  QAS

EWA
  PRD
```

Create Summary

```
SL Report
  DEV   QAS   PRD

DEV:
  Alerts ....
        ⋮

QAS:
  Alerts ....
        ⋮
```

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■ With IT Reporting, SAP provides a preconfigured service that is tailored precisely to your mySAP.com solution. The IT Reports that are generated are important tools throughout the entire lifecycle of your system landscape. In addition, you can define single transactions or complete business processes that should be particularly closely monitored by the IT monitoring. You can define threshold values, so that warnings are generated as soon as these thresholds are exceeded. For example, you can have IT Reporting inform you that the transaction for creating customer orders (*VA01*) has response times exceeding 3 seconds.

Service Level Report Configuration

Select Systems for SL Report Standard

Description
The SL Report is able to gather the data from several systems. Select the systems to be analyzed in the report type "Standard" by setting the "Reporting" flag in the appropriate check box.

Note
Please note that up to now only systems with an R/3 basis can be selected for the monitoring.

Specify SL Report
- General Settings for SL Re
- Select Systems for SL Rep
  - Report Content for Syst
- Select Business Processe

To Do (Done)   Done

+ next open check   To Do (Done)   Service Level Reporting

Systems

New lines

SID	Installation Number	System Type	Reporting?
DEV	060719924711	SAP R/3	☑

DEV (1) (100) twdfr515

Selection of the data to be collected

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- To use Service Level Reporting (the technical realization of IT Reporting in the Solution Manager), the following steps are required:
  - You must first state all of the systems for which the reporting is to be performed.
  - In the next step, you must define what is to be evaluated in the context of the reporting. You can configure this using the link *Setup SL Reporting*. The Service Level Report is generated based on these settings.
  - The EarlyWatch Alert Service, which also runs regularly in your system landscape, collects the data that is required for Service Level Reporting. It should therefore run as short a time as possible (one day) before Service Level Reporting.
- It is possible to define multiple, differently configured Service Level Reports in a Solution Landscape.

Regular Service Level Report

Solution Landscape Alert Overview

Note:
All recommendations provided in this report are based on our general experience only. We advise you to test our recommendations before using them in your production system. Also note that EarlyWatch Alert is an automatic service.

SYSTEM OVERVIEW

SID	Installation No.	SAP Product	Release	Last EWA Status	Date	Session No.
DEV	060719924711	N/A	6.10	⚠	03.09.2001	1000000000003

ALERT MESSAGES OVERVIEW

SAP system ID	Priority	Description	New Alert
DEV	High	The product was not recognized as an SAP product.	New
DEV	Medium	Some checks could not be performed.	New

Note: If you need help investigating the alerts listed, order an EarlyWatch contract by contacting your local support organization, or by creating a customer message on component XX-SER-TCC. If you already have such a contract, a detailed analysis can be performed during the next service session. Please address the topic during the preparation of the session.
Note: If you experience serious performance problems, create a customer message on component XX-SER-TCC with priority 'high' or 'very high'.

Continuous information about the status of your SAP Solution

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- IT Reporting provides you with the final report that includes various views of the technical details of your solution, among other things. Information about the performance and availability of a solution can be taken from this over long periods of time.

SAP Solution Manager: Summary

You are now able to:

- **Describe the added value of the Solution Manager in an SAP landscape**
- **Configure the EarlyWatch Alert**
- **Perform IT reporting**

No.	Exercises
1	**Installing the Solution Manager**
1.1	**Check whether the Solution Manager is installed as an Add-On in your system.**
2	**Setting Up a New Solution Landscape**
2.1	**Define a new Solution Landscape, *ADM100*, in the Solution Manager. To do this, first define the system on which the Solution Manager is installed. Enter any customer number for this, but the correct installation number. Do not allow connection to SAP. Then define the systems in your system landscape.**
2.2	**Check whether the Solution Manager is correctly set up.** **The three support portals are now displayed for the *ADM100* Solution Landscape that you have set up.** **Check whether the job: *SM:EXEC SERVICES* is scheduled.** **Check whether the RFC connection *DEST_<SID>___1* is set up.**
	You have now successfully set up the Solution Manager. **You can optionally configure the satellite systems in the following exercise.**
3	**(Optional) Configuration of the satellite systems.**
3.1	**Start the Service Data Control Center (transaction *SDCC*) to configure the satellite systems. Schedule the *Automatic Session Manager*.**
3.2	**Check whether the satellite system is set up correctly.** **Query in the Solution Manager which support sessions can be run on the satellite system. To do this, choose *Refresh Sessions*.** **Check whether the job: *AUTO_SESSION_MANAGER* is scheduled.**

No.	Solutions
1	**Installing the Solution Manager**
1.1	**Check whether the Solution Manager is installed as an Add-On in your system.**
	Start transaction *SAINT*. There you can see the installed Add-On component *ST* with the description *SAP Solution Architect & Manager*. Alternatively, you can display the SAP system data from any transaction by choosing *System → Status*. Choosing *Component Information* also displays the installed Solution Manager package.
2	**Setting Up a New Solution Landscape**
2.1	**Define a new Solution Landscape, *ADM100*, in the Solution Manager. To do this, first define the system on which the Solution Manager is installed. Enter any customer number for this, but the correct installation number. Do not allow connection to SAP. Then define the systems in your system landscape.**
	Start transaction *SOLUTION_MANAGER* (or *DSWP*). Create a new Solution Landscape. To do this, choose *New*. Enter any number for the requested customer number. Enter the correct installation number for your system (see *System → Status*). Uncheck the flag: *Allow connection to SAP*.
	Now define the systems in your system landscape. In the *Solution Scope* area, choose the function *Create/Edit System Landscape*. Here, you must enter the SID of the satellite system and an RFC connection to this system. Confirm the production system landscape in the input window by choosing *Save + Next Open Check*. Choose the *R/3 System Landscape* scenario and then choose *Save + Next Open Check* twice. Then enter the SID and the installation number of the satellite system. You can select *SAP R/3* as the system type. Set the *Activate* flag and then choose *Save + Next Open Check* twice.
	The system automatically creates an RFC connection to the satellite system with the entries in the following window. Enter the name of your application server, your system number and the password of the *CSMREG* user (`SOLMAN`) in client *000* for each satellite system. Choose *Save* and return to your Solution Landscape.
2.2	**Check whether the Solution Manager is correctly set up.**
	The three support portals are now displayed for the *ADM100* Solution Landscape that you have set up. The Solution Manager has scheduled an EarlyWatch alert for all satellite systems in the monitoring portal.
	Check whether the job: *SM:EXEC SERVICES* is scheduled. Display the jobs created by you in the Job Overview *SM37*.
	Check whether the RFC connection *DEST_<SID>___1* is set up. The RFC connection can be checked using transaction *SM59*.

	You have now successfully set up the Solution Manager.
	You can optionally configure the satellite systems in the following exercise.
3	**(Optional) Configuration of the satellite systems.**
3.1	**Start the Service Data Control Center (transaction** *SDCC***) to configure the satellite systems. Schedule the** *Automatic Session Manager***.**
	Call transaction *SDCC*. Do not perform the *Service Preparation Check* (first dialog box). Schedule the job *AUTO_SESSION_MANAGER* (second dialog box). Choose *Schedule ASM* and then *Continue*.
	The *SOLUTION_MANAGER* RFC connection from the satellite system to the Solution Manager has already been created.
3.2	**Check whether the satellite system is set up correctly.**
	Query in the Solution Manager which support sessions can be run on the satellite system. To do this, choose *Refresh Sessions***.** A list of services that are to be executed on the satellite services is displayed in the session overview table.
	Check whether the job: *AUTO_SESSION_MANAGER* **is scheduled.** Display the jobs created by you in the Job Overview *SM37*.

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System Monitoring

Contents:

- **Overview of the CCMS Alert Monitoring Infrastructure**
- **Using the CCMS Alert Monitor**
- **Maintaining threshold values in the CCMS Alert Monitor**

Objectives:

At the conclusion of this unit, you will be able to:

- **Explain the concepts of the CCMS Alert Monitoring Infrastructure**
- **Use the CCMS Alert Monitor to monitor your system**
- **Activate threshold values that are suitable for your system environment**
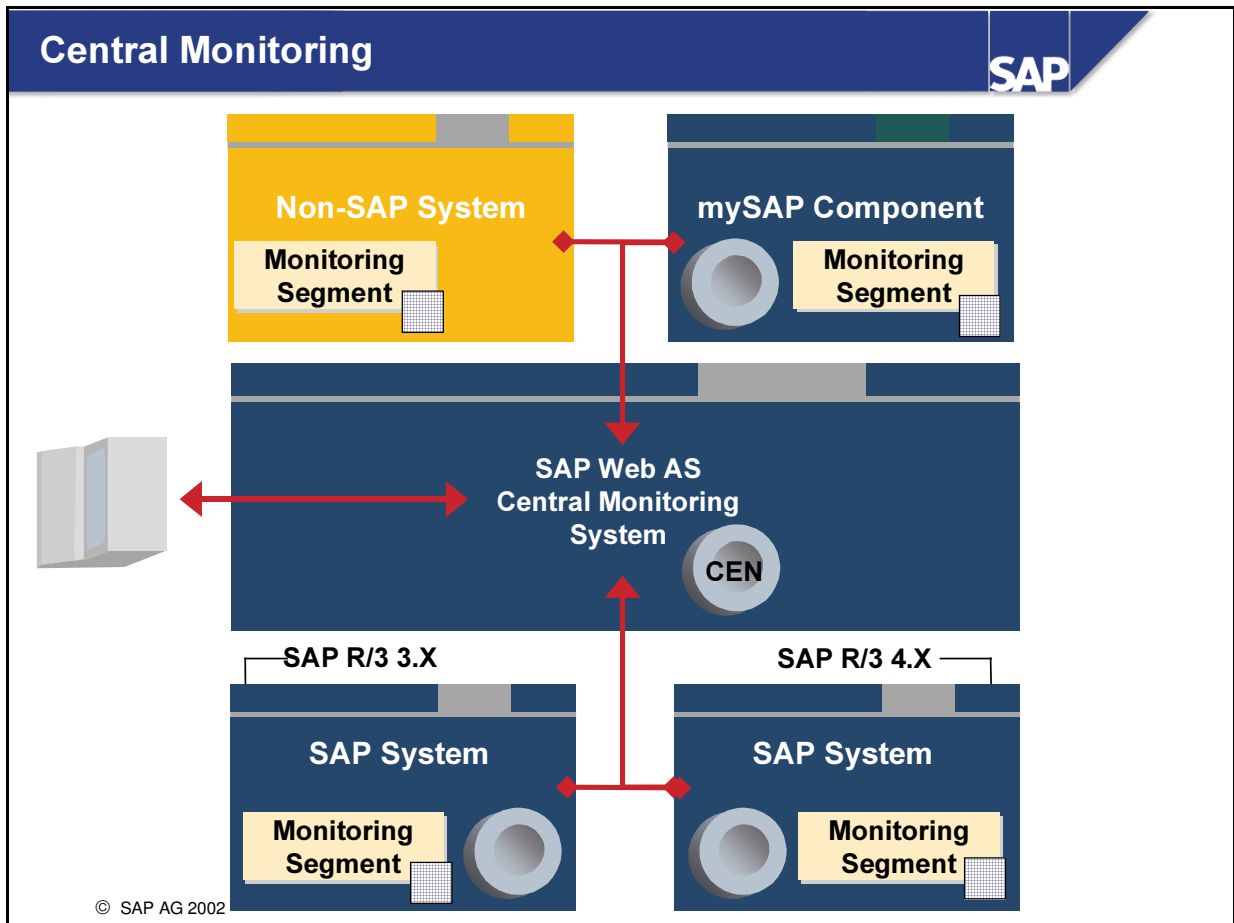
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Monitoring: Why and How?

- **Why?**
    - **To ensure the efficient processing of business processes**
    - **To ensure system security and stability**
- **How?**
    - **Central and cross-system**
    - **With an alert if an error occurs**
    - **With help that provides cross-system detailed information if an error occurs**
    - **With the help of the CCMS Alert Monitoring Infrastructure and the special transactions connected to it**
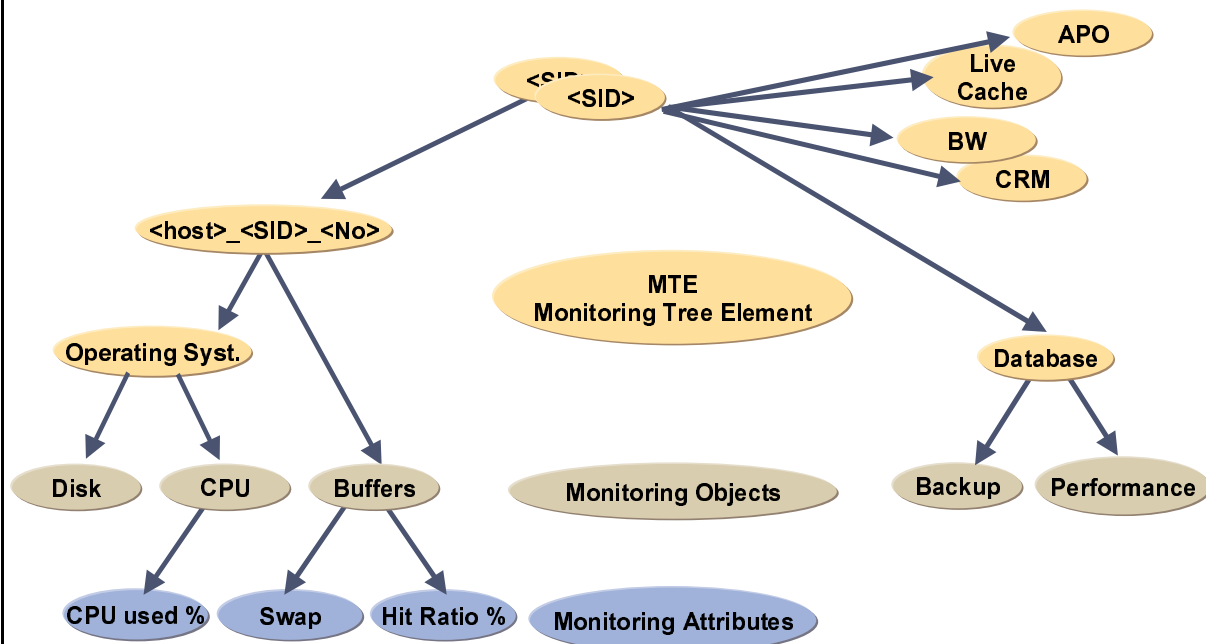
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- Processing a business process in the mySAP.com e-business world involves many components. These components must be monitored, as both a gradual reduction in performance and a sudden breakdown of a component could substantially affect the entire productivity. It is a task of the administrator to regularly monitor the system landscape, and to be proactive, not only in the case of errors.

- Example: A file system in which files of the SAP database are stored is 100% full. The database can no longer extend the tables in the files. A user performs a business transaction in the context of which a data record should be asynchronously added to one of these tables. The insert fails due to the space problem in the file system. The database error is seen as so serious that the entire asynchronous update process is automatically deactivated. All user sessions hang with the display of the hourglass. The SAP system hangs. If the fill level of the file system had been regularly checked, the administrator could have created space in other file systems and avoided the system downtime.

- Monitoring should be organized as efficiently as possible. There is not enough time for an administrator to log on to each host component to check its status. An efficient monitoring structure should be able to centrally display the entire system landscape. If an error occurs, the person responsible is automatically notified. Tools should be provided for the analysis of errors that provide cross-system detailed information about the problem.

SAP

Non-SAP System

Monitoring Segment

mySAP Component

Monitoring Segment

SAP Web AS
Central Monitoring System

CEN

SAP R/3 3.X

SAP System

Monitoring Segment

SAP R/3 4.X

SAP System

Monitoring Segment

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- The CCMS Alert Monitoring Infrastructure provides you with the possibility of monitoring a mySAP.com e-business platform efficiently and centrally.

- The monitoring infrastructure must be installed on every component that is to be centrally monitored. This is automatically the case for SAP R/3 4.x Systems. SAP R/3 3.x Systems and components on which no SAP system is active are connected using CCMS agents.

- Each component collects its own monitoring data using the monitoring infrastructure and stores it locally in the main memory. This part of the main memory is called the monitoring segment. You can configure the size of the monitoring segment.

- An SAP system is selected as the central monitoring system. It should have as high a release status as possible (at least SAP R/3 4.6C) and a high level of availability. In large system landscapes, we recommend that you include a separate system for special tasks such as central monitoring, Central User Administration, transport domains controller, or the Solution Manager. From a performance point of view, the workload of the central monitoring system increases only insignificantly, as the monitoring data is usually collected decentrally.

- The central monitoring system collects the monitoring data for the components and displays it in various views. In this way, the administrator has a central view of the entire system landscape. If errors occur, the administrator can jump directly from the central monitoring system to the appropriate component to correct a problem in a detailed analysis.

CCMS Alert Monitoring Infrastructure in Detail
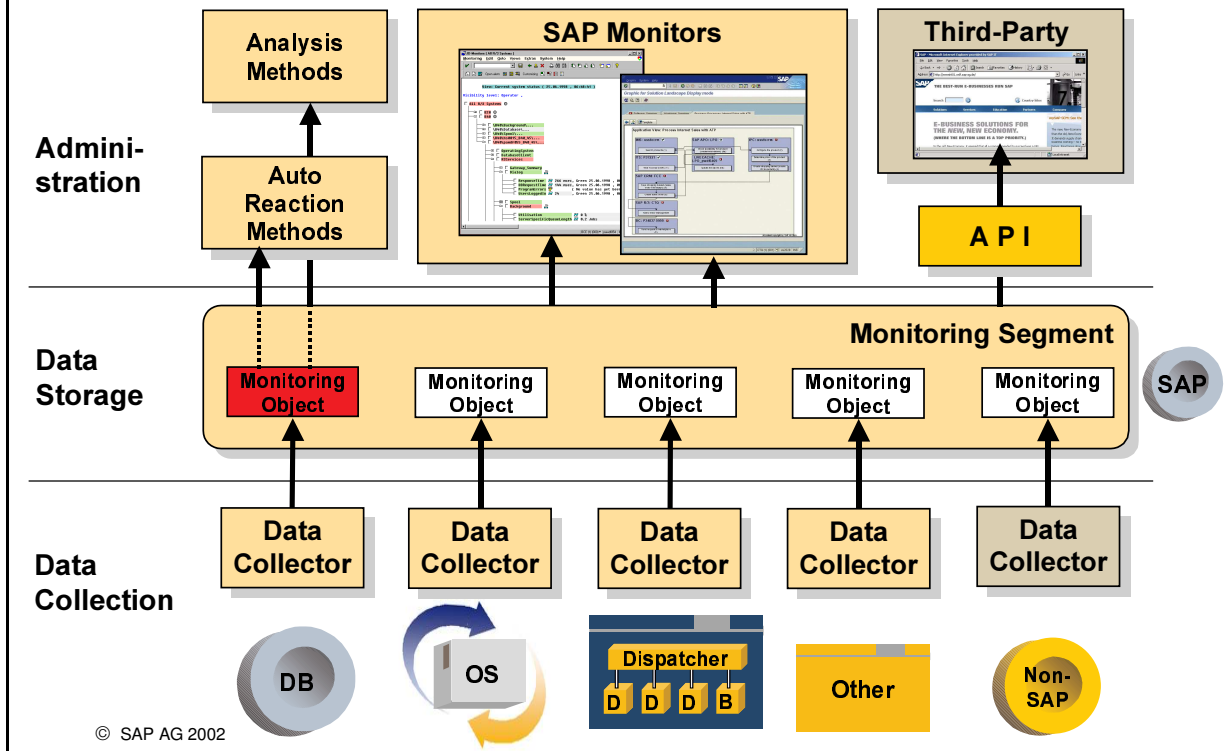
- The CCMS Alert Monitoring Infrastructure consists of three parts: data collection, data storage, and administration.

- At the data collection level, special programs called data collectors monitor small subareas of the mySAP.com e-business platform. Data collectors can be ABAP, C, or Java programs. There are over 100 data collectors in ABAP alone. Each data collector checks its subcomponent at regular intervals and stores the collected monitoring data in the main memory of its host.

- At the data storage level, the area of the main memory that contains the monitoring data from the data collector is called the monitoring segment. As the main memory data is always overwritten, it can be permanently copied to database tables. You can then analyze the data later. The data collection and storage parts must be present on every component that is to be centrally monitored.

- The administration level allows the display and evaluation of the data from the monitoring segment. SAP provides an expert tool, the CCMS Alert Monitor (transaction *RZ20*) as a display transaction. Alternatively, you can use the Solution Manager to display the data in a business process-oriented context. If the system identifies a problem, it can execute an auto reaction, such as informing the responsible person. The analysis method then helps you to investigate the problem.

- The CCMS Alert Monitoring Infrastructure can be extended. You can integrate your own components using data collectors that you have written yourself. Third-party vendors and partners can export the monitoring data from the monitoring segment using various interfaces.

Monitor Structure

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- The CCMS Alert Monitor (transaction *RZ20*) displays the monitoring data from the monitoring segment in a tree structure. The tree structure allows a clear display when you are displaying a large number of measured values.

- Any node in the tree is called a Monitoring Tree Element (MTE).

- The measured values that are collected by the data collectors are displayed at the lowest level in the leaves of the tree. The leaves are called monitoring attributes.

- Threshold values can be stored for a monitoring attribute. SAP delivers default threshold values. However, in order to customize the monitor as well as possible for your system environment, you should check these threshold values, and adjust them if required.

- Monitoring attributes are bundled using monitoring objects at the second-lowest level. For example, the monitoring object program buffer contains, among others, the attributes *hit rate* and *swap*.

- All nodes at higher levels in the tree serve to structure the monitoring objects in a logical and clear way, so that you can easily find the monitoring attribute that you require.

- The CCMS Alert Monitor displays various subareas of the monitoring data in various views. One view can contain data from multiple SAP systems.
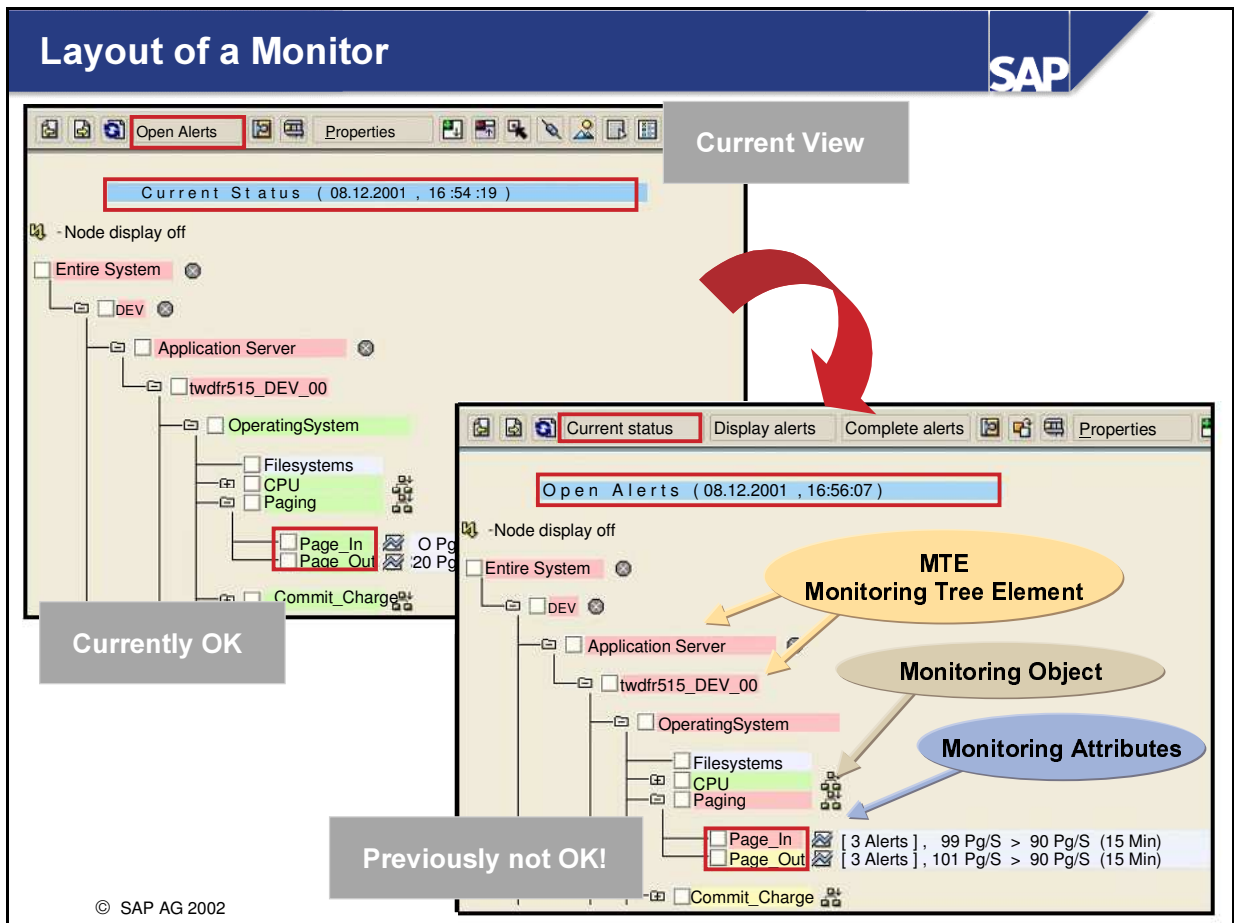
Transaction *RZ20*
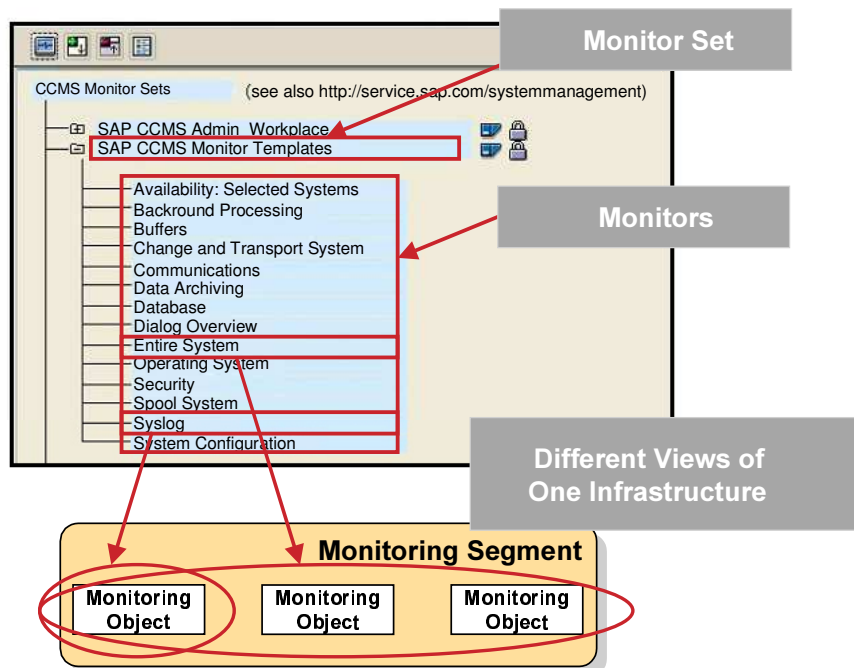
© SAP AG 2002

- Calling transaction *RZ20* starts the CCMS Alert Monitor. To do this, choose *Tools → CCMS → Control/Monitoring → Alert Monitor* from the SAP Easy Access menu.

- SAP delivers the Alert Monitor with preconfigured monitor sets that you can use immediately. Every monitor set bundles monitors that display various parts of the entire monitoring architecture, by topic area. It is therefore easier to find the database area, for example.

- The delivered monitor sets can be different for each system. For example, a mySAP CRM system contains a special set for monitoring the CRM scenario. There are, of course, special data collectors connected with this that SAP delivers preconfigured with a mySAP CRM System.

- The monitoring data that monitors display can overlap. This means that the monitoring attribute hit rate of the program buffer can appear in several monitors. For example, if you change the threshold value for this attribute in one of these monitors, it is changed in all monitors.

- Some monitors, such as the monitor *Availability: Selected Systems* in *SAP CCMS Monitor Templates* monitor set do not initially display any data. This can be due to the fact that special Customizing settings are required to start the underlying data collectors.

- To begin with, you will use the preconfigured monitors. Later, you can also create your own monitors that display exactly the data that you require for your daily monitoring work.

- You can open a monitor by double-clicking its name.

Layout of a Monitor

Open Alerts   Properties

Current View

Current Status (08.12.2001 , 16:54:19)

- Node display off

- Entire System ⊗
  - DEV ⊗
    - Application Server ⊗
      - twdfr515_DEV_00
        - OperatingSystem
          - Filesystems
          - CPU
          - Paging
            - Page_In   O Pg
            - Page_Out   20 Pg
          - Commit_Charge

Currently OK

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Current status   Display alerts   Complete alerts   Properties

Open Alerts (08.12.2001 , 16:56:07)

- Node display off

- Entire System ⊗
  - DEV ⊗
    - Application Server
      - twdfr515_DEV_00
        - OperatingSystem
          - Filesystems
          - CPU
          - Paging
            - Page_In   [3 Alerts] , 99 Pg/S > 90 Pg/S (15 Min)
            - Page_Out   [3 Alerts] , 101 Pg/S > 90 Pg/S (15 Min)
          - Commit_Charge

MTE
Monitoring Tree Element

Monitoring Object

Monitoring Attributes

Previously not OK!

- After you have opened a monitor, the corresponding monitoring data is displayed in the form of a tree. By clicking the + sign beside an MTE, you can expand the tree down to its leaves (monitoring attributes).

- Alert threshold values for triggering yellow and red alerts are assigned to monitoring attributes. If the threshold value condition is fulfilled, first a yellow, and then, if there is further deterioration, a red alert is triggered. The color of the monitoring attribute is propagated to its parent node in the tree, where red outweighs yellow. You can determine whether there is an alert in the tree from the root of the tree.

- The monitor should support you in your daily work. After you have opened the monitor, there are two views available to you:

  • The *Current Status* view displays the monitor with the newest reported data.

  • The *Open Alerts* view displays the monitor with its history information.

- For example, there may have been problems during the previous night that have been corrected in the meantime. In the *Current Status* view, the monitoring attribute is green, while it is displayed as red in the *Open Alerts* view. After you have ensured that there are currently no problems, you can then investigate problems that have previously occurred. You can see the selected view in the upper part of the monitor. You can switch views by choosing *Current Status* or *Open Alerts*.