

Kofax Communication Server

TC/LINK-SC Technical Manual

Version: 10.3.0

Date: 2019-12-13

The KOFAX logo is rendered in a bold, blue, sans-serif typeface. The letters are thick and closely spaced, with a clean, modern aesthetic. The 'K' and 'F' are particularly prominent due to their size and weight.

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Chapter 1

Preface

SAP is one of the most important suppliers of business applications all over the world. The SAP software products like R/2 and R/3 are state-of-the-art application systems for large and medium sized organizations.

Kofax is the leading manufacturer of high-end enterprise messaging servers with integration into email and application platforms and has thousands of installations with leading companies world-wide. Hundreds of Kofax Communication Server installations are linked to SAP applications today.

As business cycles become shorter and shorter (e.g., just-in-time manufacturing), the importance of fast electronic communications increases. Thus quick and secure communication is a must – with deep integration into application platforms to avoid manual faxing of printed application.

Sending of messages has to be possible from applications (e.g., automatic transmission of purchase orders, order confirmations by fax) and by individuals who create and compile individual messages within email and word processing applications. Status reports have to be available immediately to the sending users within the application. Inbound messages have to be routed to individuals and applications within the SAP applications environment by the existing routing technologies (such as DID from fax and Telex, User IDs from any email services and other platforms).

With SAP R/3 Release 3.1 there is a new interface called *SAPconnect* for linking external communication components to the R/3 system.

SAPconnect is a standard interface for external communication between R/3 systems and external partners. The communication takes place via telecommunications services, for example FAX, Internet, X.400.

With *SAPconnect*, links can be established to various types of communication components (nodes), for example:

- to other R/3 systems
- to Kofax Communication Server
- to Microsoft Exchange Servers

The SAPconnect RFC interface is no longer supported as of SAP NetWeaver 7.2. Use TC/LINK-SC7 instead.

Basic characteristics of SAPconnect interface:

- offers open and full integration with email and messaging platforms.
- is a messaging interface to partner applications, which offers a broad range of functionality
- has been developed by SAP as successor to SAPcomm
- offers a single, central point of access for any communications system wishing to connect to R/3 based on SAP's Remote Function Call technology

- works together closely with SAPoffice, which provides message storage, message routing and user interface
- is configured and monitored completely within the R/3 system, except for connectors to communication components (for example TC/LINK-SC)

Important The Kofax Communication Server and its components formerly used the name TOPCALL. Some screen shots and texts in this manual may still use the former name.

Chapter 2

Functionality

This section describes the functionality of TC/LINK-SC.

Overview

The KCS server interconnects with R/3 application server via the *SAPconnect* messaging interface.

SAPconnect data structures (messages, notifications) are exchanged with the R/3 server by the means of SAP's *Remote Function Call* R/3 Terminology:RFC" technology. A *Remote Function Call* (RFC) is a call to a function module running in a system different from the caller's. The remote function can also be called from within the same system (as a remote call), but usually caller and callee will be in different systems.

There are two kinds of RFC R/3 Terminology:RFC Client" "R/3 Terminology:RFC Server" programs: *RFC client* and *RFC server* programs. *RFC client* is the instance that calls up the RFC to execute the function provided by an *RFC server*. In other words, *RFC client* is the sender, that sends objects and *RFC server* is the receiver to receive and execute objects sent by *RFC client*.

The RFC interface uses the *CPI-C* (*Common Programming Interface – Communications*) as a low-layer communication protocol to interact with the R/3 application server. *CPI-C* was first defined as a standardized communications interface by IBM, as part of the *SAA* standard. Then *CPI-C* was modified by *X/Open* to include additional functions. SAP's *CPI-C* implementations support the *X/Open Developers' Specification – CPI-C*.

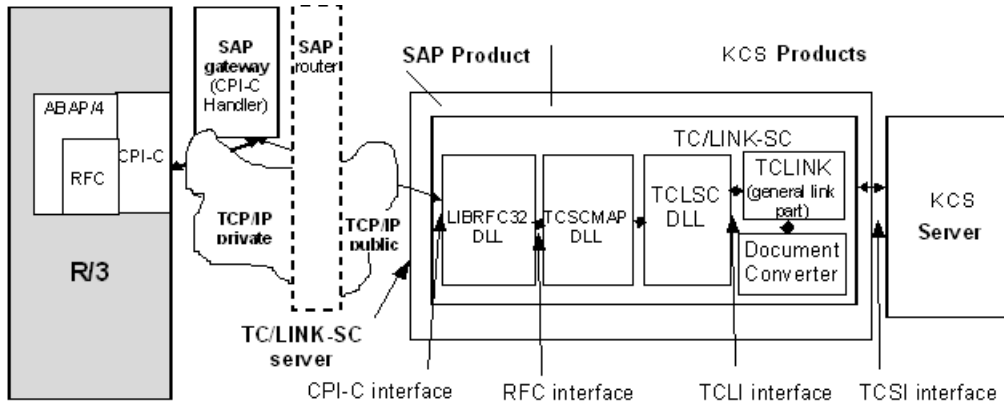
The *CPI-C* communication with the R/3 application server must **always** run via *CPI-C Handler* (*SAP gateway*).

As a network transport, the TCP/IP protocol stack is being used.

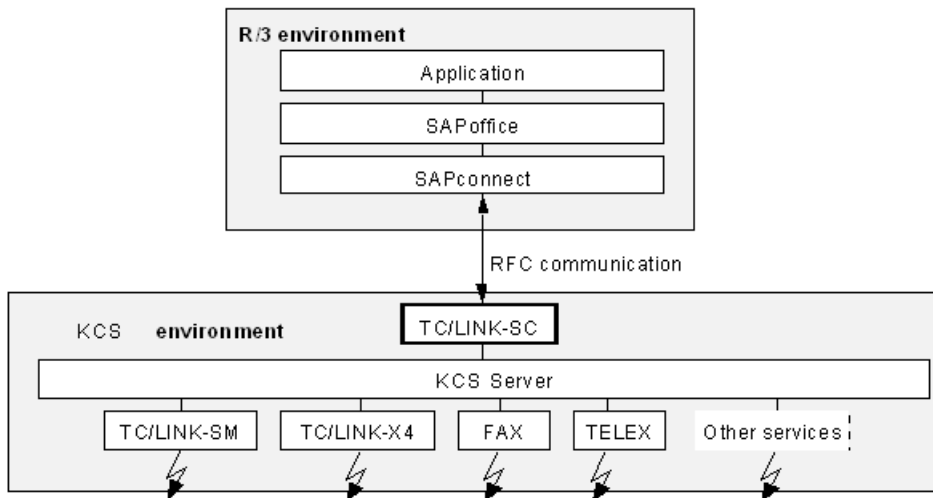
SAP gateway may run anywhere in the TCP/IP network. But the most preferred method is to run it on the SAP R/3 application server. This will be probably the most typical situation at the R/3 customer site since the default *SAP gateway* is always running at every R/3 application server.

Optionally, the communication between TC/LINK-SC and *SAP gateway* may run via *SAProuter*.

SAProuter is a SAP software product available on all R/3-based UNIX and Windows NT/95 platforms. It acts like a firewall system by regulating access from/to customer's network.



TCLINK-SC is the preferred link to connect the KCS System to SAP/3. By using SAPconnect, it provides the most direct link to SAPoffice, the messaging service of R/3. In this way it makes the full KCS messaging functionality (FAX, Telex, SMTP, X.400, ...) available to SAPoffice and all SAP R/3 applications.



General Link Functionality

TC/LINK-SC has been implemented according to the KCS Link architecture and provides full TC/LINK functionality:

- Attachment conversion with learn mode
- Cover sheets and templates
- All ++commands (++to, ++cover, etc) in messages transferred from R/3 to the KCS System are processed by the TC/LINK-SC. This includes also ++commands embedded with attached PostScript files.

Refer to the *TC/LINK Technical Manual* for detailed description.

Address Mapping

This section describes the address mapping.

SAPoffice Addressing

All addresses necessary for the operation of SAPoffice are stored and maintained in the *address management*.

On the one hand there are the address specifications necessary for external transmission (to mail recipients outside the particular SAPoffice), for example X.400 addresses or Internet addresses.

On the other, internal users (within the particular SAPoffice) also have an address in the *address management*.

Internal SAPoffice users can be assigned several addresses of different types: RML (internal SAPoffice address type), FAX, SMTP and X.400. Each of used address types must be assigned to the specific *communication method*, like SAPconnect, SAPcomm etc. (see [Installation](#)).

SAPconnect interface supports 3 address types: FAX, SMTP and X.400.

On sending outbound messages via SAPconnect interface, SAPoffice user can address fax, SMTP and X.400 recipients directly. Other mail recipients (MS Exchange, Lotus Notes) must be embedded into either X.400 or SMTP address type. If a SAPoffice user sends a message to recipient with specific address type (e.g., FAX), the message's originator will be set to originating SAPoffice user's address with the same address type.

On receiving inbound messages via SAPconnect interface, SAPoffice recipients may be addressed by either of FAX, SMTP or X.400 address types. The only condition is that the addressed SAPoffice user must have been assigned an address of particular type.

TCLINK-SC performs address mapping of all 3 SAPconnect address types (FAX, SMTP, X.400) to the corresponding KCS services and vice versa.

Virtual Domains for KCS Server

Once connected via SAPconnect interface to the KCS server, SAPoffice users may use all services provided by the KCS: they can send faxes, telexes, X.400, SMTP, MS Exchange messages etc. Faxes, X.400 and SMTP messages can be addressed directly using SAPconnect's native address types. All other addresses (Exchange, Lotus Notes, telex) must be embedded into either X.400 or SMTP address type.

As to be able to distinguish if the X.400 or SMTP address is a real X.400 or SMTP address or if such an address only contains another embedded address, *virtual domains* are being used.

X.400 and SMTP *virtual domains* are configured during TC/LINK-SC setup (see [Installation](#)).

Corresponding registry settings:

SMTP virtual domain:

```
TCLINKSC\SAP\SCLinkSMTPDomain
```

X.400 virtual domain:

```
TCLINKSC\SAP\SCLinkX400Country
TCLINKSC\SAP\SCLinkX400ADMD
TCLINKSC\SAP\SCLinkX400PRMD
TCLINKSC\SAP\SCLinkX400Org
TCLINKSC\SAP\SCLinkX400OU1
```

SMTP *virtual domain* comprises the domain part of the SMTP type address.

X.400 *virtual domain* comprises following fields of the X.400 address type:

Country, ADMD, PRMD, Organization and Organizational Unit 1.

On receiving messages from SAPoffice, all recipient addresses with X.400 or SMTP types are being checked if belonging to own *virtual domain*.

If not, the message is being sent further to the default service for X.400 or SMTP, respectively (of course, these X.400/SMTP services must have been configured to point to the TC/LINK-X4 and TC/LINK-SM link modules).

If the address does belong to the own *virtual domain*, TC/LINK-SC's address mapping mechanism will be used to extract the embedded address of another KCS service (telex, KCS user, MS Exchange) from the X.400 or SMTP.

SMTP and X.400 virtual domains are being setup only with *Advanced Installation* (see [Advanced Installation](#)).

During *Easy Install* (see [Easy Installation](#)), dedicated for fax operation only, the SMTP domain is set to "topcall" by setup, X.400 domain remains undefined.

Setting SMTP domain even with *Easy Install* for pure fax installations is that it makes sending from TCfW to SAP R/3 users for test purposes possible (any defined SMTP domain is necessary for this send operation, please see [Addressing from SAPoffice to KCS](#)).

Example:

Assume the KCS server running TC/LINK-SC, TC/LINK-X4, TC/LINK-SM.

Default services for TC/LINK-X4 and TC/LINK-SM are X400 and SMTP, respectively.

Own (virtual) SMTP domain is charlie.topcall.co.at, own X.400 domain C=at;A=umi-at;P=topcall;

O=charlie

An incoming message(s) with X.400/SMTP recipients will be handled like:

Recipient	Flintstone@charlie.topcall.co.at	will be mapped to KCS user flintstone
Any recipient with other domain	Flintstone@bedrock.us	will be send further via SMTP service
Recipient	C=at;A=umi-at;P=topcall;S=FLINTSTONE	will be mapped to KCS user flintstone
Any Recipient	C=US;P=BEDROCK;A=X400NET;S=FLINTSTONE	will be sent further via X400 service.

Note The way how KCS addresses are being embedded into X.400/SMTP address types is described in detail in the following sections.

Addressing from KCS to SAPoffice

General address format: ***tc_queue:address_type:address***,

where address type may be either of 3 SAPconnect address types: **FAX**, **SMTP** or **X400**.

Example:

(sending to SAPoffice fax recipient)

tclsci:fax:12345

Example:

(sending to SAPoffice SMTP recipient)

tclsci:smtp:fred.flintstone@bedrock.us

The message's originator is being set according to following rules:

- If the originator is KCS user, the SAPconnect message originator will be the first active KCS address (KCS UserId) embedded into SMTP address type like TCUserId@virtual_domain
- If the originator is fax (incoming fax), the SAPconnect message originator will be the fax number of originating fax machine and will be of fax address type.
- If the originator is **telex/teletex (incoming telex/teletex)**, the SAPconnect message originator will be embedded into SMTP address type like
TLX#number#answerback@virtual_domain
or
TTX#number#answerback@virtual_domain
where TLX/TTX is KCS service for telex/teletex.
- If the originator is SMTP mail user (**incoming mail from TC/LINK-SM**), his SMTP address will be copied into SAPconnect message originator of address type SMTP, without any changes.
- If the originator is X.400 mail user (**incoming mail from TC/LINK-X4**), his X.400 address will be copied into SAPconnect message originator of address type X.400, without any changes.
- If the originator is of **free address type**, the SAPconnect message originator will be embedded into SMTP address type like FREE#number@virtual_domain

Addressing from SAPoffice to KCS

There are the following rules how the message recipients are being evaluated:

Addressing Without Virtual Domains

- Fax recipients are being directly mapped to default service for FAX (configured during TC/LINK-SC setup) and fax number.

- Those SMTP recipients not belonging to the own virtual SMTP domain are being sent using the default service for SMTP (TC/LINK-SC's configuration value, currently pre-set to "SMTP" service).
- Those X.400 recipients not belonging to the own virtual X.400 domain are being sent using the default service for X.400 (configured during TC/LINK-SC setup).

Addressing Using Virtual Domains

Those SMTP recipients, belonging to the own virtual SMTP domain, are considered to contain one of the following embedded addresses ('service' is the KCS service and '#' is the separator between different address parts):

```
service#number#answerback@virtual_domain
service#number@virtual_domain
TCUser@virtual_domain
```

(Where TCUser may be the KCS UserId or one of KCS user's SMTP addresses)

Those X.400 recipients, belonging to the own SMTP domain are considered to contain one of the following embedded addresses:

- KCS number and KCS's service (e.g., FAX, TLX, TOPCALL etc.) is extracted from the first Domain Defined Attribute (DDA) of the X.400 address, the DDA type contains the service (e.g., "FAX") and DDA value contains the fax/telex number or KCS UserId in the case of KCS user. The KCS's service specified must be valid and defined on the KCS server before the TC/LINK-SC has been started.

Example (sending to the fax number 6613321)

DDA type : "FAX"

DDA value: "6613321"

Example (sending to the KCS user 'MAX')

DDA type : "TOPCALL"

DDA value: "MAX"

- The recipient is a KCS user or KCS recipient (from address book) with UserId (Recipient Id) created from X.400's given name and surname.

Example (sending to the KCS user Anton Mayer):

X.400 Given Name = Anton X.400 Surname = Mayer (

The KCS's UserId is "Anton Mayer").

- The recipient is a KCS user or KCS recipient (from address book) with UserId (Recipient Id) created from X.400's surname.

Example (sending to the KCS user Mayer):

X.400 Surname = Mayer (any name, is not considered)

KCS's UserId is "Mayer").

Message Originator

On the other hand, the message's originator is being evaluated in the following way:

- Originator (with FAX, X.400 or SMTP address type) is a KCS user **with matching fax, X.400 or SMTP proxy address**. This feature is being referred to as *Enhanced originator mapping* and is supported with TCOSS 7.22 or higher. Please see [Enhanced Originator Mapping](#).

- Originator (with X.400 address type) is a KCS user with UserId built up from X.400's given name and surname.

Note If the X.400-type originator has his equivalent on the KCS, the notifications from the KCS are sent to this internal KCS user and not directly to TC/LINK-SC. Therefore, with the user's profile on the KCS, the appropriate action on delivery/non-delivery notifications must be defined as to send them to his X.400 address via TC/LINK-SC.

- Originator (with X.400 address type) is a KCS user with UserId built up **from X.400's surname**.

Note If the X.400-type originator has his equivalent on the KCS, the notifications from the KCS are sent to this internal KCS user and not directly to TC/LINK-SC. Therefore, with the user's profile on the KCS, the appropriate action on delivery/non-delivery notifications must be defined as to send them to his X.400 address via TC/LINK-SC.

- Originator (with SMTP address type) is a KCS user with UserId built up from the local part of SMTP address.

Note If the SMTP-type originator has his equivalent on the KCS, the notifications from the KCS are sent to this internal KCS user and not directly to TC/LINK-SC. Therefore, with the user's profile on the KCS, the appropriate action on delivery/non-delivery notifications must be defined as to send them to his SMTP address via TC/LINK-SC.

- If there is **no corresponding** KCS user (mail originator has no "KCS equivalent") then the originator is defined by the **message originator's (SAPconnect) address type and address: address_type:address**, where address_type may be **FAX, SMTP or X400**

The KCS **service** used for the originator is given by the default notification "Notification" 's image format configured for the TC/LINK-SC like following:

- The **service** will be that assigned to the corresponding prefix. If there is no service assigned to this prefix, the default service for FREE address type will be taken.
- The **address** type is FREE.

Enhanced Originator Mapping

The SAP R/3 user originator address (of fax, SMTP or X.400 address type) can be used now to find a KCS shadow user according to (one of) its proxy addresses with the same address type. (*Proxy addresses* are all addresses specified for a specific user within the KCS user profile).

KCS shadow user's addresses may be active or inactive.

Concerning enhanced **fax** originator mapping, there is a possibility to take **only last n digits** (DID digits) of SAP originator's fax number into account and to find corresponding shadow user only according to the DID number.

The length of DID is configured with the registry key TCLINKSC\SAP\SCLinkDIDLen, default=3.

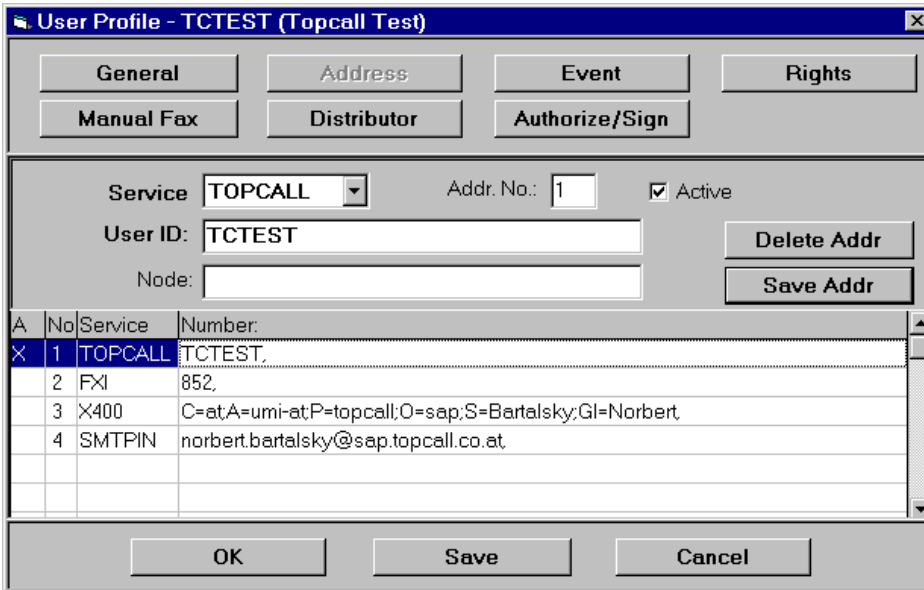
If set to a great value like for example 1000 (or missing), the whole originator's fax number is taken into account. Not used at all during SMTP or X.400 originator mapping.

Example:

The SAP R/3 user SAPTEST has following own addresses (defined within his SAP user profile):

fax number	0166133852
SMTP address	separat.bartalsky@sap.topcall.co.at
X.400 address	C=AT;A=UMI-AT;P=TOPCALL;O=SAP;S=BARTALSKY;GI=NORBERT

KCS user profile TCTEST has the same proxy addresses:



The registry key TCLINKSC\SAP\SCLinkDIDLen is set to 3.

If the SAP user SAPTEST sends a fax, SMTP or X.400 via KCS, the message's originator will be the KCS user TCTEST.

Routing Incoming Faxes to R/3 Users (Example)

This example shows a possibility how to route incoming faxes to R/3 users without creating and maintaining their KCS shadow users. As there is no possibility to make DirSync with TC/LINK-SC, operation **without shadow users** will be the most typical situation in the field.

Requirement

- Assume 600 R/3 users with own fax numbers 0166133-100, 0166133-101, ..., 0166133-699 defined within their R/3 user profiles.
- If any incoming fax could not be delivered to appropriate R/3 user (wrong or not defined DID, e.g., 0166133-900) it should be delivered to SAP System Administrator's fax number 0166133-000.
- Incoming faxes should be converted to TIFF G4 format.

Solution

- Create KCS service FXI with prefix S:
- Set the config line 235 of fax module(s) to FXI\$

- Create TIFF G4 queue user TCLSCQ4 (if not created automatically by TC/LINK-SC)
- Add following line to the **ROUTE section of RR99:

```
**ROUTE  
S:~,TCLSCQ4:FAX:0166133~\TCLSCQ4:FAX:0166133000
```

This line prepares complete R/3 recipient's fax number from its fix part 0166133 and DID got from fax module (R/3 users must be addressed by their complete fax numbers, not only by DID extensions). If R/3 returns non-delivery notification "Notification", the fax would be sent to the alternate R/3 fax recipient 0166133000.

Attachment Conversion

SAPconnect interface provides for full support of binary attachments and also for attachment type consisting of three-character long extension (DOC, BMP, TIF etc.)

On sending documents from KCS to SAPoffice users, images are converted to the graphical format preferred by the mail user (e.g., TIFF, please refer to the TCLINK Manual).

For receiving documents from SAPoffice to KCS, the KCS's SAPconnect node must be configured for all by KCS supported attachment types and the RAW format (which stands for unstructured text data).

These attachment types are defined within SAPconnect node's *format group* and should contain:

- all attachment types recognized as images by the TC/LINK-SC (those file extensions configured with the "File extension Configuration" screen during TC/LINK-SC setup).
- all attachment types handled by TDCD (e.g., Word attachments type DOC)

The SAPoffice internal document formats (BIN, GRA, IDC and OTF) need not to be known by the KCS, since SAPconnect interface provides their conversion to either Postscript or PCL5 image formats (see [Installation](#)).

Notifications

- TCLINK-SC provides full exchange of delivery and non-delivery notifications between KCS and SAP R/3.
- Read and non-read notifications are supported only from SAP to KCS. (That is, read notification sent by SAP will be processed.)

TC/LINK-SC can even force KCS server to send delivery/non-delivery notifications to SAP users, even if they had not been requested.

The reason for implementing this feature is a weakness with SAPoffice 3.1G. On sending messages SAPoffice users cannot explicitly specify requested notifications from email system. Further, depending on different addressing methods used (address book entry, direct addressing), requests for notifications are being set differently: no notification "Notification" requested, or only delivery notification requested (without request for non-delivery notification).

The delivery and non-delivery notifications can be forced by setting the following registry value to 1 (by Windows registry editor):

Registry: TCLINKSC\SAP\TCDEINotifAlways (Default: 1)

Note The SAP Connect Interface restricts the message text send with notifications to 50 characters. So the original mail will not be included to the notification. But it stays in the R/3 system anyhow.

Read Notification Handling

Registry setting <link>\SAP\ReadNotif = 0 # Forces to ignore the sent option 'registered' for all mails sent in TC → SAP direction. (That is, no read notification will be requested from SAP, and the KCS send order termination condition will be set always to 'delivered' and not to 'read'.)

Registry setting <link>\SAP\ReadNotif = 1 # Allows the sending of registered mails.

Attention! If using the <link>\SAP\ReadNotif = 1 setting, then also <link>\Topcall\FetchSingleSendOrder=1 must be set for the correct read-notification handling. (Otherwise, the separation of read-notifications (sent by SAP) to KCS send orders for mails having more than 1 recipient and using other addressing than the SAP INTERNET address type addressing (e.g. FAX or SMS) is not possible, because the SAP sends the INTERNET address of the recipient as identification of the read-notification which is not known in the original send order.)

SAP Message Send Time and Date

This section describes the SAP message send time and date.

Overview

The former R/3 3.1x implementation of free configurable "Send Attribute Classes" (=responsible for sending later) was so complicated that it was hardly used.

SAP R/3 4.0B or higher reduces the free configurable priorities to 3 possibilities.

0 – Urgent (Dringend)

1 – Normal (Normal)

2 – Favorable (Günstig)

On SAP, it is possible to assign to each of these send priorities a time-window, which specifies, when the message will be sent. Individual time-window definition is possible per RFC node / per address type / per send priority.

One such a time-window definition contains the following fields:

- The field "StartTime" allows to configure when the message will be sent (whereas 00:00:00 means send immediately)
- The field "EndTime" allows to configure when the message must be sent latest or be deleted (This has no meaning on KCS so it is ignored)
- The checkbox "Next day" allows to configure that the message will be send on the next day

SAPOffice (prior to 4.6) uses only Urgent – “Send immediately” or Favorable (Low Priority) – “Send at night”. Other SAP applications may also use the normal priority.

The SAP applications communicate with SAPconnect by telling only which priority this message has (0, 1, 2). SAPconnect is responsible for filling the fields correctly.

By default, send time and date for send class 1 is set to 00:00:00 (the midnight) and current day, respectively. This means all faxes are sent immediately.

Send time and date for send class 9 is set to 02:00:00 (2 o'clock am) and next day, respectively.

So all faxes sent with this class will be sent at 2 in the morning at the next day.

Configuring Send Times on SAP

SAP send time can be configured on the according RFC nodes.

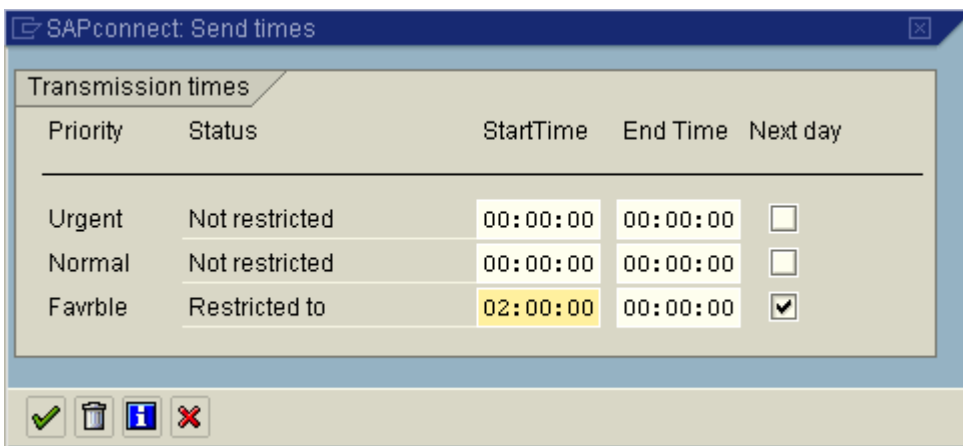
SAP 3.1 G or higher # see [Installation on SAP R/3 Release 3.1 G – 3.1 I](#)

SAP 4.0 B or higher # see [Installation on SAP R/3 Release 4.0 B](#)

SAP 4.6, 6.x, 7.x #

Send times can be configured per RFC node and per address type and per message priority:

- Go to SAPconnect administration: SAP menu: Tools => *Business Communication* => *Communication* => *SAPconnect (or call transaction SCOT)*
- Go to *View* => *Node*
- Double-click the RFC node you configured for TC/LINK-SC. The node configuration dialog opens.
- Click the Set button next to the address type (Eg. Fax), you want to configure. It opens a dialog box, where the address type parameters can be set.
- Click to the Restrict button below. The Send times definition window opens:



Send Time Support in TC/LINK-SC

If configured (with the registry setting `<link>\SAP\AcceptSAPSendTime=1`), TC/LINK-SC takes over the send time and date fields belonging to the message. This information will then be used by KCS to delay the sending of the message accordingly. The end time and date (latest delivery) fields are not supported by TC/LINK-SC. It will not be taken over by TC/LINK-SC and consequently, it will not have any effect on the send separate.

Notes:

- The send time definition does not have any effect on the send separate on SAP side. It is up to the KCS system alone to interpret these fields and realize the send separate according to them.
- When sending a message from SAP Business Workplace, SAPConnect sends always the StartTime value belonging to the “Normal” priority, even if Priority = “Low” or “High” was set in the mail (Attributes tab). Also, setting the ‘Express mail’ flag has no effect. This seems to be an error on SAP side. It was recognized with SAP 4.6 and also with SAP 7.0. This separated is a significant restriction on the usage of the SAP send time at all.
- If the SendTime support is activated (`<link>\SAP\AcceptSAPSendTime=1`), then using the relative “Latest delivery time” setting in the coversheet of the shadow user/guest user can cause “Delivery timeout error”. Reason: the absolute value of the latest delivery time will be computed based on the StartTime sent by SAP. So, the “Latest delivery time” setting must be switched off!
- Troubleshooting note: the StartTime are separated in the `I_recipients()/set_entry_rs/time_of_day` (used time-part only, date-part filled with dummy data) and `I_recipients() / set_entry_rs / time_date` (used date-part only, time-part is dummy) TCSI fields.

Summary of Error Conditions

There are certain conditions when a message cannot be converted and delivered to SAP R/3.

There are three possibilities how the outgoing message from KCS may be handled:

- R/3 may send delivery/non-delivery/read/non-read notification “Notification” with specific status code
- R/3 may raise RFC “Errors:RFC Exceptions” communication exception (on some heavy RFC communication problems)
- TC/LINK-SC itself may recognize some RFC “Errors:RFC communication problems” communication problems that occur during message transmission.

All these outgoing messages handling scenarios are converted to appropriate KCS notifications.

The general part of the Link fills the “Error” “Errors:Notification” field with a more general error indication (e.g., “LV ... message cannot be delivered to mail recipient”). This string comes from the language file, while all “Response” messages either come from R/3 or are hard coded English messages.

In the following tables, all possible outgoing messages handling scenarios are listed.

R/3 acknowledges the message with delivery/non-delivery, read/non-read notification.

For notifications, there are several “Status codes” defined with SAPconnect interface. Almost all-corresponding “Response” messages are hard coded English messages. The only exception is the SAP Status Code “812”, where the actual “Response” message is provided by R/3.

Action	SAP Status Code	TCfW Outbox “Response” field(TS_LAST_MDA_NOTE)
Delivered to recipient	701	Delivered successfully
At next node*	702	No info about delivery
Read by recipient	703	Read by recipient
Read by recipient	704	Processed by recipient
Read by recipient	705	Deleted by recipient
Not read by recipient	706	Not read by recipient
Not read by recipient	707	Not processed by recipient
At next node*	708	Recipient forbids notif.
Not read by recipient	709	Receiver rejects message
At next node*	710	Transferred to node
At next node*	711	Transf. to epar. System
At next node*	712	General message from node
At next node*	713	Transmission costs for message
At next node*	714	Node started
At next node*	715	Node finished
At next node*	716	Status sent successfully
At next node*	717	Node not resp.for recip.
KCS retries (BREAK=2)	751	Temporary RFC error
	752	Partial system error
	753	Temporary RFC error
No retries – “inactive-problems”	801	Status cannot be sent
	802	Recipient not found
	803	Message has expired
	804	Invalid transfer params
	805	Too many recipients
	806	Recipient address invalid
	807	Recipient no longer valid
	808	No route found
	809	Recipient not contacted at present
	810	Max.send attempts reached

Action	SAP Status Code	TCfW Outbox "Response" field(TS_LAST_MDA_NOTE)
	811	Mess. Part can't be sent
	812	<Response From R/3>
	813	Originator address invalid
	814	Orig address type invalid
	815	Reference not readable
	816	Permanent RFC error
	817	Can't be proc. In R/3
	818	Can't be proc. In node
	819	Recipient is invalid
	820	Message can't be encoded
	821	Parameters can't be converted
	822	Not trans.to separ.system
	823	Node reports system error, system stopped
	824	Service not available
	825	Table is not complete
	826	Not proc.no route exists
	827	Not proc.node is unknown
	828	Undefined error
	829	Internal error
	830	Release incompatibility
	Undef.	Undefined SAP status

(*) If the message has been sent registered, the action is SENT AT NEXT NODE. If not, the message is considered being delivered.

R/3 raises RFC communication exception (on some RFC communication problems)

These situations should not normally occur.

Action	SAP Status Code	TCfW Outbox "Response" field(TS_LAST_MDA_NOTE)/Explanation
No retries – "inactive-problems"	None	ERR_NODE_UNKNOWN The node of the communications component to which the message should be forwarded could not be found by the R/3 System from which the message was sent.

Action	SAP Status Code	TCfW Outbox "Response" field(TS_LAST_MDA_NOTE)/Explanation
	None	ERR_INVALID_VERSION The RFC version number entered has an invalid format (see registry TCLINKSC\SAP\RFCVersion)
	None	ERR_REC_NOT_SPECIFIED Improper coded recipients
	None	ERR_INCOMPATIBLE_VERSION The RFC version numbers (first two characters) are different from the RFC version number in R/3.
	None	ERR_PAC_NOT_SPECIFIED Improper coded attachments
	None	SYSTEM_FAILURE R/3 CPI-C user used for TC/LINK-SC, is wrong, does not exist or his password is wrong

TC/LINK-SC recognizes some RFC communication problems during message transmission

Typically such situations occur if network connection breaks during transmission.

Action	SAP Status Code	TCfW Outbox "Response" field(TS_LAST_MDA_NOTE)
KCS retries (BREAK=2)	None	RFCTimeout Failure
	None	RFCCall Failure
	none	RFCTimeout Failure
	none	RFCListen Failure
	none	RFCTimeout

Chapter 3

Installation Prerequisites

TC/LINK-SC supports R/3 release 3.1g or higher until SAP NetWeaver 7.0; on any platform.

The SAPconnect RFC interface is no longer supported for emails as of SAP NetWeaver 7.0 (see SAP note 1236270). As an alternative, it is recommended to use TC/LINK-SC7. Fax and SMS messages are still supported, but starting with NetWeaver 7.3, you need to use transaction SCON to maintain the RFC nodes.

Some additional info: TC/LINK-SC uses SAPconnect and SAPconnect is part of the SAP Web Application Server (formerly known as SAP Basis). This means, that the TC/LINK-SC supports every SAP application, which runs on the SAP WAS and which uses SAPconnect for sending and receiving messages. An example: The latest mySAP ERP 2005 contains the SAP ECC (Enterprise Central Component) 6.0, which runs on the WAS 7.00. Therefore you can say that the TC/LINK-SC supports mySAP ERP 2005 or SAP ECC 6.0. So if a customer asks “Do we support SAP xxx?”, then you should check (or contact Support) if this SAP application runs on SAP WAS.

Summary of known SAP application, which run on SAP WAS (6.x0 or higher) or SAP Basis (4.x):

- R/3 3.1g – i
- R/3 4.0x
- R/3 4.5x
- R/3 4.6x
- SAP Enterprise = 4.7
- mySAP ERP 2004 contains SAP ECC 5.0
- mySAP ERP 2005 contains SAP ECC 6.0
- mySAP CRM xxx
- SAP S/4HANA

TC/LINK-SC uses RFC as connection method. This is achieved by using SAP’s “librfc32.dll”. This library contains the necessary function calls to communicate with SAPconnect. Two instances of this DLL are between SAP and KCS: One on SAP side and one on KCS side, which is installed with the LINK-SC setup. It is recommended to always use the newest versions of the librfc32.dll. The DLL is downward compatible, so it should be no problem to use a 6.x version of librfc32.dll with a 4.6x version. Nevertheless, it is recommended to stay on the librfc32.dll version which has the same version number as the connected SAP system.

Please refer to TC/LINK manual for general KCS server and general link server prerequisites (like license keys, required KCS (TCOSS) version, Windows version on the link server etc.)

Chapter 4

Installation

This section describes the installation of TC/LINK-SC.

Installation Preparation

This section describes how to prepare for installing TC/LINK-SC.

Basic Terms

TC/LINK-SC product connects the KCS server to the SAP R/3 application server via the SAPconnect interface.

The whole communication between TC/LINK-SC and R/3 application server runs via SAP gateway and (optionally) via SAProuter. The communication is based on SAP's RFC (Remote Function Call) technology (please see [Functionality](#)).

During its startup, TC/LINK-SC "registers" (connects to) at the SAP gateway with (free configurable) identifier called Program ID "R/3 Terminology:Program ID". Further, it logs on to the R/3 application server as a CPI-C user.

All RFC connection parameters (network location of SAP gateway, SAProuter and R/3 application server) for TC/LINK-SC are stored in SAPRFC.INI file in the TCLINK directory (please see [RFC Connection Parameters \(SAPRFC.INI File\)](#)).

On the R/3 side, the SAPconnect node must be created for the TC/LINK-SC. SAPconnect node configuration comprises routing, sending options, supported image formats etc.

As to be able to contact specific TC/LINK-SC in the network, RFCDestination will be created and assigned to the SAPconnect node. RFC Destination can be understood as some kind of TC/LINK-SC's "RFC address".

But the network path to TC/LINK-SC is configured only indirectly with RFCDestination, via the SAP gateway.

RFCDestination knows only the network location of the SAP gateway where TC/LINK-SC registered and TC/LINK-SC's Program ID that was used for its registration.

TCP/IP Hosts and Services

Communication between TC/LINK-SC and R/3 environment (SAProuter, SAP gateway and R/3 application server) is based on the TCP/IP transport protocol.

TC/LINK-SC connects to its partner-application by knowing the IP network address of partner-application's host computer, and the TCP port number where the partner-application listens to. On the other hand, instead of binary IP network address/TCP port number couple the symbolic host name/service can be used: symbolic hosts names are maintained in Windows system file Hosts and symbolic services names in file Services. Hosts file associates symbolic hosts names with their binary IP addresses. Services file maintains association of binary TCP ports to symbolic service names. Hosts and Services system files are both located in Windows SYSTEM32\DRIVERS\ETC directory.

SAP applications use several TCP ports and following default symbolic service names for them:

```
sapdp00 3200/tcpsapdp01 3201/tcp
...sapdp98 3298/tcpsapdp99 3299/tcp
sapgw00 3300/tcpsapgw01 3301/tcp
...sapgw98 3398/tcpsapgw99 3399/tcp
sapsp00 3400/tcpsapsp01 3401/tcp
...
sapsp98 3498/tcp
sapsp99 3499/tcp
```

Note SAP standard services are listed for information only, Kofax technician actually does not need to know them.

SAProuter and Route String

Typically, TC/LINK-SC will communicate with the SAP gateway and R/3 application server via one or more SAProuters (please see [Functionality](#) and [Route Strings](#)). For this purpose, SAP defines a route string. "R/3 Terminology:route string" A route string can have one or more sub-strings. Each sub-string contains parameters how to reach the next SAProuter host and SAProuter program on it. The route string is case sensitive.

Such a substring looks like:

```
/H/host/S/service/P/password
```

host	symbolic host name or IP address of the target host computer
service	symbolic service name or port number of the program running on the target host computer
password	password for this connection, if needed (normally not used)

If the connection runs via one or more (n) SAProuters, the appropriate route string looks like:

```
/H/saprouter1/S/service1/P/password1/.../H/saproutern/S/servicen/P/separate/H/targethost
```

On the other hand, if TC/LINK-SC communicates directly with target host computer (SAP gateway or R/3 application server), the route string will be only:

```
targethost
```

(Without any /H/, /S/ or /P/ switches).

The route strings are being used within SAPRFC.INI configuration file (see [RFC Connection Parameters \(SAPRFC.INI File\)](#)) and for this purpose they will be input during TC/LINK-SC's setup (see [SAPconnect: Load Balancing KCS -> R/3 Server](#)).

Please note that the very last sub-string of the route string pointing to the target host, does not contain any "target" service. The appropriate target service will be configured at another place, if necessary.

For TC/LINK-SC, it is recommended:

- Use binary IP address and TCP port number for first sub-string of the route string as to avoid entries in the hosts and services file on the local link server. If SAP System Administrator gives you symbolic service name instead of TCP port for the first sub-string, always insist on getting appropriate binary TCP port instead.
- Use symbolic names got from SAP System Administrator for hosts and services in all subsequent route-sub-strings without having them entered to local hosts and services files. These symbolic names are being evaluated on SAProuters along the route path – each SAProuter evaluates only those of its next route sub-string.
- If only binary IP addresses/TCP ports are available for all sub-strings in the route-string, you may also use them for the whole route-string.

Example:

Assume RFC communication running via:

- SAProuter running on the host named “sagate1”, with IP address 147.204.2.232, listening to the port 3297
- With target host named “hs8100” (its IP address unknown for TC/LINK-SC, the association of hs8100 to its physical IP address is provided on sagate1 computer)

The appropriate route-string would be (without any entries in local hosts and/or services files).

```
/H/147.204.2.232/S/3297/H/hs8100
```

RFC Connection Parameters (SAPRFC.INI File)

The file SAPRFC.INI “R/3 Terminology:SAPRFC.INI File” contains all connection specific parameters for the RFC library (LIBRFC32.DLL, used by TC/LINK-SC) which are needed to:

- connect to an SAP R/3 application server (for RFC client)
- to register an RFC server program at an SAP gateway and wait for RFC calls from any SAP System.

The SAPRFC.INI file must be in the link directory, or it can be completely defined with full path and file names by the environment variable RFC_INI. “R/3 Terminology:RFC_INI environment variable”

(e.g., set RFC_INI = c:\rfctest\saprfc.ini). “Example:RFC_INI environment variable “

Note SAPRFC.INI file is created automatically by TC/LINK-SC’s setup in the link directory. Environment variable RFC_INI is not used. Please see [Easy Installation](#).

One SAPRFC.INI file may contain separate sections for different types of connections for both RFC’s client and server, as well. Each section starts with the line:

```
DEST=destination
```

The connection type for a specific section is given by the line

```
TYPE=connection_type
```

SAP defines five connection types (‘R’, ‘B’, ‘A’, ‘2’ and ‘E’) but TC/LINK-SC uses only two types: ‘R’ for RFC server and ‘A’ for RFC client.

Possible Parameters in SAPRFC.INI

This section describes the possible parameters in SAPRFC.INI file.

Connection Type 'R', for RFC Server

Register an RFC server program at a SAP gateway and wait for RFC calls issued by an R/3 System.

The following parameters can be used:

- DEST = Destination name
- TYPE = R
- PROGID = ProgramID
- GWHOST = Route string to SAP gateway
- GWSERV = Service name of the SAP gateway
- RFC_TRACE = 0/1: OFF/ON, optional; default:0(OFF)

Explanation:

Destination name	symbolic name of specific section in SAPRFC.INI, any name possible
ProgramID	with this string RFC server "registers" at the SAP gateway
Route string to SAP gateway	route string to the host where SAP gateway application runs
Service name of the SAP gateway	symbolic service or TCP port where SAP gateway application listens to

Connection Type 'A', for RFC Client

Connect RFC client to specific R/3 application server. The following parameters can be used:

- DEST = Destination name
- TYPE = A
- GWHOST = Route string to SAP gateway
- GWSERV = Service name of the SAP gateway
- ASHOST = Route string to R/3 application server
- SYSNR = R/3 system number
- RFC_TRACE = 0/1: OFF/ON, optional; default:0(OFF)

Explanation:

Destination name	symbolic name of specific section in SAPRFC.INI, any name possible
Route string to SAP gateway	route string to the host where SAP gateway application runs
Service name of the SAP gateway	symbolic service or TCP port where SAP gateway application listens to
Route string to R/3 appl. Server	route string to the host where R/3 application server runs
R/3 system number	R/3 system number

Note TC/LINK-SC's setup depicts each DEST= section in the SAPRFC.INI files by Windows –like section names (e.g., [SRVTCLINKSC] and [CLTCLINKSC]). These entries are completely ignored by RFC library, have no influence on the RFC communication and are used only for setup program internal purposes.

Example 1 (direct connection to R/3 application server with IP address 204.108.81.5)

```
DEST=RFCServer
TYPE=R
PROGID= TCLINK.TCLINKSC
GWHOST=204.108.81.5
GWSERV=3300
RFC_TRACE=0

DEST=RFCClient
TYPE=A
GWHOST=204.108.81.5
GWSERV=3300
ASHOST=204.108.81.5
SYSNR=00
RFC_TRACE=0
```

Example 2 (connection with R/3 application server hs8100 via 2 SAProuters)

```
DEST=RFCServer
TYPE=R
PROGID=TCLINK.TCLINKSC
GWHOST=/H/193.81.166.10/s/3299/H/147.204.2.232/S/3297/H/hs8100GWSERV=sapgw00
RFC_TRACE=0

DEST=RFCClient
TYPE=A
GWHOST=/H/193.81.166.10/s/3299/H/147.204.2.232/S/3297/H/hs8100
GWSERV=sapgw00
ASHOST=/H/193.81.166.10/s/3299/H/147.204.2.232/S/3297/H/hs8100
RFC_TRACE=0
SYSNR=00
```

SAPconnect: Parameters Summary for TC-LINK-SC

TC/LINK-SC needs following parameters to be entered during its setup:

- SAP R/3 application server IP address (if connected directly not via SAProuters) or route string (if connected via one or more SAProuters, please see [SAProuter and Route String](#)) and its (R/3) system number, where it should log on.

SAP R/3 application server IP address or route string and R/3 system number will be configured during TC/LINK-SC setup and must be provided by SAP System Administrator.

- SAP gateway host IP address (if connected directly not via SAProuters) or route string (if connected via one or more SAProuters, please see [SAProuter and Route String](#)) and TCP port (or service name), where SAP gateway application listens to.

If TC/LINK-SC connects to the SAP gateway directly (not via SAProuters), the explicit TCP port of SAP gateway must be used. If not (SAP gateway accessed via SAProuters), symbolic service name may be used instead.

Basically, SAP gateway may run anywhere in the TCP/IP network. But the only supported method is to use the SAP gateway running on the R/3 application server. This is not a restriction in the field, since on every R/3 application server supporting SAPconnect interface the default SAP gateway is running.

SAP gateway IP address or route string and TCP port or service name must be provided by SAP System Administrator.

- R/3 application server user login parameters, the user must be so called CPI-C user. These parameters are needed by TC/LINK-SC for login into R/3 application server:
 - Client (Mandant)
 - User
 - Password
 - Language (D for German or E for English).

These parameters must be provided by SAP System Administrator.

TC/LINK-SC Program ID, with this string TC/LINK-SC “registers” on the configured SAP gateway.

Free configurable string, but the preferred convention is `local_host_name.program_name`, e.g., “PCLINK.TCLINKSC”, is case sensitive.

May be freely configured during TC/LINK-SC setup, and the same string must be entered during RFCDestination setup (R/3 side).

SAPconnect: Parameters Summary for R/3 Server

Following configuration points are necessary:

- RFC destination for TC/LINK-SC RFC Destination must be created on the SAP R/3 side for TC/LINK-SC, it is based upon three parameters:
 - SAP gateway’s host name or IP address (or even a route-string, but this is normally not the case) – Service name or TCP port of the SAP gateway
 - TC/LINK-SC’s Program Id (the same as that entered during TC/LINK-SC setup).

(All of them must be the same as configured during TC/LINK-SC setup).

- SAPconnect node for TC/LINK-SC

SAPconnect node for KCS must be created on the SAP R/3 side.

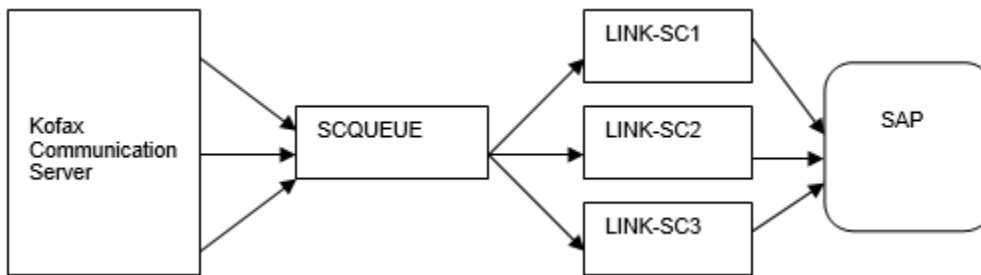
SAPconnect node must be assigned with TC/LINK-SC’s RFCDestination (see above). Further, several other node attributes, like format groups, send attribute classes, routing etc. must be configured for TC/LINK-SC’s SAPconnect node, see [Set Up SAPconnect Node for TC/LINK-SC](#) and [Schedule a SAPconnect Background Send Process](#)

SAPconnect: Load Balancing KCS > R/3 Server

Load Balancing is realized on KCS using the ability of links to poll the same queue. This means, if you want to use Load Balancing, following requirements must be met:

- install two or more LINK-SC
- the program ID can be different for the direction KCS > R/3
- the links must poll the same queue, i.e., the name of the queue must be the same
- the service names can also be different, but it makes no sense, if they use the same queues

If these settings are made, the so-called “parallel links” will perform load balancing on KCS side, i.e., if a message is waiting in the queue, the first free link will take it and send it out to SAP (see diagram below).



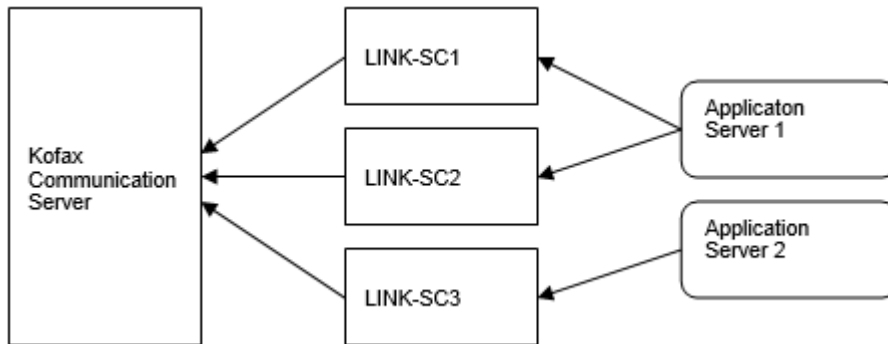
SAPconnect: Load Balancing R/3 Server > KCS

Normally, one R/3 Gateway Process is responsible for communication with external application like TC/LINK-SC.

SAPconnect “knows” by the RFC Configuration where to start the Send Process. To implement R/3 load-balancing for out-going messages follow these instructions:

During the configuration of the RFCDestination (see also [Set Up RFCDestination for TC/LINK-SC for 3.1G](#) respectively [Create an RFC Destination to TC/LINK-SC for 4.0](#)) leave the Gateway Parameters **empty**. SAPconnect now connects over the **local** Gateway Process of the Application Server, which initiates a Send Process.

Of course, each Application Server, which starts a send process, must be connected to a TC/LINK-SC instance. Otherwise the messages would never be retrieved. It is also possible to register more than one LINK-SC to one application server to get load balancing even if there is only one application server available (see diagram on next page).



Now Load Balancing on R/3 is established, if multiple send processes are scheduled.

There are two possibilities: Either use a fixed Application Server (only possible with transaction SM36) or use any Batch Server (that means an Application Server which has configured a Batch-work process).

The first possibility is less flexible regarding Load-Balancing and failsafe.

SAP recommends to plan a couple of SAPconnect Send Processes with shifted time intervals fix on different Batch Server (not necessarily on every Batch-Server). Each Batch Server must be connected to one TC/LINK-SC.

There exists a known error, that parallel send processes on one application server, can cause duplicate messages, because of an error in the locking mechanism. This error was solved with release 4.6. For releases 4.0x – 4.5x there exist a workaround. See OSS note 148471.

TC/LINK-SC Setup

This section describes the TC/LINK-SC setup.

Two Installation Modes

KCS links can be installed in two different ways:

- Easy installation
- Advanced installation

See *TC/LINK Technical Manual* for the general differences between these installation modes.

Installation Steps on the KCS Server

This section describes the installation steps on the KCS server.

Licenses

Get the required license keys and enter them to the KCS server. Please refer to the TC/LINK manual for detailed information.

KCS

Please check if the TCOSS version you are using is supported. Please refer to the TC/LINK manual for information about the minimum required TCOSS version and about restrictions for specific TCOSS version.

You also have to know the KCS (TCOSS) server name, the transport type (RPC or Native) and the link type (e.g., TCP/IP) to connect to the KCS server.

Create the KCS Link User

The default name for the link user name is "TCLINK".

From TCOSS 7.22 on this user is automatically created during initial KCS installation with password "TCLINK". Please refer to TC/LINK manual for detailed information.

Create KCS Dependencies

The KCS dependencies can be created automatically when the link starts. Please refer to TC/LINK manual for detailed information. If you disable this feature, you have to create KCS objects according to section [Automatic Creation of KCS Dependencies](#) manually. You may not need to create link queue users for all available formats. Choose only those which are required.

Installation Steps on the Link Computer

This section describes the installation steps on the link computer.

Windows Link User Account

There is no need to create a specific Windows user account for TC/LINK-SC. The link will be started with the system account.

Windows TCDCEXE User

If the document converter is necessary for TC/LINK-SC operation you need to know the user name, the password and the domain information of this user. Start setup when you are logged in with this user. Setup assumes the user name and domain of the currently logged in user are from the document converter user. It just asks for the password.

This information only is required if you are operating TCDC in foreground mode.

Run Setup Program

- Log in to the Link PC.
- Run SETUP32.EXE from the installation disk.
- Select the TC/LINK-SC Link
- To start setup, press the "Install" button.
- Please refer to the TC/LINK manual for information about the general part of the installation.

Easy Installation

Use this mode for typical new installation (faxing only, no SMTP and/or X.400 addressing) and for update. If used for update, settings of the older installation are preserved.

As only fax operation is assumed, no own SMTP and X.400 are entered via input screens.

Setup program sets the own SMTP domain to default value "topcall", in order to make sending from KCS user to SAP R/3 possible. Thus, the message originator (KCS user) will be set to

TCUserId@topcall. Please see [Addressing from KCS to SAPoffice](#)).

Even in the easy installation mode, several SAPconnect specific parameters must be entered within following two setup screens:

SAPconnect parameters setup screen

Parameter	Value
Program ID	SAPGW.TCLINKSC
SAP gateway server (Route string)	/H/192.1.52.1/S/3297/H/hs81
SAP Gateway Service Name	sapgw00
R/3 application server (Route string)	/192.1.52.1/S/3297/H/hs8100
R/3 system number	00

All parameters being input in this window specify the R/3 application server and the SAP gateway where TC/LINK-SC is connected to.

According to these parameters, the setup program generates the SAPRFC.INI file located in the TC/LINK-SC directory. This file is being used by the SAP's LIBRFC32.DLL (RFC library). For detailed description of SAPRFC.INI file, please see [RFC Connection Parameters \(SAPRFC.INI File\)](#).

Program ID (entry only in SAPRFC.INI file): With this string TC/LINK-SC registers on the configured SAP gateway. Free configurable string, but the preferred convention (and default value) is local_host_name.program_name, e.g., "PCLINK.TCLINKSC", is case sensitive. Note: The same Program Id string must be entered during RFCDestination setup (R/3 side).

SAP gateway server (Route string) "Setup:SAP gateway server" (entry only in SAPRFC.INI file): The IP address or host name (if connected directly, not via SAProuter) or route string (if connected via SAProuter) to the SAP gateway server. It must be provided by SAP System Administrator.

Important: If TC/LINK-SC and SAP Server are located in different IP subnets and there is a firewall/router inbetween doing network address translation (NAT), then host name instead of IP address must be used and made sure, that this hostname is resolved to the correct IP address (using DNS or hosts file entry) on each side of the firewall. Reason: In case of NAT eparated subnets the IP address is only meaningful for one side of the network, the host name, on the othe hand, can be translated to the “correct” IP address on each side of the firewall. This remark applies not only for the SAP gateway server definition but also for the SAP application server definition below.

SAP gateway service name“Setup:SAP gateway service” (entry only in SAPRFC.INI file): SAP gateway service name or TCP port number where the SAP gateway application listens to. If connected directly this must be the binary TCP port. If connected via SAProuters, this may be the symbolic SAP gateway service name (since SAP symbolic services are evaluated on SAProuter computers.

It must be provided by SAP System Administrator.

R/3 application server (Route String) (entry only in SAPRFC.INI file): The IP address or host name (if connected directly not via SAProuters) or route string (if connected via SAProuters) to the SAP R/3 application server. It must be provided by SAP System Administrator.

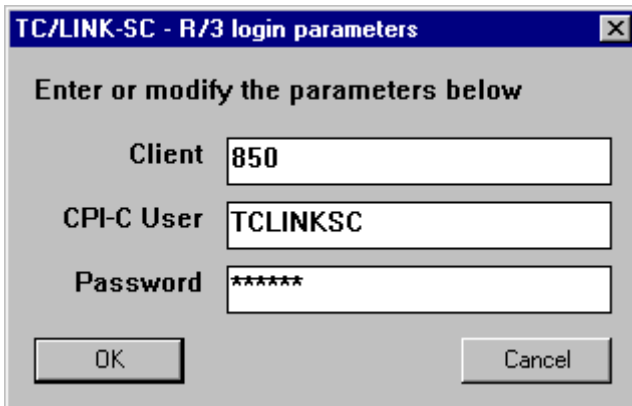
Host name instead of IP address must be used here if the TC/LINK-SC machine and the SAP application server are NAT separated. See also the according remark above at the SAP gateway server definition.

R/3 System number: the key for R/3 application server’s system number (entry in SAPRFC.INI file): System number of the R/3 application server, must be given by SAP System Administrator.

Corresponding SAPRFC.INI file (created by setup)

```
[SRVTCLINKSC]
DEST=SRVTCLINKSC
TYPE=R
PROGID=SAPGW.TCLINKSC
GWHOST=/H/192.1.52.1/S/3297/H/hs8100
GWSERV=sapgw00
RFC_TRACE=0
[CLTCLINKSC]
DEST=CLTCLINKSC
TYPE=A
GWHOST=/H/192.1.52.1/S/3297/H/hs8100
GWSERV=sapgw00
ASHOST=/H/192.1.52.1/S/3297/H/hs8100
RFC_TRACE=0
SYSNR=00
```

R/3 login parameters setup screen



TC/LINK-SC - R/3 login parameters

Enter or modify the parameters below

Client

CPI-C User

Password

OK Cancel

Key for R/3 application server's client (registry TCLINKSC\SAP\RFCClient): Client (Mandant) for R/3 application server, where the TC/LINK-SC logs in. Must be provided by SAP System Administrator.

Key for R/3 application server's user (registry TCLINKSC\SAP\RFCUser): CPI-C user name on R/3 application server, within the client area specified above. Must be provided by SAP System Administrator.

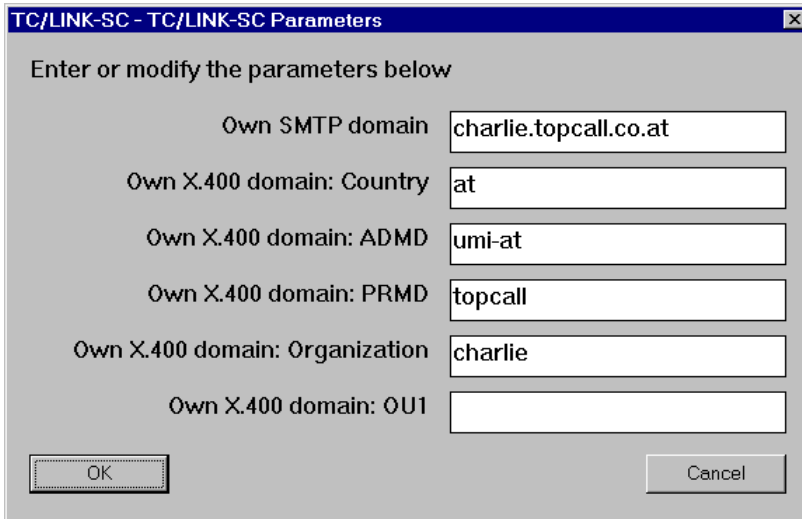
Key for R/3 application server's password (registry TCLINKSC\SAP\RFCPassword): R/3 application server user's password. It must be provided by SAP System Administrator. See [Password Restrictions of the LIBRFC32.DLL](#) for more information on password restrictions.

Advanced Installation

In advanced installation mode, all setup options can be configured. Use this mode for installations, where also SMTP and/or X.400 addressing should be used.

SAPconnect specific parameters must be configured with four setup screens. Two of them are the same as with Easy Install (see above), and two additional setup screens:

X.400 and SMTP domains (used only for SMTP and X.400 addressing)



TC/LINK-SC - TC/LINK-SC Parameters

Enter or modify the parameters below

Own SMTP domain

Own X.400 domain: Country

Own X.400 domain: ADMD

Own X.400 domain: PRMD

Own X.400 domain: Organization

Own X.400 domain: OU1

OK Cancel

Own SMTP domain: "Setup:Own SMTP domain" "Virtual Domain:SMTP" (Registry:

SAP\SCLinkSMTPDomain)

TC/LINK-SC's own (virtual) SMTP domain

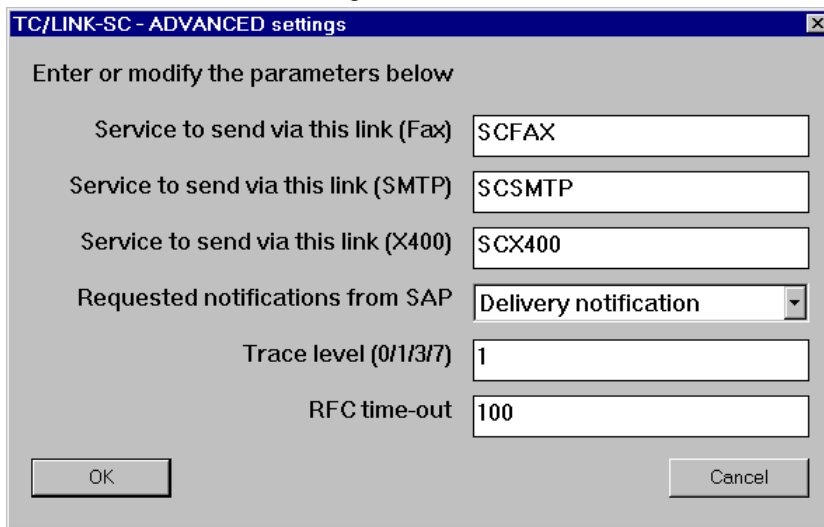
Own X.400 domain: "Setup:Own X400 domain" "Virtual Domain:X400" (Registry:

SAP\SCLinkX400Country
 SAP\SCLinkX400ADMD
 SAP\SCLinkX400PRMD
 SAP\SCLinkX400Org
 SAP\SCLinkX400OU1)

TC/LINK-SC's own (virtual) X.400 domain

Note For more details for TC/LINK-SC's virtual domains, please see [Virtual Domains for KCS Server](#).

SAPconnect advanced settings:



KCS service to send via TC/LINK-SC using SAPconnect fax address type (registry TCLINKSC\setup \ServiceSCFAX): KCS service with FREE address type, prefix default_link_queue:FAX: Default: SCFAX.

KCS service to send via TC/LINK-SC using SAPconnect SMTP address type (registry TCLINKSC\setup \ServiceSCSMTP): KCS service with FREE address type, prefix default_link_queue:SMTP:

Default: SCSMTP.

KCS service to send via TC/LINK-SC using SAPconnect X.400 address type (registry TCLINKSC\setup \ServiceSCX400): KCS service with FREE address type, prefix default_link_queue:X400:

Default: SCX400.

Requested notifications from SAP: (Registry: TCLINKSC\SAP\ReadNotif)

If set to 0, it disables the 'registered mail' handling. That is, the send option 'registered' will be ignored for all mails, no read notification will be requested from SAP for mails sent with the 'registered' flag and the KCS send order will be terminated already on delivery. Default is 0.

Setting to 1 enables the 'registered' mail handling.

Trace Level (registry TCLINKSC\SAP\TraceLevel): Bitwise oriented trace level for SAPconnect specific part of TC/LINK-SC.

Value	Bit	Description
0	-	no trace
1	Bit 0 (LSB)	Trace all errors into the trace file.
3	Bit 1	trace of RFC access functions (trace entry at function call and return).
7	Bit 2	Trace of function call hierarchy and open objects.

Default is 1.

RFC time-out: (Registry: TCLINKSC\SAP\RFCTimeout): The time in seconds TC/LINK-SC would wait for immediate (synchronous) notifications from R/3 application server, after having transmitted a message. Default 100 seconds.

Automatic Creation of KCS Dependencies

TC/LINK-SC needs several objects on KCS in order to work properly. These KCS objects are called "KCS dependencies".

The only KCS object that must exist (e.g., created via Tcfw) before TC/LINK-SC starts, is the TCLINK user used by TC/LINK-SC to log in to the KCS server. All other KCS objects may be created automatically.

For new installation of version TC/LP 1.09 or higher, this feature is activated by default.

For version updates from TC/LP 1.08 or less the feature is disabled by default. All dependencies already exist for these updates.

The following dependencies are created automatically during link startup if they do not exist. If they exist with different properties, the link will write an event log and terminate. Please check the event log in case of problems.

Description	Default name	Registry subkey	More information
Link queue users	TCLSCQ+image formats "I01234PBDGMN"		
Guest User	GUEST	Setup\GuestUser	TC/LINK-MANUAL
Default FAX service	FAX	Setup\ServiceFAX	TC/LINK-MANUAL
Default FREE service	FREE	Setup\ServiceFREE	TC/LINK-MANUAL
Default TOPCALL service	TOPCALL	Setup\ServiceTC	TC/LINK-MANUAL
Service SCFAX for sending to SAP FAX recipients via TC/LINK-SC	SCFAX	Setup\ServiceSCFAX	Service has FREE address type, and prefix <i>Default_link_queue:FAX:</i>

Description	Default name	Registry subkey	More information
Service SCSMTP for sending to SAP SMTP recipients via TC/LINK-SC	SCSMTP	Setup \\ServiceSCSMTP	Service has FREE address type, and prefix <i>Default_link_queue:SMTP:</i>
Service SCX400 for sending to SAP X.400 recipients via TC/LINK-SC	SCX400	Setup \\ServiceSCX400	Service has FREE address type, and prefix <i>Default_link_queue:X400:</i>
Default template	DEFTEMP in link user's message folder	Setup \\DefaultTemplate	TC/LINK-MANUAL (Used for guest user, should also be default template for link user. Has to be checked with TCfW.)
ONLYIMG template	ONLYIMG in link user's message folder	Setup \\OnlyImgTemplate	TC/LINK-MANUAL
Delivery Coversheet	SCDEL CVR in link user's message folder	Setup\\DelNotifCover	Used by TC/LINK-SC as additional information (max. 50 characters) sent with Delivery notification "Notification:Delivery coversheet" to SAP R/3
NonDelivery Coversheet	SCNONDEL CVR in link user's message folder	Setup \\NonDelNotifCover	Used by TC/LINK-SC as error information (max. 50 characters) sent with Non-delivery notification "Notification:Non delivery coversheet" to SAP R/3

Registry key "TCLINKSC\\Setup\\CreateDependenciesTopcall" is a flag that tells TCLINK whether it must check and create these KCS dependencies. It is set to 1 by SETUP. Whenever TCLINK starts and finds "Setup\\CreateDependenciesTopcall" set to 1, it checks and creates the dependencies. TC/LINK does not reset this flag, so by default, dependency check is done at every link start.

Creation of KCS dependencies may be disabled by setting "TCLINKSC\\Setup\\CreateDependenciesTopcall" to 0.

Please refer to the TC/LINK manual for detailed information about this feature

Multiple TC/LINK-SC Instances on One Link Server

SAPconnect interface itself, in contrary to SAPcomm, is not able to perform message routing among several different SAP R/3 instances, and among several clients (in German, "Mandanten") of one R/3 instance. In order to fulfill this task, typically several instances of TC/LINK-SC will have to be installed on one link server.

The customer will need one TC/LINK-SC instance per each client ("Mandant") of each R/3 instance available.

There are two ways of creating multiple instances. One is by re-running the Setup with a changed DEFAULTS.INI, the second way is to use the KCS Monitor Add-on available since version 1.12.03.

Creating Multiple Instances via Setup

Additional steps are necessary to prepare the installation of additional instances. All required changes can be made in the file DEFAULTS.INI.

1. Install the first link using the default setup.
2. For each additional instance do the following changes:
 - a. Change the defaults.ini of the package you install. Normally the defaults.ini is located at Disk1 of the installation pack.
 - b. **In DEFAULTS.INI, section [TCLINKSC_INSTANCE]**
Change the registry subkey name, e.g., from TCLINKSC to TCLINKSC2.
Change the display name, e.g., from TC/LINK-SC to TC/LINK-SC 2 to get a second icon.
 - c. **In DEFAULTS.INI, section [TCLINKSC]**
Change the section name according to the new subkey name, e.g., from TCLINKSC to TCLINKSC2
Change the KCS queue name (has to be different for each instance), e.g., from TCLSCQ to TCLSC2Q
Change the service names (has to be different for each instance), e.g., from SCFAX, SCX400 and SCSMTP to SCFAX2, SCSMTP2 and SCX4002
3. Then start setup to install the additional instance of the link.
Setup program creates one SAPRFC.INI file (see [RFC Connection Parameters \(SAPRFC.INI File\)](#)) for all TC/LINK-SC instances. Each instance will have two DEST= sections in this SAPRFC.INI file.

Note It is recommended to always perform these installation steps, and not manually by saving and restoring registry subkeys "TCLINKSC" for all next instances of the TC/LINK-SC!

After finishing the installation of all your links you can change back your defaults.ini to get the defaults for a new installation.

Creating Multiple Instances with KCS Monitor Add-on

The preferred method creating a new instance is to use the KCS Monitor together with TC/LINK-SC Add-on.

1. Start the KCS Monitor on the Link Server and select the local server.
2. Select the instance of the link you want to copy
3. Select copy (using the context menu or the menu entry in the edit menu)
4. Select paste and follow the change the mandatory parameters with the wizard (for a more detailed description pls. Refer to the Add-on directory)

The new instance is now ready to run. Repeat the process for each instance you want to create.

See [KCS Monitor Add-on](#) for details.

Multiple TC/LINK-SC Instances on Different Link Servers

It is possible to install several TC/LINK-SC instances on different link servers and connect them to the same client within the same R/3 instance. This improves performance and provides better fault tolerance.

On the KCS side, all TC/LINK-SC instances have to:

- Use the same link user and the same link queue users on KCS. Otherwise, no failure operation would be possible, since each link would process its own messages from KCS only.
- Use the same registry subkeys (default setup) for all instances.

On the SAP R/3 side, all TC/LINK-SC instances have to:

- Use the same CPI-C user to log in
- Use the same connection parameters (route strings) for R/3 application server and SAP gateway
- Use the same Program Id for each TC/LINK-SC (all TC/LINK-SC instances would register at the same SAPgateway with the same Program Id)

For the typical fault tolerant installation, on each link server several TC/LINK-SC instances would be running in order to handle several clients and/or R/3 instances at the customer site.

Example:

The customer has one R/3 instance (system number 00) and 4 clients 010, 020, 030 and 040. Each client should be served by two TC/LINK-SC instances running on different link servers.

Following installation steps are recommended:

- Install 4 TC/LINK-SC instances on the first link server, one instance per client, according to guidelines in [Multiple TC/LINK-SC Instances on One Link Server](#) (each instance having different connection parameters to R/3 and different queue users on KCS server).
- Repeat the same steps on the second link server, for each TC/LINK-SC instance serving specific client take the same connection parameters to R/3 and queue users on KCS server as those of TC/LINK-SC instance on the first link server, serving the same client.

Updating Multiple Instances of TC/Link-SC

As the TCMON Add-On is not designed to make any updates, just to create quickly a new instance, you have to run the setup program at least once for one instance. This will ensure that you have the new .EXE, .DLL and MAP files. The other instances will use these new files automatically.

But of course, updating only one time is only sufficient for the case that no additional registry entries were added to this newly released link (new features using new registry keys). In this case (when running the Setup only once) only the updated instance will have the new registry keys, all other instances will not have the new registry keys.

Therefore, if also new registry keys have to be created by the setup program, you have the possibility, either to create this (in most cases only few) registry keys manually for each instance or really to adapt the Defaults.ini for each instance and run the setup program then once for each instance. It is recommended to use the second option and do not enter the registry keys manually, because of the possible inconsistencies, which can occur if it is not done properly.

Password Restrictions of the LIBRFC32.DLL

During installation of TC/LINK-SC two versions of LIBRFC32.DLL are copied to the link installation directory (default: "C:\TCOSS\TCLP"). The active one will be the newest release (7100.4.172.6307) of it. The second one will be an older one (6204.4.793.3955) and is inactive as long as it is not copied over the

old one. It has a different filename (librfc32.6204.4.793.3955.dll). The reason for providing two versions is a changed behavior regarding passwords. See following table:

LIBRFC Version	MaxPasswordLength	Case-Sensitivity	Compatibility
< 7.x	8 characters	only upper-case characters are supported	Can work with versions 7.x, as long as the max length of 8 chars is fulfilled and upper case passwords are used in TC/LINK-SC and SAP
>= 7.x	40 characters	Case sensitive, i.e. upper and lower case passwords supported	Can work with versions below 7.x, as long as the max length of 8 chars is fulfilled and upper case passwords are used in TC/LINK-SC and SAP

If you connect multiple TC/LINK-SC instances from one PC to different versions of SAP (both <7.x + >=7.x) then it is recommended to use the <7.x version of the LIBRFC32.DLL and fulfill the requirements it needs.

Registry Keys Summary

For TCLINK registry keys please refer to the TCLINK manual.

The following table lists only SAPconnect-specific registry keys.

Registry	Description
TCLINKSC\SAP\ReadNotif (DWORD)	Enables registered mail handling for TC → SAP mails 0 => the send option 'registered' will be ignored for all TC → SAP mails, no read notification will be requested from SAP for mails sent with the 'registered' flag and the KCS send order will be terminated already on delivery. 1 => enables sending registered mails in TC → SAP direction. Read notification will be requested from SAP for mails sent with the 'registered' flag and the KCS send order will be terminated only on the read event and not on delivery.
TCLINKSC\SAP\RFCClient (STRING)	R/3 application server's client Client (Mandant) for R/3 application server, where the TC/LINK-SC logs in. Must be provided by SAP System Administrator.
TCLINKSC\SAP\RFCCLTrace (DWORD)	RFC client traces Reserved value, should not be changed. Default is 0.
TCLINKSC\SAP\RFCDestination (STRING)	RFC server destination name Denotes which section in the SAPRFC.INI file belongs to the RFC server, filled automatically by the setup program. Default is "RfcServer".
TCLINKSC\SAP\RFCLanguage (STRING)	R/3 application server's language Language, in which error messages and trace information are provided by the R/3 application server. Must be provided by SAP System Administrator. You should use the same short name (e.g., DE), as you use in the GUI.
TCLINKSC\SAP\RFCPassword (STRING)	R/3 application server user's password. Must be provided by SAP System Administrator. See Password Restrictions of the LIBRFC32.DLL for password restrictions.

Registry	Description
TCLINKSC\SAP\RFCPollCycle (DWORD)	Poll cycle for RFC Server Poll cycle for the RFC server (receiver) in seconds. Automatically set to the same value as has been set for general TCLINK registry key General\PollCycle
TCLINKSC\SAP\RFCR3Destination (STRING)	RFC client destination name Denotes which section in the SAPRFC.INI file belongs to the RFC client, filled automatically by the setup program. Default is "RfcClient".
TCLINKSC\SAP\RFCTimeout (DWORD)	RFC time-out The time in seconds TC/LINK-SC would wait for immediate (synchronous) notification from R/3 application server, after having transmitted a message. Default is 100 seconds.
TCLINKSC\SAP\RFCUser (STRING)	R/3 application server's user CPI-C user name on R/3 application server, within the client area specified above. Must be provided by SAP System Administrator.
TCLINKSC\SAP\RFCVersion (STRING)	RFC Version RFC Version in use, set to "0101" by setup program. Must not be changed.
TCLINKSC\SAP\RFCNewCallingMethod (DWORD)	Use the modified RFC calling method – according to Error-13571, Error 13066 0 – old calling sequence (default) 1 – new calling sequence
TCLINKSC\SAP\SCLinkDIDLen (DWORD)	DID Length The length of DID extension used for Enhanced originator mapping (see Enhanced Originator Mapping). Default is 3. If you do not want to use this feature set this value to 1000 assuming that no fax number is that large.
TCLINKSC\SAP\SCLinkSMTPDomain (STRING)	Own virtual SMTP domain TC/LINK-SC's own virtual domain. This virtual domain can be used for placing KCS addressing information in a dummy SMTP address when sending messages from SAP. General format for this kind of addressing with virtual domain looks like this: [service#]number[#answerback]@virtual_domain Read more in " Addressing Using Virtual Domains " and " Virtual Domains for KCS Server ".
TCLINKSC\SAP\SCLinkX400Country TCLINKSC\SAP\SCLinkX400ADMD TCLINKSC \SAP\SCLinkX400PRMD TCLINKSC \SAP\SCLinkX400Org TCLINKSC\SAP \SCLinkX400OU1 (STRING)	Own X.400 domain TC/LINK-SC's own (virtual) X.400 domain.
TCLINKSC\SAP\TCDeINotifAlways (DWORD)	Controlling KCS Delivery Notifications If set to 1, TC/LINK-SC acknowledges all incoming messages from SAP R/3 with delivery/non-delivery notification even if they have not been requested by the SAP R/3 message's originator. If set to 0, TC/LINK-SC sends delivery /non-delivery notifications to SAP R/3 originator only if he has requested them. Default is 1.

Registry	Description
TCLINKSC\SAP\TempPath (STRING)	Directory for temporary files. If does not exist, automatically created by setup. This directory is used to stored temporarily all incoming messages and notifications from SAP R/3 in files named SCM*.TMP (messages) and SCN*.TMP (notifications). Default is C:\TCOSS\TCLINK\SCTEMP
TCLINKSC\SAP\TestMode (DWORD)	Test Mode Switch to make local loop tests via local SAP gateway possible. If set to 1, local tests are possible. Default is 0.
TCLINKSC\SAP\TraceLevel (DWORD)	Trace Level Bitwise oriented trace level for SAPconnect specific part of TC/LINK-SC (see also Advanced Installation).
TCLINKSC\SAP\BinaryAttachments (DWORD)	Controlling the behavior of TXT blocks Because of error #8640 the TC/LINK-SC saves every SAPconnect content block, after the first one, as a binary attachment. If the customer does not want this behavior, then you can change this, by creating the following new registry key and set it to 1 0 ... TXT blocks are saved as binary blocks 1 ... TXT blocks are saved as text blocks and BIN blocks as binary attachments.
TCLINKSC\SAP\IgnoreFileName (DWORD)	Controlling the behavior of SAP file names A new registry key disables the original file name and creates a pseudo file name 0 ... Original file name will be used. 1 ... Pseudo file name, like "Attachment.doc", will be used.
TCLINKSC\SAP\UseSAPCostCenter (DWORD)	Using SAP Cost Center When the customer applies the SAPNote 680495, which is needed if you want to use the SAP User-ID as originator of a fax, also the SAP cost-center is filled into a SAPconnect field. If you want to use this information also as the KCS cost-center you have to set following registry value 0 ... (Default) no change 1 ... Use the SAP cost center as the KCS cost center

Registry	Description
TCLINKSC\SAP\ChangeOrig (DWORD)	<p>Using the SAP User ID as originator</p> <p>It is now possible to use the SAP User ID as the originator of faxes/SMSs instead of the original sender fax number or SMS sender number. This is used for cost accounting, as often the fax addresses/SMS sender number of the SAP users are not unique or correct. This feature can be used, by setting the registry key:</p> <p>0 ... (Default) no change 1 ... change originator to User ID</p> <p>Additionally you have to customize SAP to send the required info in the message object, as it is not included in the standard SAPconnect interface. The customer has to apply the SAPNote 680495.</p> <p>For the enhanced shadow user mapping for fax, it is necessary to change the TCLSC.MAP file (you have to add a REM in the TO_TC_ORIG section, marked in blue):</p> <pre>ENTRY ----- FAX enhanced origmapping FAX SET_FREE_ADDRESS * SET_FREE_ADDRESS SEARCH_USER_ADDRESS SRC.TS_FREE_ADDR "" REM or REG.Setup\ServiceSCFAX\Name REM REG.SAP\SCLinkDIDLen</pre> <p>Then you have to specify inactive addresses for every user with the service (e.g.) SCFAX (= SAP fax service) and as the number the SAP User-ID.</p>

Registry	Description
TCLINKSC\SAP\EnableEncryption (DWORD)	<p>Enable Encryption</p> <p>0 ... (Default) no change</p> <p>1 ... TC/LINK-SC reads out the "TO_DO_OUT" field and puts it into the "TS_FILE_NAME" value of the message.</p> <p>This feature is only in combination with the TC/Encryption Link-Exit useful.</p> <p>More Info:</p> <p>On the SAP side, you must set the "TO_DO_OUT" field in the SAPconnect interface to indicate whether a message should be encrypted/signed or not.</p> <p>You can find a list of the corresponding values below.</p> <p>This value will be available in the TS_ENV_NAME_POSTED field in the TC/Report database.</p> <p>A character ('0' to '7') is used to indicate whether the message should be encoded/signed or not.</p> <p>'0'... Not encoded, not signed, format PGP</p> <p>'1'... Not encoded, not signed, format S/Mime</p> <p>'2'... Encoded, not signed, format PGP</p> <p>'3'... Encoded, not signed, format S/Mime</p> <p>'4'... Not encoded, signed, format PGP</p> <p>'5'... Not encoded, signed, format S/Mime</p> <p>'6'... Encoded, signed, format PGP</p> <p>'7'... Encoded, signed, format S/Mime</p>

Installation Steps on SAP R/3 Application Server

The installation procedure depends on the SAP release version:

Installation on SAP R/3 Release 3.1 G – 3.1 I	Please read Installation on SAP R/3 Release 3.1 G – 3.1 I
Installation on SAP R/3 Release 4.0 B	Please read Installation on SAP R/3 Release 4.0 B
Installation on SAP R/3 Release 4.6 x	Please read Installation on SAP R/3 Release 4.6 x
Installation on SAP R/3 Release 6.20 (= SAP Enterprise 4.7)	Please read Installation on SAP Web Application Server 6.20
Installation on SAP R/3 Release 7	Please read Installation on SAP with NetWeaver 7.x

Installation on SAP R/3 Release 3.1 G – 3.1 I

Note To distinguish between the digit zero and the capital letter O it will be displayed like this:

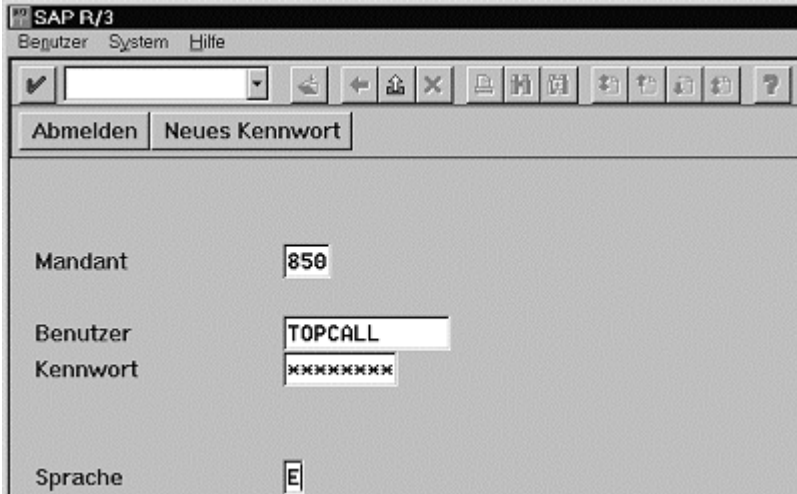
Digit zero	Ø
------------	---

Capital letter O O

Important Most entries are case sensitive!

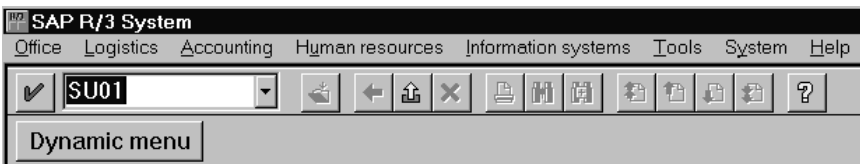
Logon to SAP R/3 Application Server with SAP GUI

Log on into the R/3 system with the normal "Dialog" R/3 user (NOT CPI-C user!)

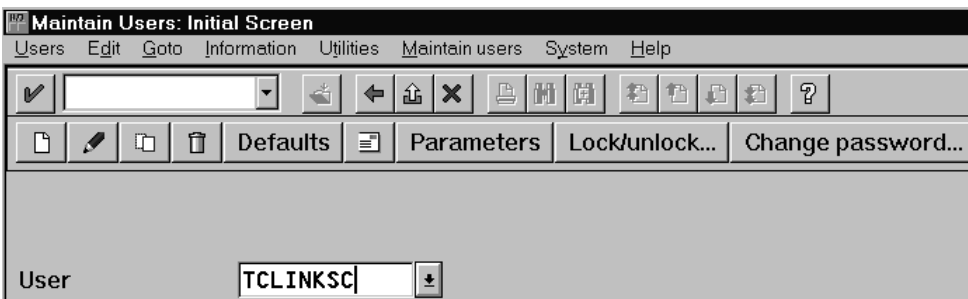


Create CPI-C User for TC/LINK-SC

Start transaction SU01.



Type in the user name and click create.

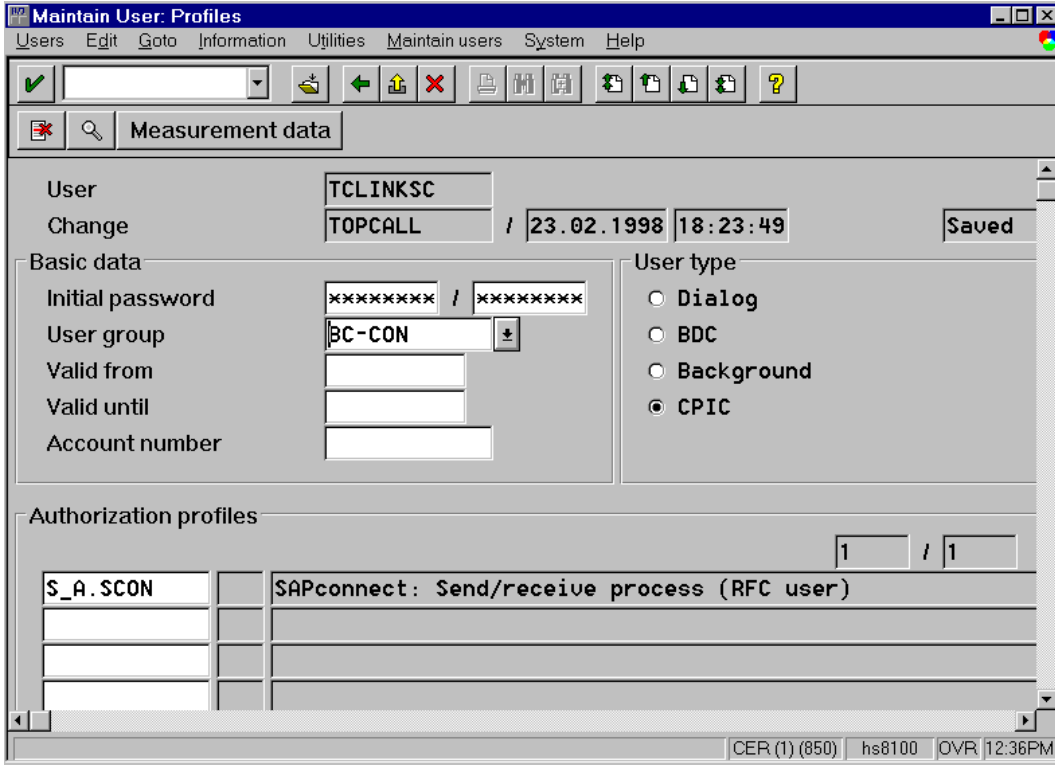


Enter the password.

User type CPIC.

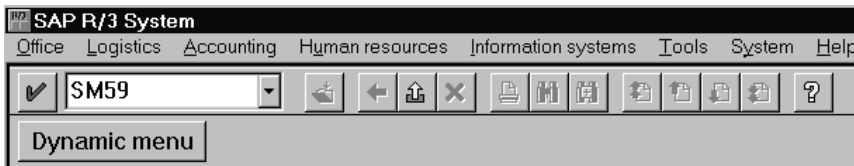
Assign the authorization profile S_A.SCON.

Save the user.

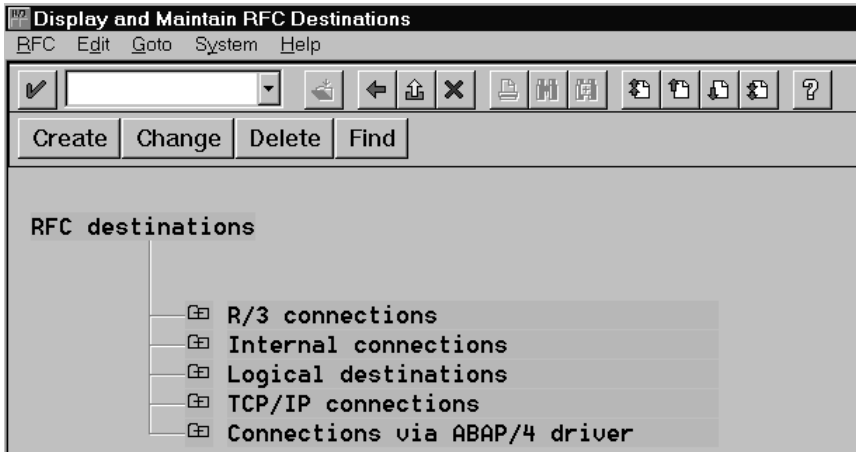


Set Up RFCDestination for TC/LINK-SC

Return to the SAP R/3 Screen and start transaction SM59



Click **Create**.

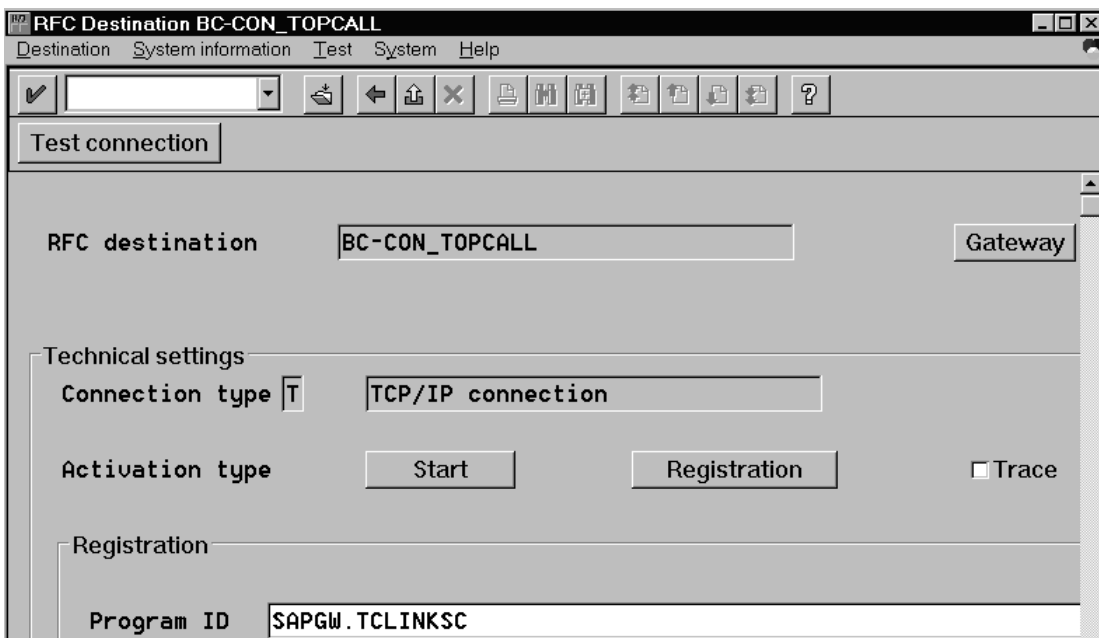


Choose the name for the destination (e.g., BC-CON_TOPCALL)

Enter TC/LINK-SC's Program ID, case sensitive (e.g., SAPGW.TCLINKSC, where SAPGW is the TC/LINK-SC workstation name. Must be the same, as configured during TC/LINK-SC setup).

Set the connection type to 'T' (TCP/IP connection).

Click the **Registration** button (set the Activation Type to Registration).



Click the **Gateway** button and set the **Gateway** parameters (of the SAP gateway running on the TC/LINK-SC workstation). Gateway host and service must be the same as configured during TC/LINK-SC setup.

Note After starting the SM59 transaction, the “Gateway” button may not be visible on the screen. In this case choose the Menu **Destination** > **Gateway** options as to activate it.

The screenshot shows a window titled "RFC Destination BC-CON_TOPCALL". It contains the following fields:

- RFC destination: BC-CON_TOPCALL
- Type: T TCP/IP connection
- Gateway host: hs8100
- Gateway service: sapgw00

At the bottom of the window are two buttons: "OK" and "Delete".

Test RFC Connection to TC/LINK-SC

Verify if the RFC connection to TC/LINK-SC works. Click the "Test Connection" button. (TC/LINK-SC and SAP gateway must be running, of course).

The screenshot shows a window titled "RFC - Connection Test" with a menu bar (List, Edit, Goto, System, Help) and a toolbar. The main content area displays the following information:

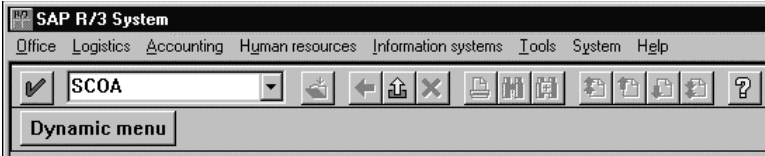
Connection test BC-CON_TOPCALL

Connection type:	TCP/IP connection
Logon:	30.168 msec
0 KB:	449 msec
10 KB:	456 msec
20 KB:	448 msec
30 KB:	664 msec

Warning:
In HP multi-processor machines, the specified time values may be incorrect

Set Up SAPconnect Node for TC/LINK-SC

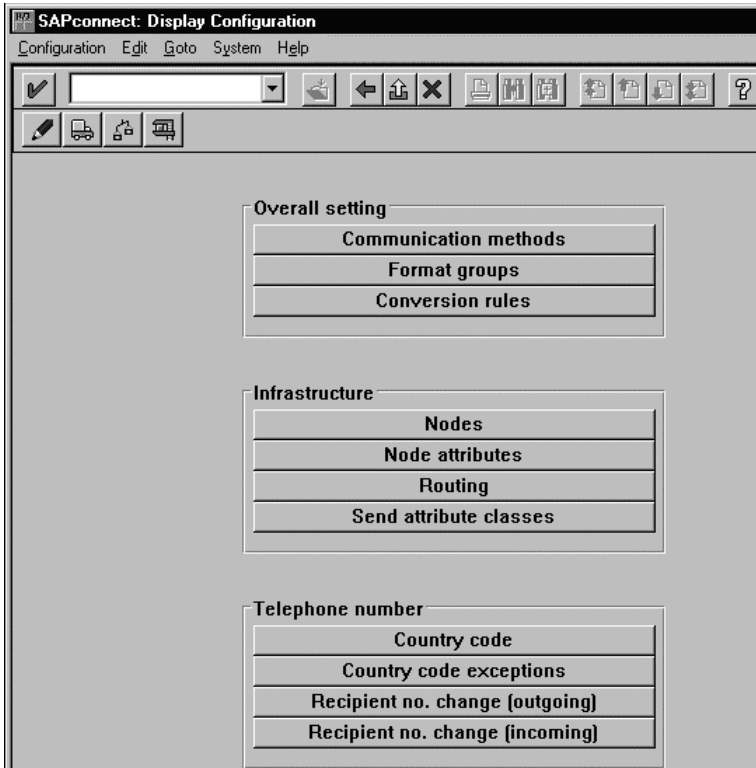
Return to the SAP R/3 Screen and start transaction SCOA.



Click Configuration.

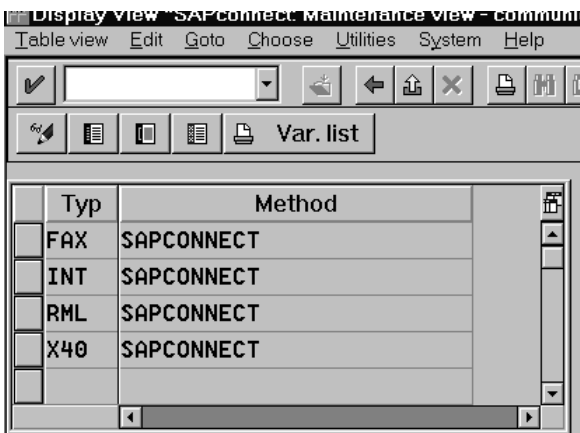


Now the following screen appears:



Assign SAPconnect communication method to those address types (FAX, INT for SMTP or X40 for X400 address types) which should be handled by SAPconnect interface.

Note that one address type can be assigned ONLY to one particular communication method. All address types which should be handled by TC/LINK-SC, MUST be assigned to SAPCONNECT communication method.



Create appropriate the Format Group for KCS. Choose proper name for KCS's format group. There may be different format groups for each address type supported (e.g., TOPFAX for FAX and TOPMAIL for SMTP and X.400).

Format Group must contain all format types supported by KCS, e.g., TIF, BMP, DOC etc. In any way, do not forget the format type Postscript "Setup:Postscript" (PS), since all internal SAPoffice format types may be converted to Postscript (depending on Conversion Rules below).

Example (below)

Format group	Format
PPCMAIL	DOC
PPCMAIL	RAW
PPCMAIL	TIF
TOPFAX	BMP
TOPFAX	DOC
TOPFAX	PCL
TOPFAX	PS
TOPFAX	RAW
TOPFAX	TCI
TOPFAX	TIF
TOPMAIL	BMP
TOPMAIL	DOC
TOPMAIL	RAW
TOPMAIL	TCI
TOPMAIL	TIF
TWINFAX	DOC

Add a conversion rule (optional)

SAP Internal formats not supported by the node (KCS) can be converted using SAP conversion modules, which convert respectively OTF formats into PDF, PS or RAW formats, ALI into RAW and SCR format into OTF.

In the Ranking order column, determine the ranking order (1-9) in which the conversion rules are to be processed by the system. If the node supports several formats conversion takes place into the lowest-ranking format.

Example (below)

The ranking order established means that OTF formats are converted as priority into PDF, PS or PCL formats. With the format group TOPFAX (see above), the conversion of OTF to PS would take place.

	Format	To format	Ranking	Function module	RFC de
	ALI	RAW	1	SX_OBJECT_CONVERT_ALI_RAW	
	OTF	PCL	8	SX_OBJECT_CONVERT_OTF_PRT	
	OTF	PDF	1	SX_OBJECT_CONVERT_OTF_PDF	
	OTF	PS	2	SX_OBJECT_CONVERT_OTF_PRT	
	OTF	RAW	9	SX_OBJECT_CONVERT_OTF_RAW	
	SCR	OTF	1	SX_OBJECT_CONVERT_SCR_OTF	

Position... Entry

CER (1) (850) hs8100 OVR 01:38PM

Nodes

The following specifications can be made for the node:

- Node (6-character, freely-definable name, e.g., TOPCON)
- Comment
- RFC destination (that created for KCS)
- Country in which the node is situated (important for determining dialing codes for fax servers)
- Path reference (marked, node can delete path references).

Node	RFC destination	Comment
CER850	NONE	R/3 System CER Client 850
COMFAX	BC-CON_COMEMTEX	Com-EM-Tex comFax
FAXINA	BC-CON_FAXINATION	Fenestrae Faxination
FERFAX	BC-CON_FERRARI	Ferrari FerrariFax
IFAX	BC-CON_SERUONIC	servUonic IxFAX
PPCOM	BC-CON_PPCOM	PP-COM MRS
TOPCON	BC-CON_TOPCALL	TOPCALL TC/LINK-SC
TWINFX	BC-CON_TWINFAX	MPS TWINFAX
XYZ	NONE	Dummy Fax Server XYZ

Node Attributes

- The Address types, which can be processed by a node are established in the node attributes (FAX, X40 for X400 address type or INT for SMTP address type).
- For each node/address pair, the Format Group is stated with the formats (see Format Groups above), which can be processed by the node when using the corresponding address type.
- The device type to be used for the SAPscript-output from R/3 applications. The device type is defined in the SAPspool administration.

Note that the device type depends on the format into which OTF documents are converted (see Conversion Rules above): PDF and PS require device type POSTSCPT that should be the default device type for KCS.

Node	Typ	Group	Dev.type
PPCOM	X	PPCFAX	POSTSCTP
PPCOM	INT	PPCMAIL	ASCIIPRI
PPCOM	X40	PPCMAIL	ASCIIPRI
TOPCON	FAX	TOPFAX	POSTSCTP
TOPCON	INT	TOPMAIL	ASCIIPRI
TOPCON	X40	TOPMAIL	ASCIIPRI
TWINFX	FAX	TWINFAX	HPLJIID
TWINFX	INT	TWINFAX	HPLJIID
XYZ	FAX	ALL	POSTSCTP

Routing

“Routing:R/3 Internal routing” Routing specifies which messages should be transmitted via the respective node.

The node TOPCON gets all messages with FAX, SMTP and X.400 recipients for transmission to Austria (AT) and Slovakia (SK).

Display View - SAPconnect: Maintenance view - routes - Overview

Table view Edit Goto Choose Utilities System Help

Var. list

Typ	Address Area	Node
FAX *		XYZ
FAX AT*		TOPCON
FAX DE02404*		PPCOM
FAX DE033*		FERFAX
FAX DE081*		IFAX
FAX DE0895*		COMFAX
FAX DE0899*		TWINFX
FAX NL*		FAXINA
FAX SK*		TOPCON
INT *@850 . CER . R3 . SAP - AG . DE		CER850

Position... Entry 1

CER (1) (850) hs8100 OVR 01:42PM

Display View - SAPconnect: Maintenance view - routes - Overview

Table view Edit Goto Choose Utilities System Help

Var. list

Typ	Address Area	Node
INT *@850 . CER . R3 . SAP - AG . DE		CER850
INT *PPCOM . DE		PPCOM
INT * . SK		TOPCON
INT * . AT		TOPCON
X40 C=AT ; *		TOPCON
X40 C=DE ; A=DBP ; P=PPCOM*		PPCOM
X40 C=SK ; *		TOPCON

Position... Entry 10

CER (1) (850) hs8100 OVR 01:42PM

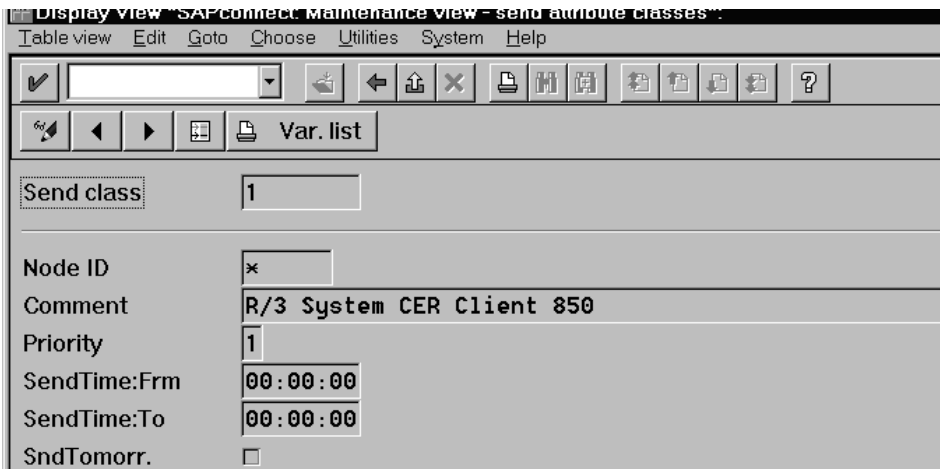
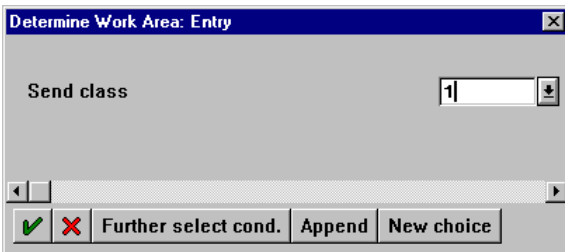
Send Attributes

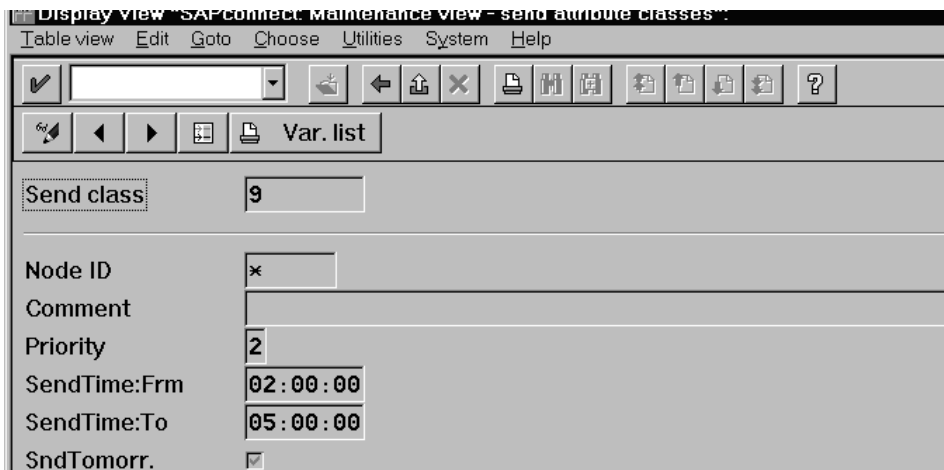
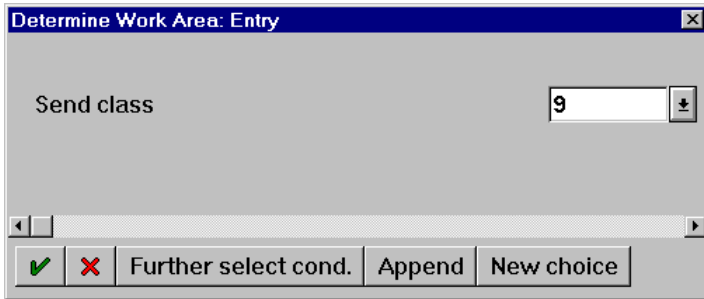
The send attribute classes cover parameters which are transferred to the node in the send operation and which control the dispatch time.

If a SAPoffice user wants to send a fax, he can only choose between send immediately (= send attribute class "1") and send at night (= send attribute class "9"). But the concrete send options for the respective class must be configured for each SAPconnect node (for a specific send attribute class, they may vary from node to node).

The following parameters can currently be selected:

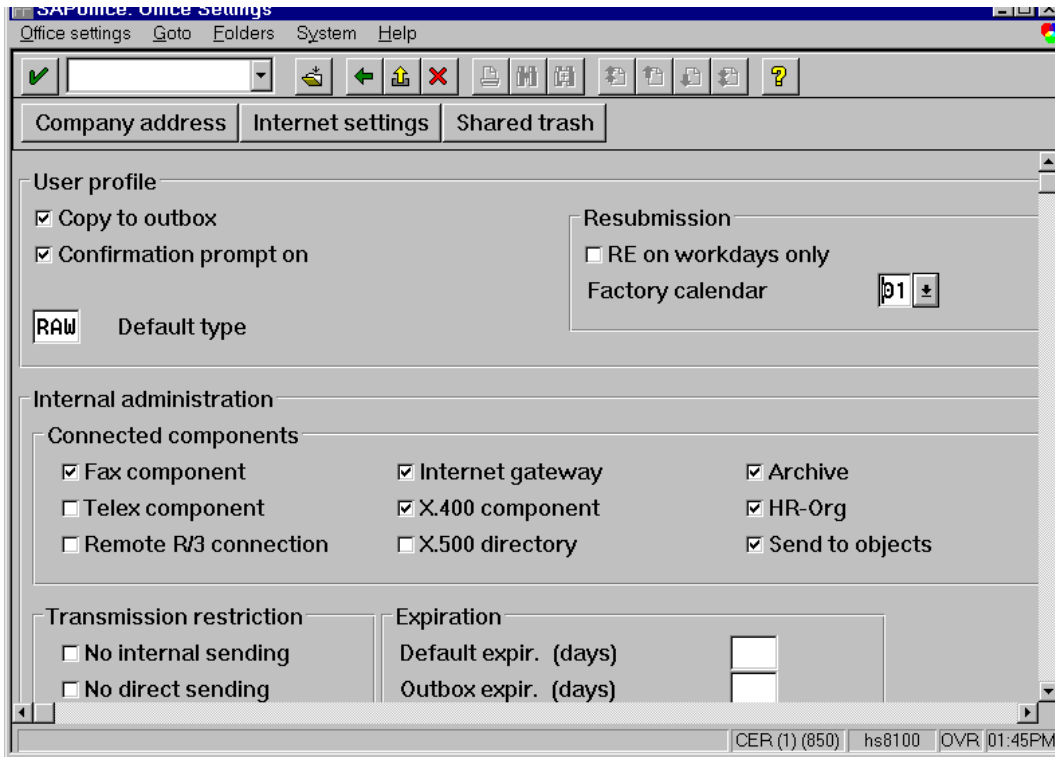
- Priority of the send operation (Priority 1: send immediately – Priority 9: send at night)
- Start time from which a send operation is to be executed
- End time by which a send operation is to be completed
- Send tomorrow if send operation is to be executed tomorrow.





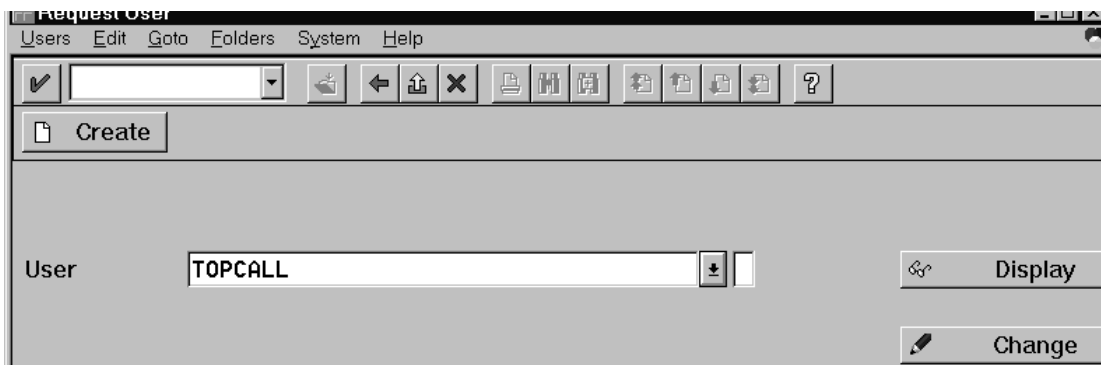
Activate Address Types Needed in SAPoffice

Go (back) to the SAP R/3 Screen and call transaction SO16. Activate corresponding check-boxes for FAX, SMTP and/or X.400 components.

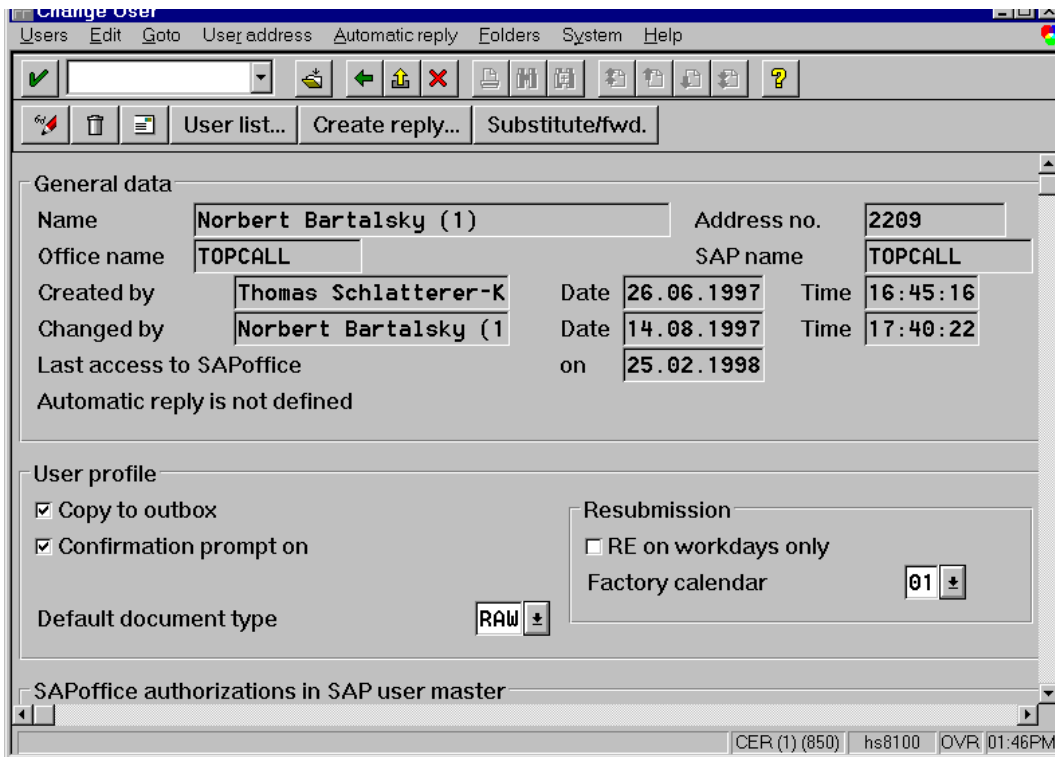


Assign Fax Numbers, SMTP and/or X.400 Addresses to R/3 Users

Go (back) to the SAP R/3 Screen and start transaction SO12 and type in the R/3 User Id.



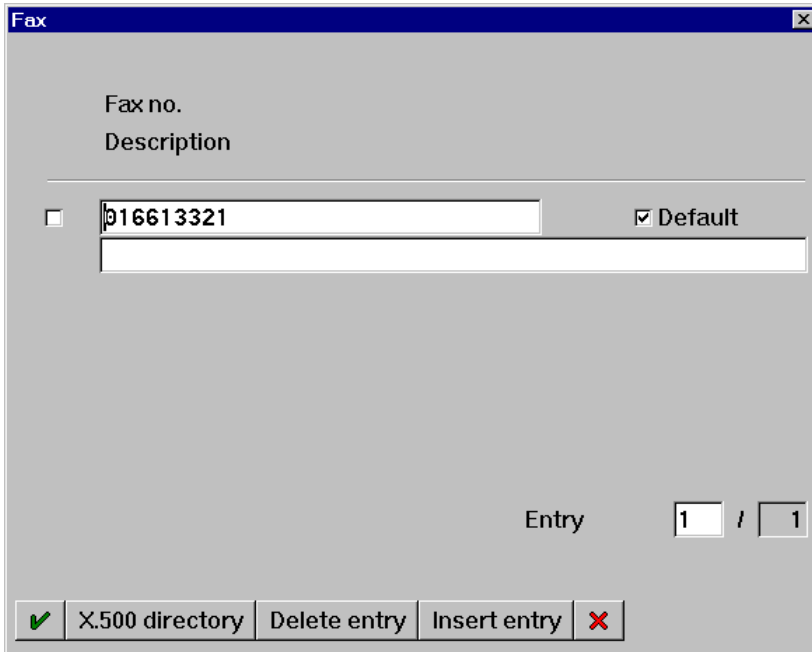
Click **Change**.



Click **Address**. Then, click **Communication Types**.



Choose address type (e.g., FAX). Type your own fax number (with leading 0 + local area code, without international prefix!).

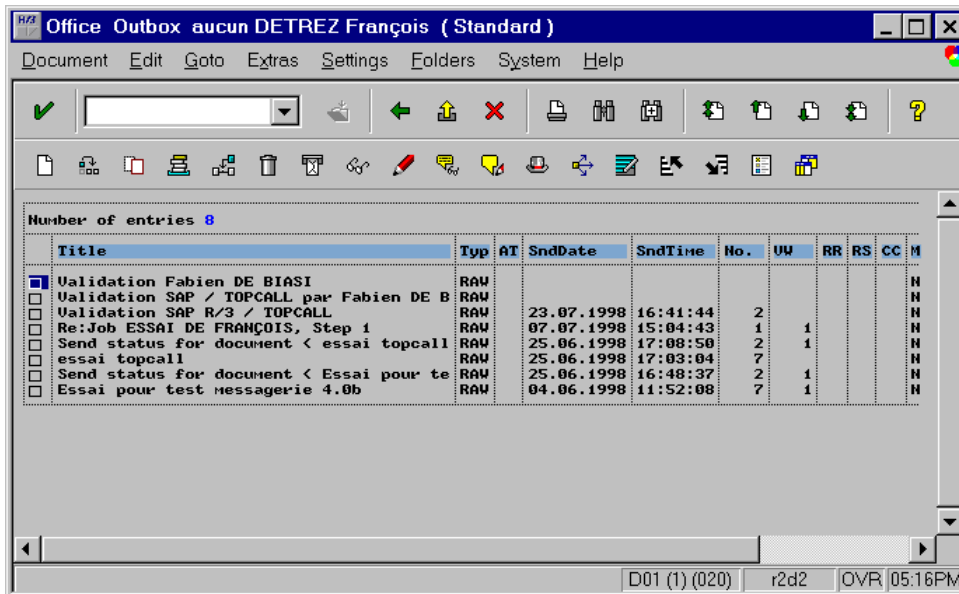



Testing the Installation

This section describes how to test the installation.

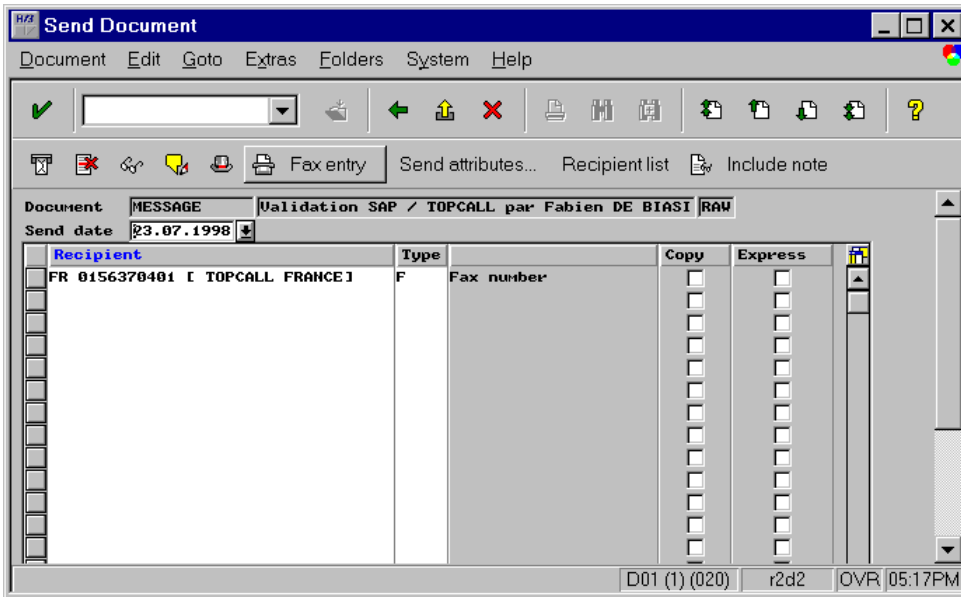
Create a Message

1. Go (back) to the SAP R/3 Screen and start transaction SO02 (Office Outbox).

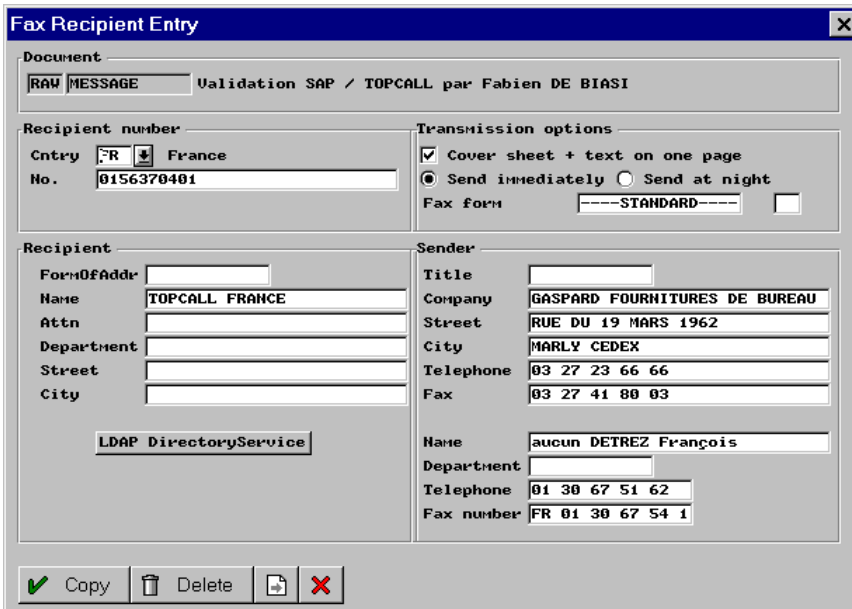


2. Select or create a new message and click **Send** .

3. Select Fax Entry to select or to create a new fax recipient:



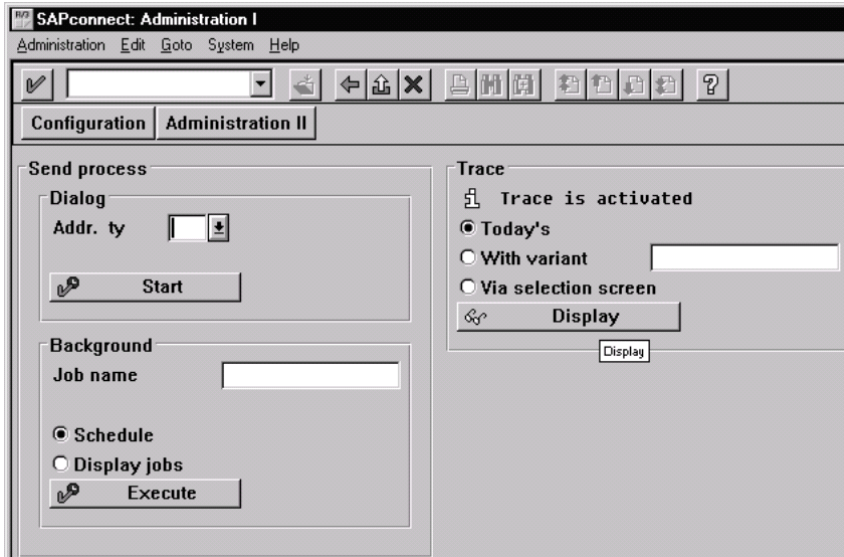
4. The following screen allows you to enter a fax address:



5. Click **Copy** to validate. click **Send**  again to confirm the sending.

Control the Status for Sending

Go (back) to the SAP R/3 Screen and start transaction SCOA.



Normally the send process is scheduled every half-hour, therefore waiting for the sending could take quite a long time. So to activate the send process, FAX in the address type field and click send. After a while (depends on the settings of TCLINKSC/SAP/RFCPollCycle) TC/LINK-SC picks up the message and transfers it to KCS.

List of Useful SAP R/3 Transactions

SM59 Managing the RFCDestination

SCOA Managing the SAPconnect nodes, starting the send process, examining SAPconnect traces etc.

SO12 Managing SAPoffice user's profile (incl. own fax, Internet and X.400 addresses).

SO16 Activating FAX, X.400 and SMTP components for SAPoffice users

SO28 Inbound Distribution, SAP Postmaster and Routing"Routing"

SO01 Opening the SAPoffice inbox

SO02 Opening the SAPoffice outbox

SU01 Managing SAP R/3 users

SU3 Managing logged in user (important if SU01 and SU02 not allowed, because no special rights needed)

Installation on SAP R/3 Release 4.0 B

Note To distinguish between the digit zero and the capital letter O it will be displayed like this:

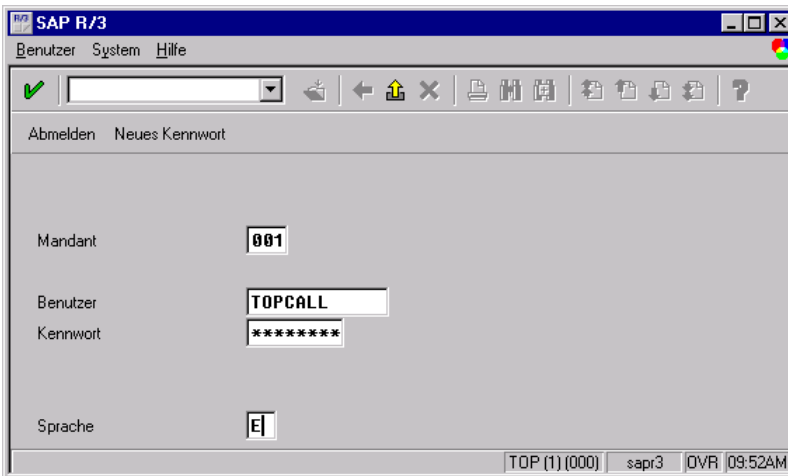
Digit zero	Ø
Capital letter O	O

Important Most entries are case sensitive!

- Logon with SAP GUI
- Create an RFC User for TC/LINK-SC
- Create an RFC Destination to TC/LINK-SC
- Test the RFC Connection to TC/LINK-SC
- SAP Configuration
- Schedule a SAPconnect Background Send Process
- Activate the Fax Module in SAPoffice
- Assign a Fax Number to Each R/3 User:
- List of Useful SAP R/3 Transactions

Logon with SAP GUI

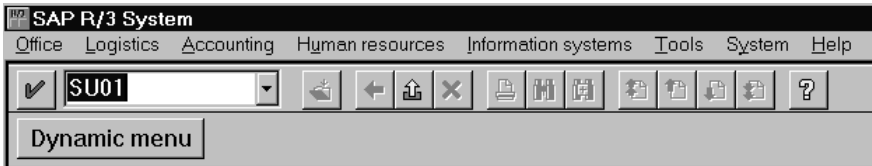
Log on into the R/3 system with the normal “Dialog” R/3 user (NOT CPI-C user!)



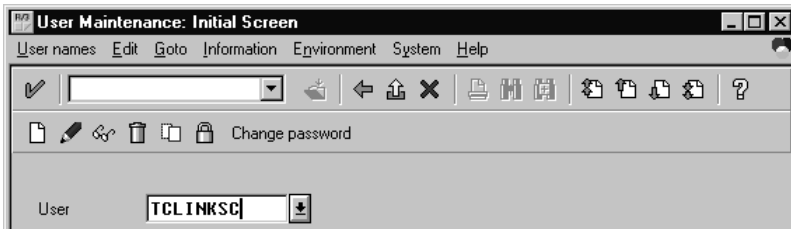
Create an RFC User for TC/LINK-SC

Create a user for the fax server to logon to the R/3 system:

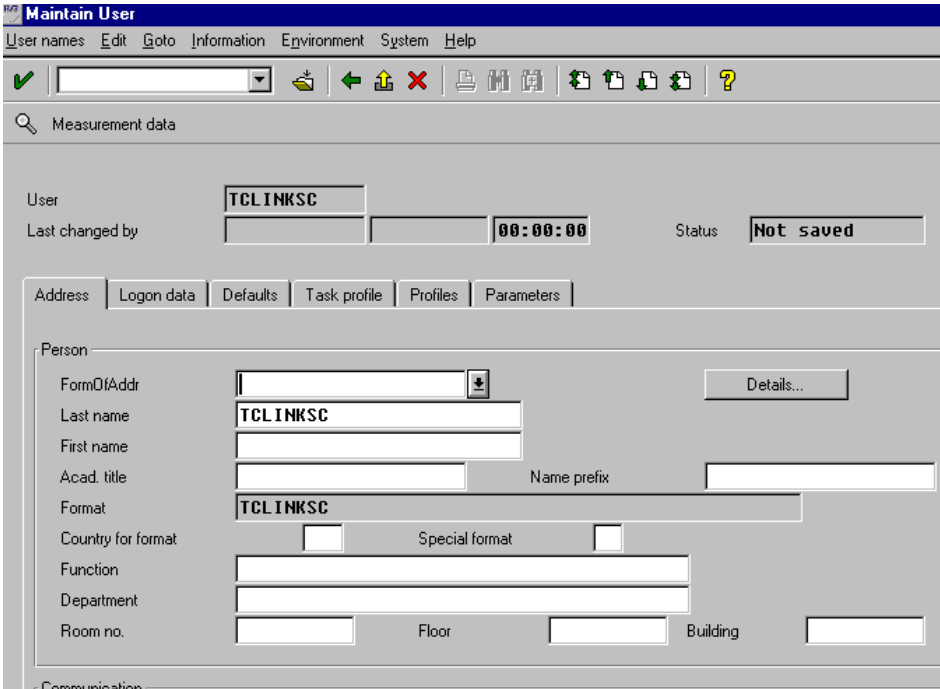
1. Call: **Tools > Administration, User maintenance > Users** (transaction SU01) Start transaction SU01.



2. Type in the user name and select the **Menu User names > Create**.

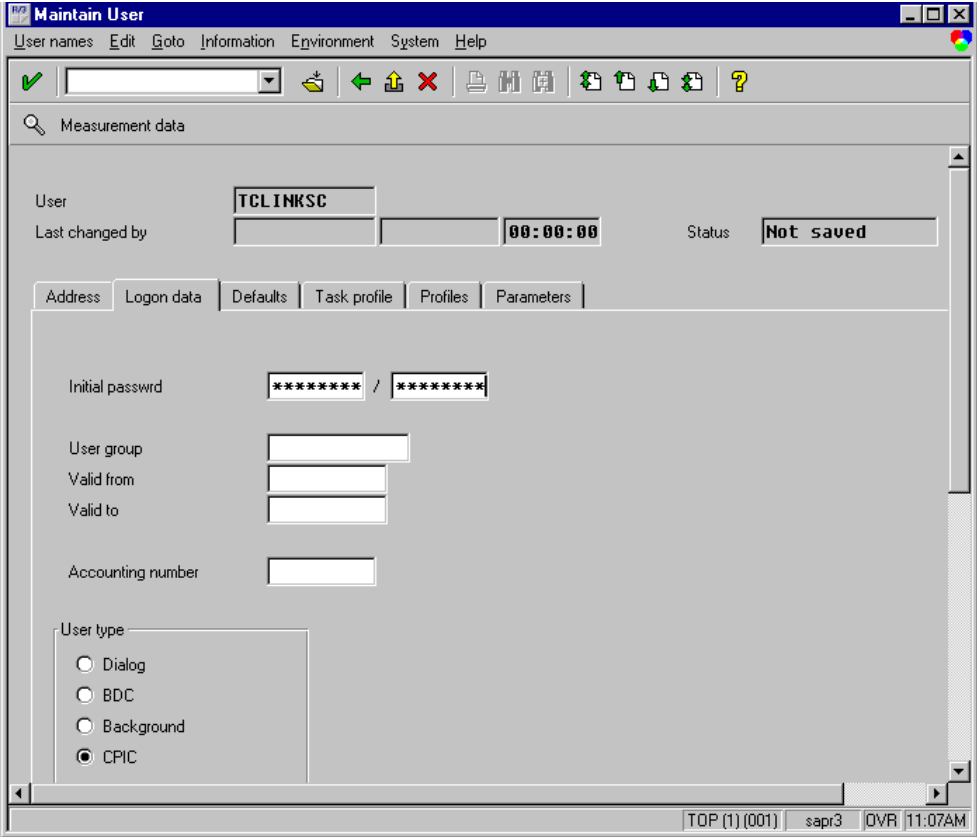


3. Insert dummy address data of user into the first screen.



4. In the "Address" section type in any Last name you might want to use the same name as your CPI-C user.

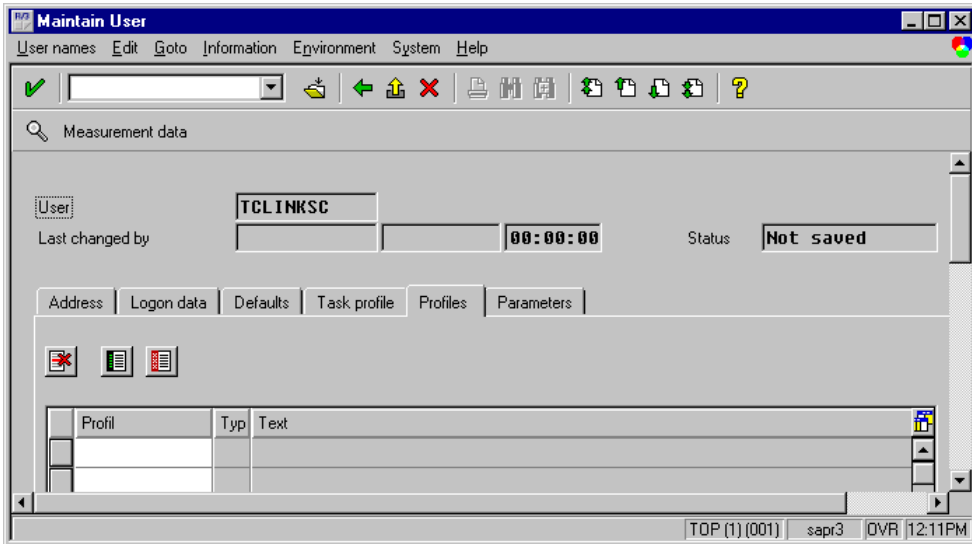
5. Go to next input screen: Logon data.



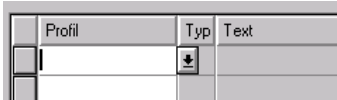
Name and password must match with the values set in the configuration of the fax server.

6. The type of user must be "CPIC".

7. Go to next input screen: Profiles



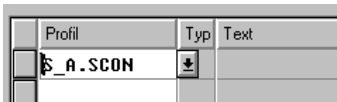
8. Assign the authorization profile “S_A.SCON ” to the user.
9. To do this select a Profile-line and you will get a pull-down menu in the type field.




10. Open the pull-down menu:

Profile name		
Profile name	Version	Text
S_A.DEVELOP	A	Developer
S_A.DOKU	A	Technical Writer
S_A.SCON	A	SAPconnect: Send/receive process (RFC user)
S_A.SHOW	A	Basis: Display authorizations only
S_A.SYSTEM	A	System administrator (Superuser)

11. Now select the “S_A.SCON” profile and you will come back to the screen before, but with your selected profile.

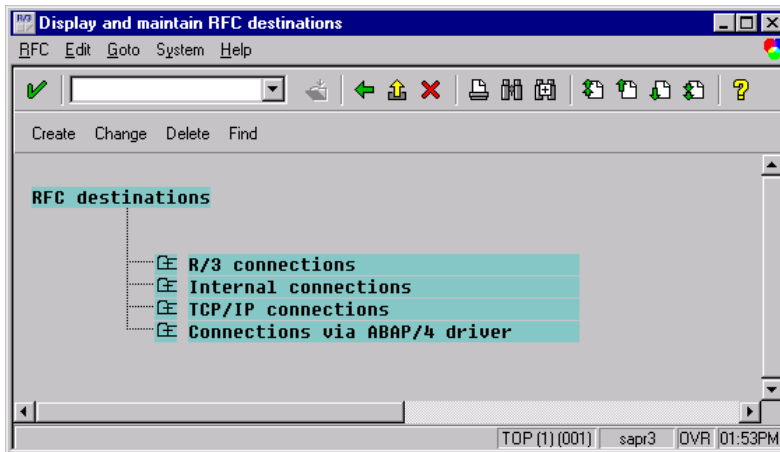


12. Now save the user data, you can do this either by selecting User Names > Save from the menu or by clicking Save .

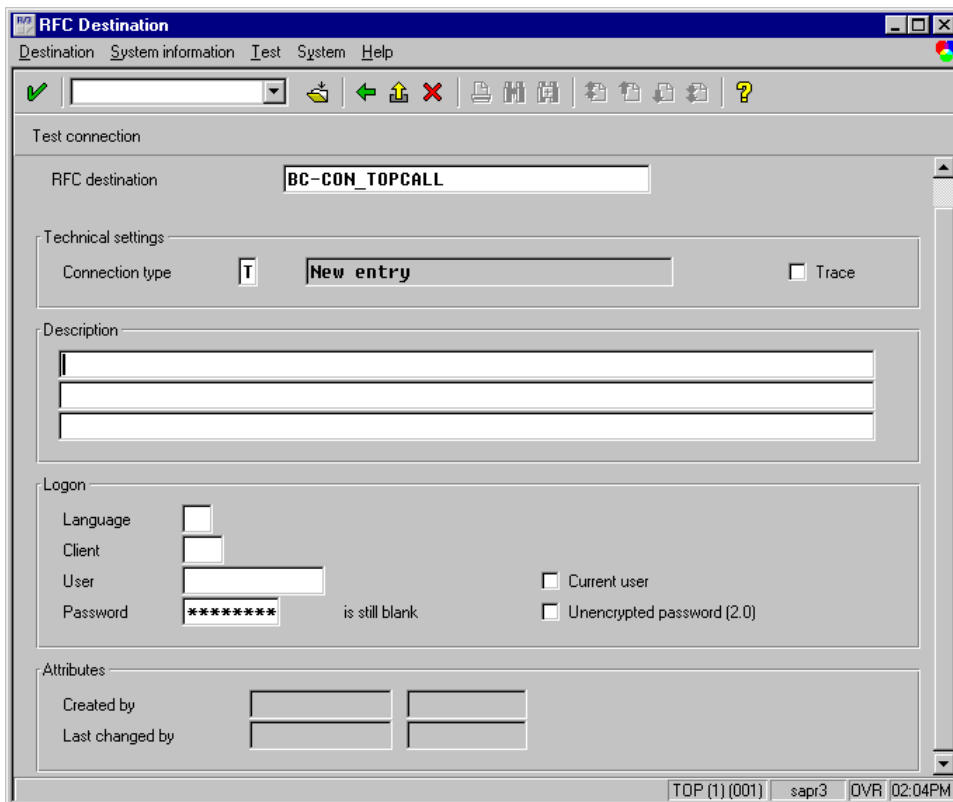
Create an RFC Destination to TC/LINK-SC

Create an RFC destination for outbound calls:

1. Call: **Tools > Administration, Administration > Network > RFC destinations** (transaction SM59).



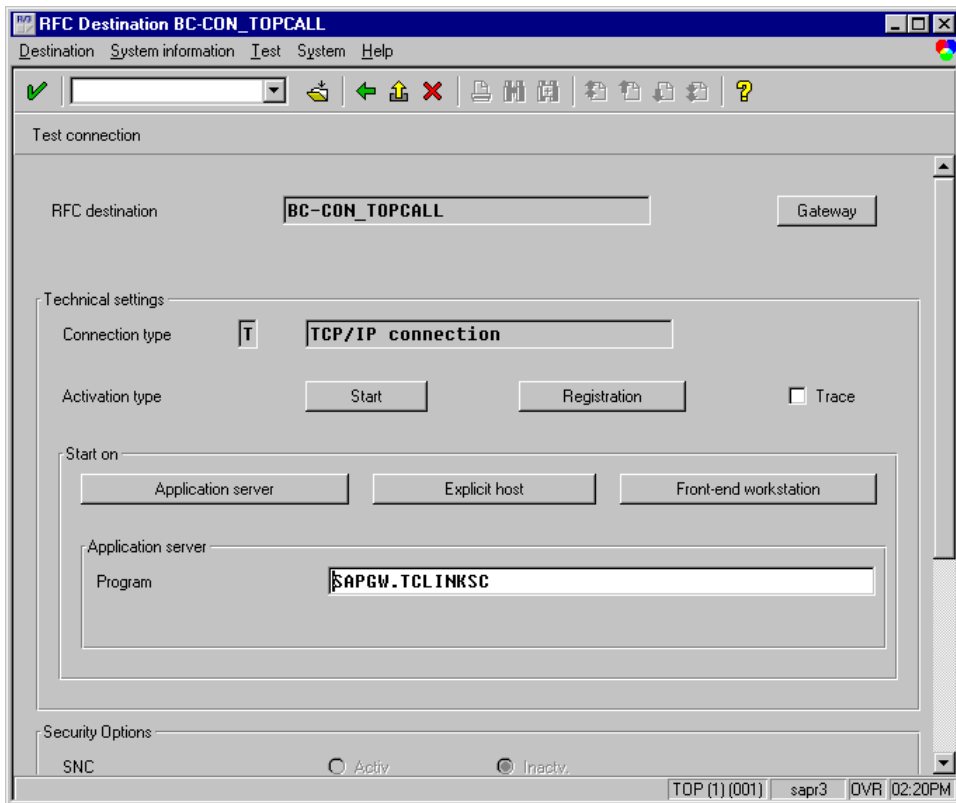
2. Choose: **Create**



3. Enter a name of the RFC destination (e.g., BC-CON_TOPCALL).

4. Set connection type 'T' (=TCP/IP).
5. Enter a description. Press **Enter**.

The next screen appears:



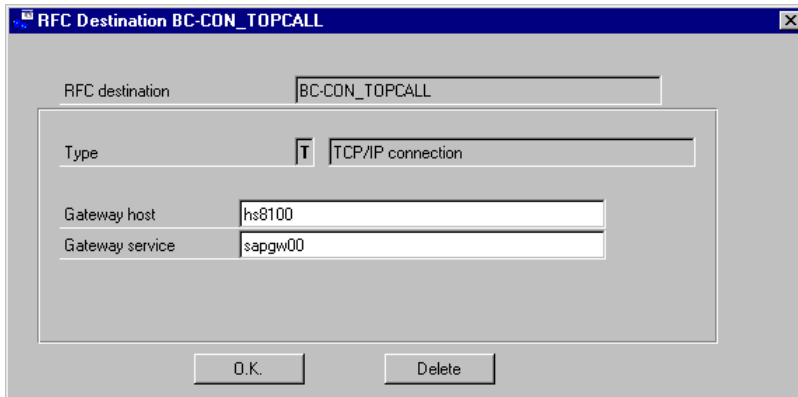
6. Select activation type 'Registration'.
7. Enter TC/LINK-SC's Program ID, case sensitive (e.g., SAPGW.TCLINKSC, where SAPGW is the TC/LINK-SC workstation name).

It must be in the same way as configured during TC/LINK-SC setup).

This program ID must match with the value defined with parameter PROGID in the saprfc.ini file on the fax server.

Destination > Gateway Options

1. Choose the menu point **Destination > Gateway** options.



The screenshot shows a dialog box titled "RFC Destination BC-CON_TOPCALL". It contains the following fields and values:

- RFC destination: BC-CON_TOPCALL
- Type: TCP/IP connection
- Gateway host: hs8100
- Gateway service: sapgw00

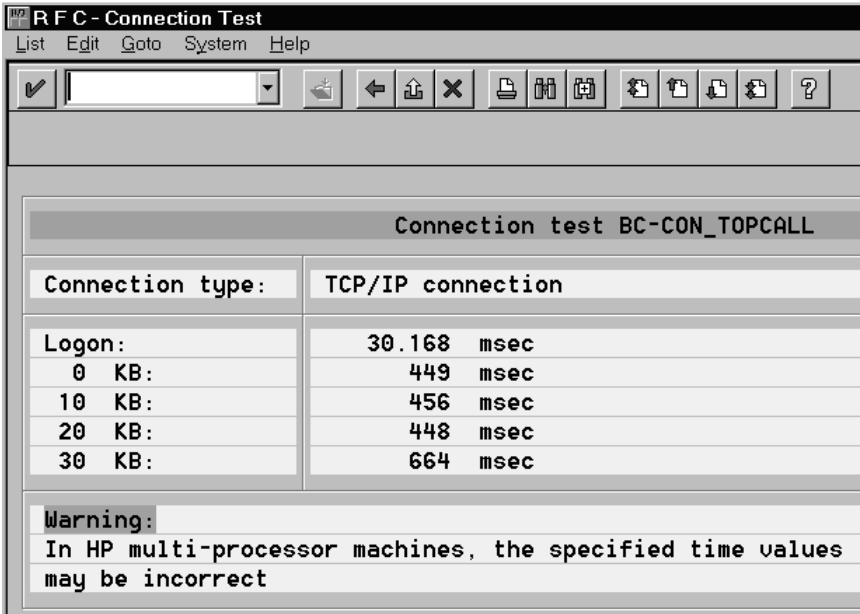
Buttons at the bottom: O.K., Delete

2. Set the gateway options of the RFC destination.
3. Enter the host name and the service of the SAP gateway. (Must be the same, as configured during TC/LINK-SC setup).
This host name and the service must match with the value defined with parameter GWHOST and GWSERV in the saprfc.ini file on the fax server. (see [RFC Connection Parameters \(SAPRFC.INI File\)](#) for detailed information of the RFC connection parameters)
4. Click **OK** and save the **RFC Destination**.
5. Now click **Test connection** to verify if everything is ok.
(TC/LINK-SC and SAP gateway must be running, of course)

Test the RFC Connection to TC/LINK-SC

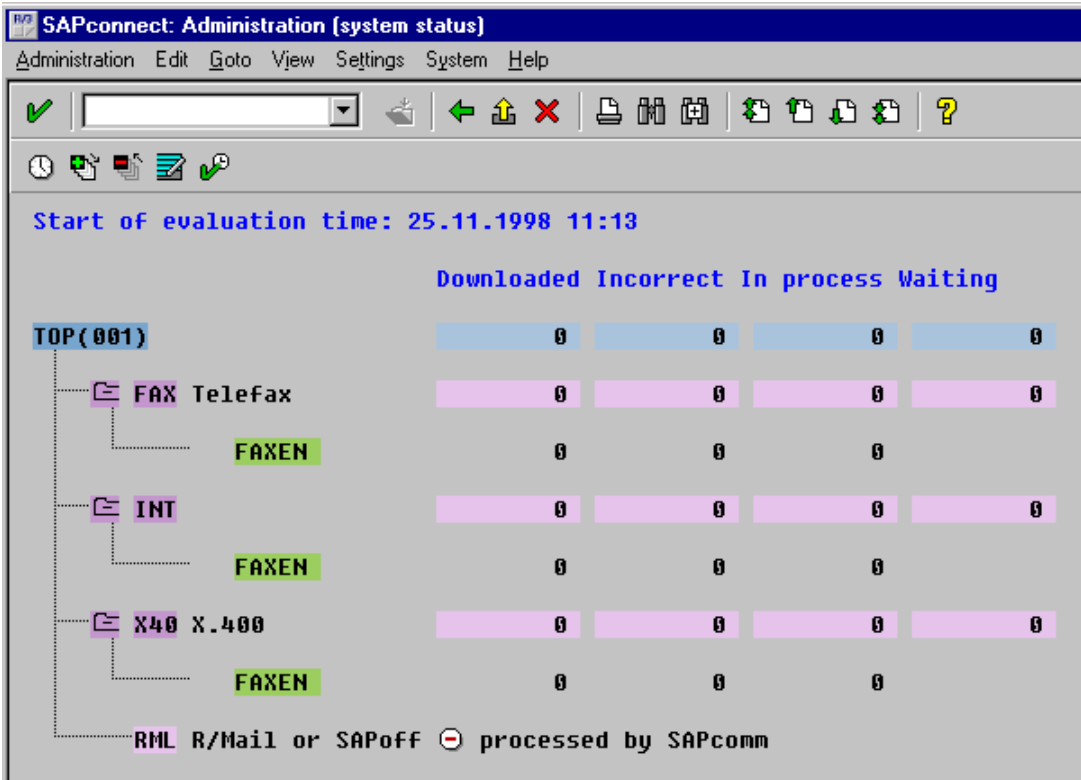
Verify if the RFC connection to TC/LINK-SC works. Click test connection button (see screen before)

If your connection is ok you should get a screen like this.



SAP Configuration

Administration (system status)



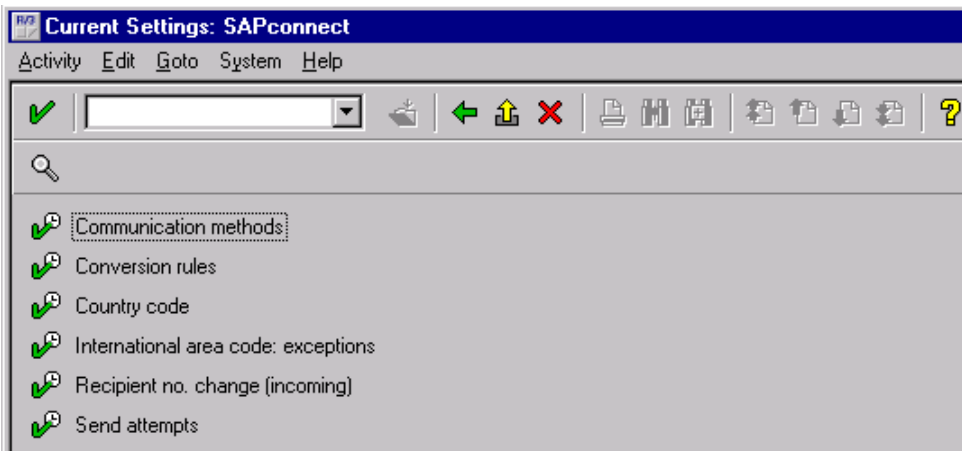
Do the SAPconnect configuration:

Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: System Status).

Within this transaction you can go over the menu 'View' to the different views, which are displayed on this slide and on the following slides.

System Status:

From here you can view all defined output methods (e.g., FAX/INT/X40) and the already defined nodes (e.g., SXC1/COMFAX) and you will find information about the processing status.



General SAPconnect Customizing

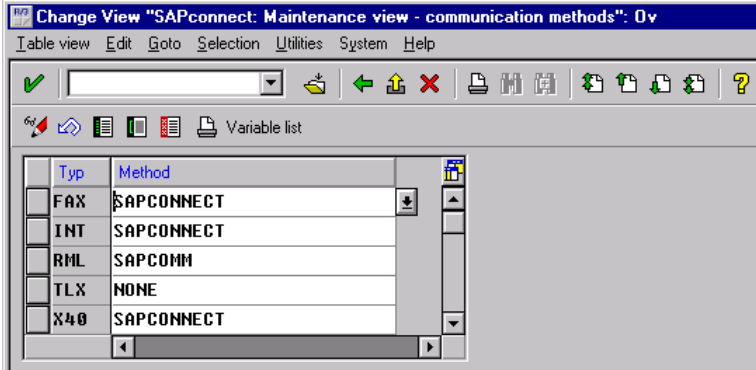
In release 4.0x – 4.5x use transaction SCOT (Goto -> Customizing). With a double click on the marked customizing steps you will go to the following screens.

Note only the following screens are described here:

- [Communication Methods](#)
- [Conversion rules](#)
- [Recipient no.change \(incoming\)](#)
- [Send Attempts](#)

In release 4.6x use Settings > xxx, where “xxx” represents the different settings you can change (see above).

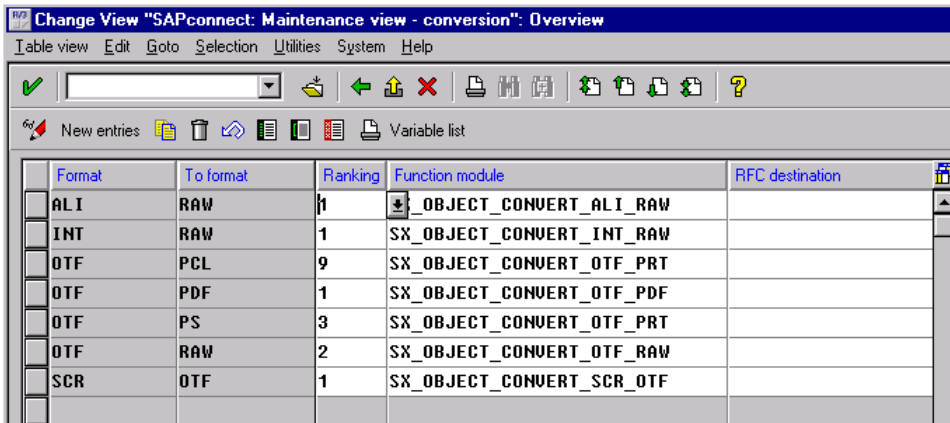
Communication Methods



Set communication method SAPconnect for fax:

- Click **Communication methods**.
- Set the value for **Fax to SAPCONNECT**.
- Save the communication methods.

Conversion Rules



Add a conversion rule (optional)

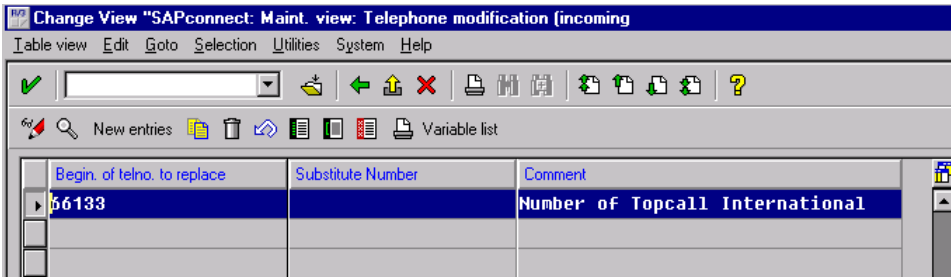
In case that the fax server does not support Postscript or PDF format, but another printer language format, e.g., HP PCL, you have to add a new conversion rule. If the fax server supports PS or PDF you can skip this step.

1. Click: **Conversion rules, New entries**.

2. Enter a new rule with:
 - Format = OTF
 - To format = extension of the supported printer format, e.g., PCL
 - Ranking = a value between 3 and 8
 - Function module = SX_OBJECT_CONVERT_OTF_PRT
 - all other fields = empty
3. Save the conversion rules.

Note In this case you also have to set the device type of your node to an appropriate value, e.g., HPLJ4, see below: Administration (nodes) -2-.

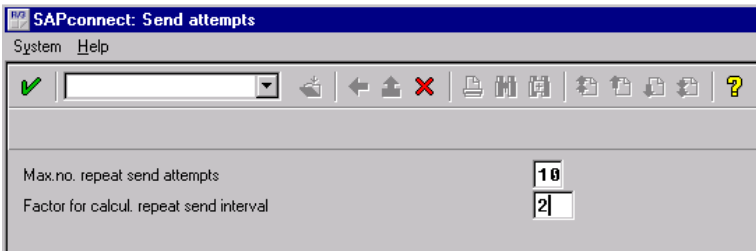
Recipient No Change (Incoming)



Define exception rules for manipulating the recipient's fax number in inbound messages. This is for the match of the recipients' number as provided by the PBX or the fax server with the R/3 user's fax number as stored in the R/3 address management.

- New entries.
- Enter a new rule with
 - The beginning sequence of a fax number that shall be replaced,
 - The substitute sequence that shall be inserted instead, or
 - a comment
- Save the rule.

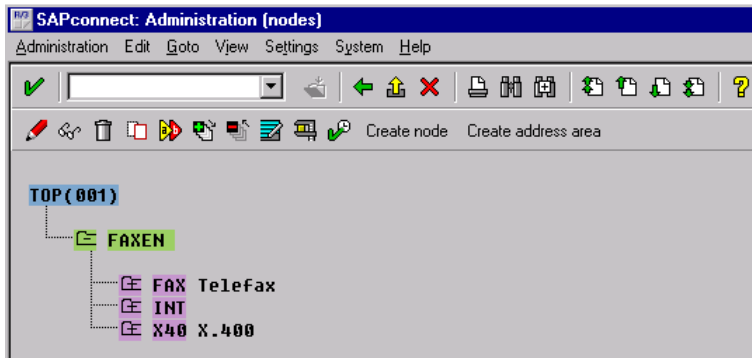
Send Attempts



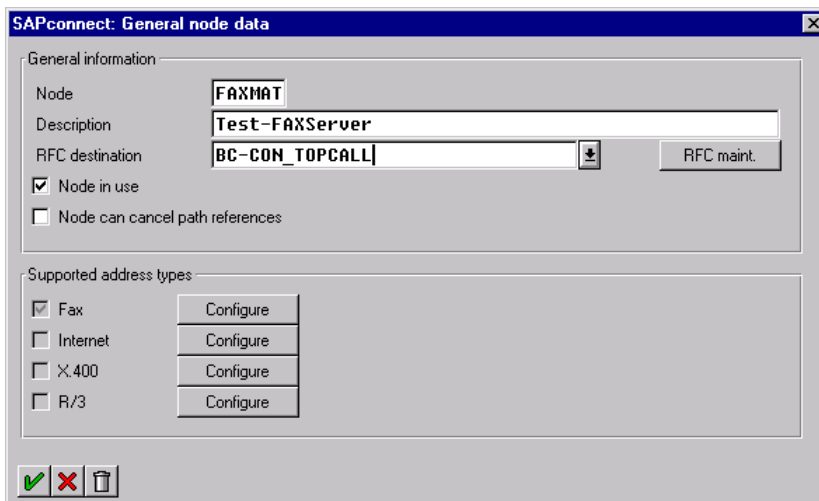
Set the maximum number of repeat send attempts (0: only one attempt will be carried out).

Define a Node and Its Attributes

1. Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: Node).

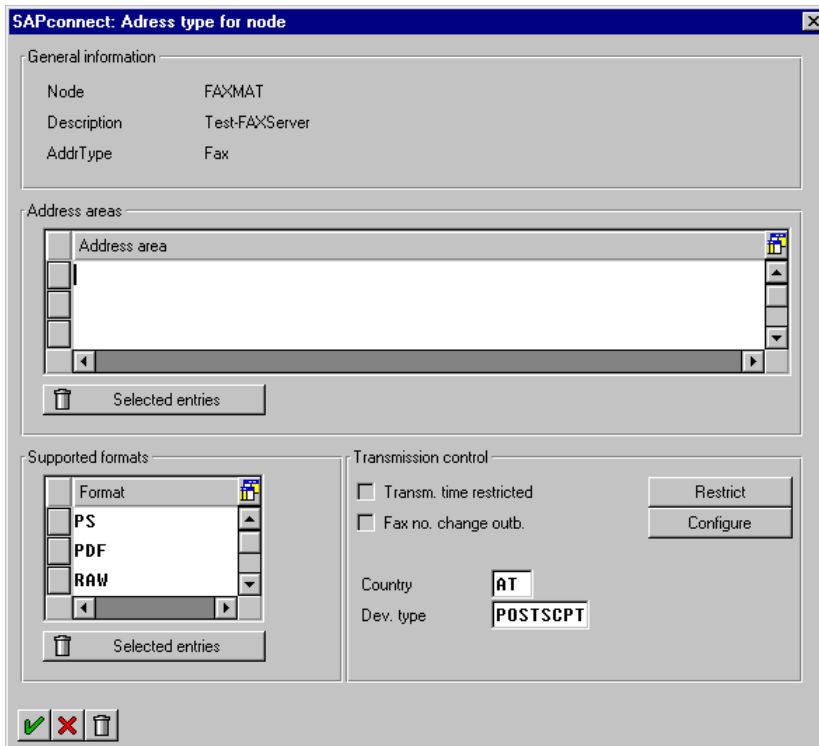


2. Create a new node by clicking **Create node**. Enter name of the node (6 characters) and a description. Enter the RFC destination created before.



3. To use the node in productive mode, select **Node in use**. Later, save the node.

4. Go to the fax specific configuration data.



Define Exception Rules for Fax Numbers

Address area: Restriction of numbers for routing to this fax server.

For each document format that is supported by the fax server enter a line with the 3-character extension of that format.

- For plain ASCII text use format RAW
- For Postscript documents use format PS

Specify the country location of the fax server.

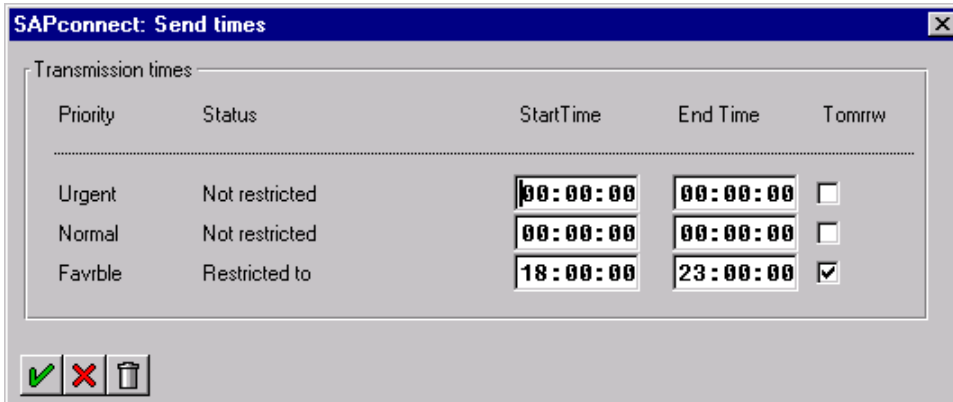
Specify the device type of the fax server (e.g., POSTSCPT, HPLJ4, ASCIIPRT...)

Transmission control –Restrict Time

The send attribute classes cover parameters which are transferred to the node in the send operation and which control the dispatch time.

You can choose your settings in the Transmission control area by clicking the “Restrict” button.

(See [SAP Message Send Time and Date](#) for detailed information).



The R/3 4.0B reduces the free configurable priorities to 3.

- 0 – Urgent ... – Dringend
- 1 – Normal – Normal
- 2 – Favorable – Günstig

The field “StartTime” allows to configure when the message will be sent (where as 00:00:00 means send immediately)

The field “EndTime” allows to configure when the message must be sent latest or be deleted (This has no meaning on KCS so it is ignored)

The checkbox “Tomrrw” allows to configure that the message will be send on the next day

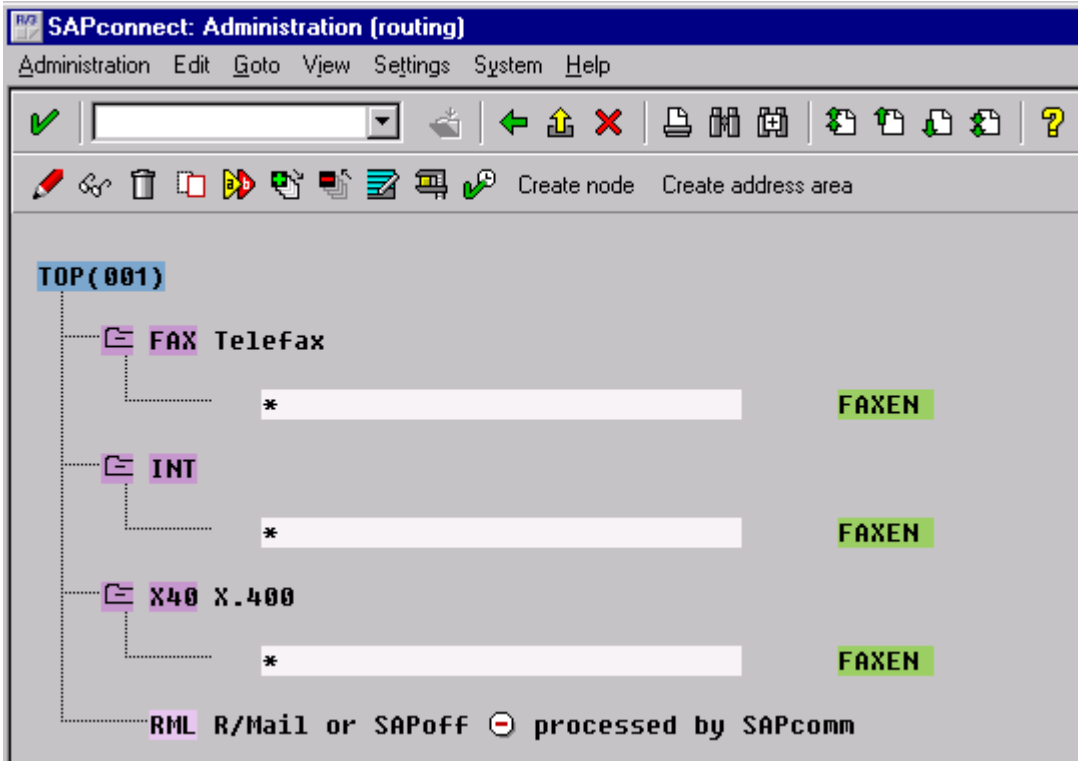
SAP – Office uses only Urgent-“Send immediately” or Favorable (Low Priority) – “Send at night”. Other SAP Application may use normal also.

The SAP Applications communicate with SAPconnect by telling only which priority this message has (0,1,2). SAPconnect is responsible for filling the fields correctly

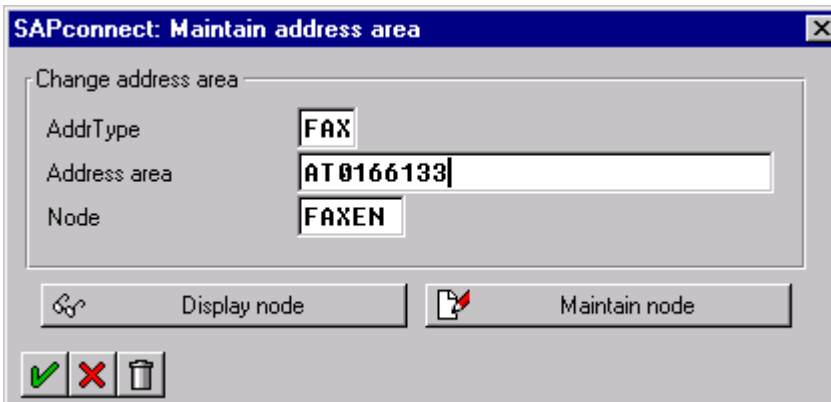
The send time and date is supported by TC/LINK-SC. The end time and date (latest delivery) is not supported by TC/LINK-SC.

Define Routing

1. Call **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: Routing).

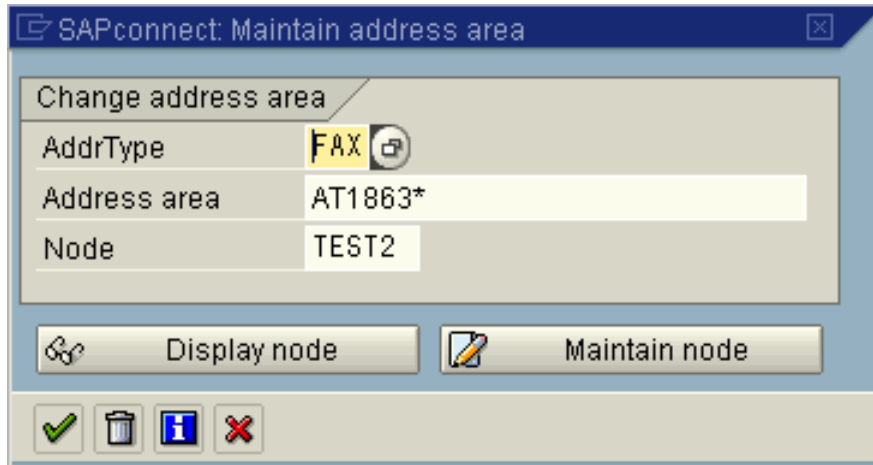


2. Enter a new rule by clicking "Create address area" or in release 4.6x double click on the desired address area.



Transaction SCOT (View: Routing)

1. Enter a new rule by clicking **Create address area**:



The screenshot shows a dialog box titled "SAPconnect: Maintain address area". It contains a "Change address area" section with the following fields:

AddrType	FAX
Address area	AT1863*
Node	TEST2

Below the fields are two buttons: "Display node" and "Maintain node". At the bottom of the dialog is a status bar with four icons: a green checkmark, a trash can, a blue 'i' icon, and a red 'X' icon.

2. AddrType = communication service
3. An Address Area
 - FAX addresses consist of a country code followed by digits, they may have a wild card '*' at the end
 - INT addresses are in the normal SMTP format, they may have a wild card '*' at the beginning
 - X40 addresses have the format C=xx;A=xx;P=xx; they may have a wild card '*' at the end.
4. Name of the node that is responsible for this address area
5. Save the routing.

Routing Test

Test the routing of a fax message:

1. Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, (Goto -> Routing test).

SAPconnect: Test routes

Routes Edit Goto System Help

Sender and recipient

Sender: BENUTZER

Rec.addr. type: FAX

Rec. address: AT 0166133

Outbound node and address

Node: FAXEN

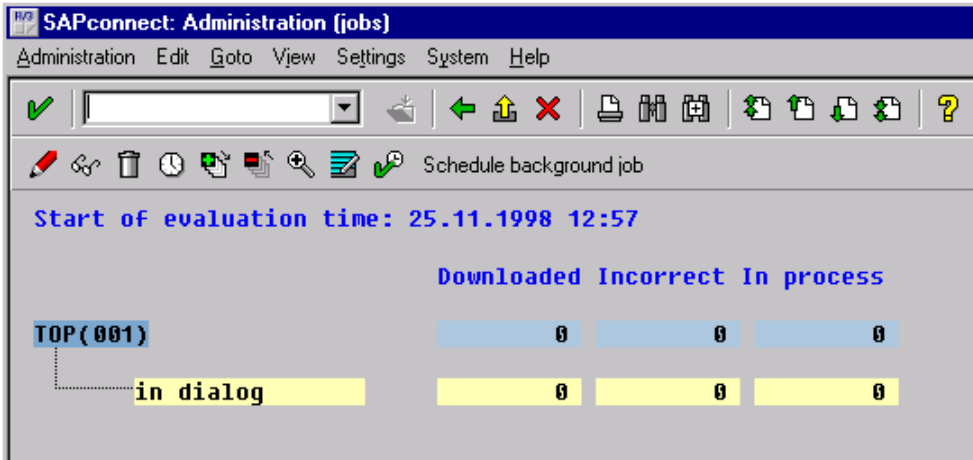
Modif. rec. addr.: 0166133

2. Enter a communication service ('FAX') and an address, press **Enter**.

In the box 'Outbound node and modified recipient address' will be displayed, which node would be used when sending a fax to that number, and how the number would be adapted according to the international country codes and your exception rules.

Schedule a SAPconnect Background Send Process

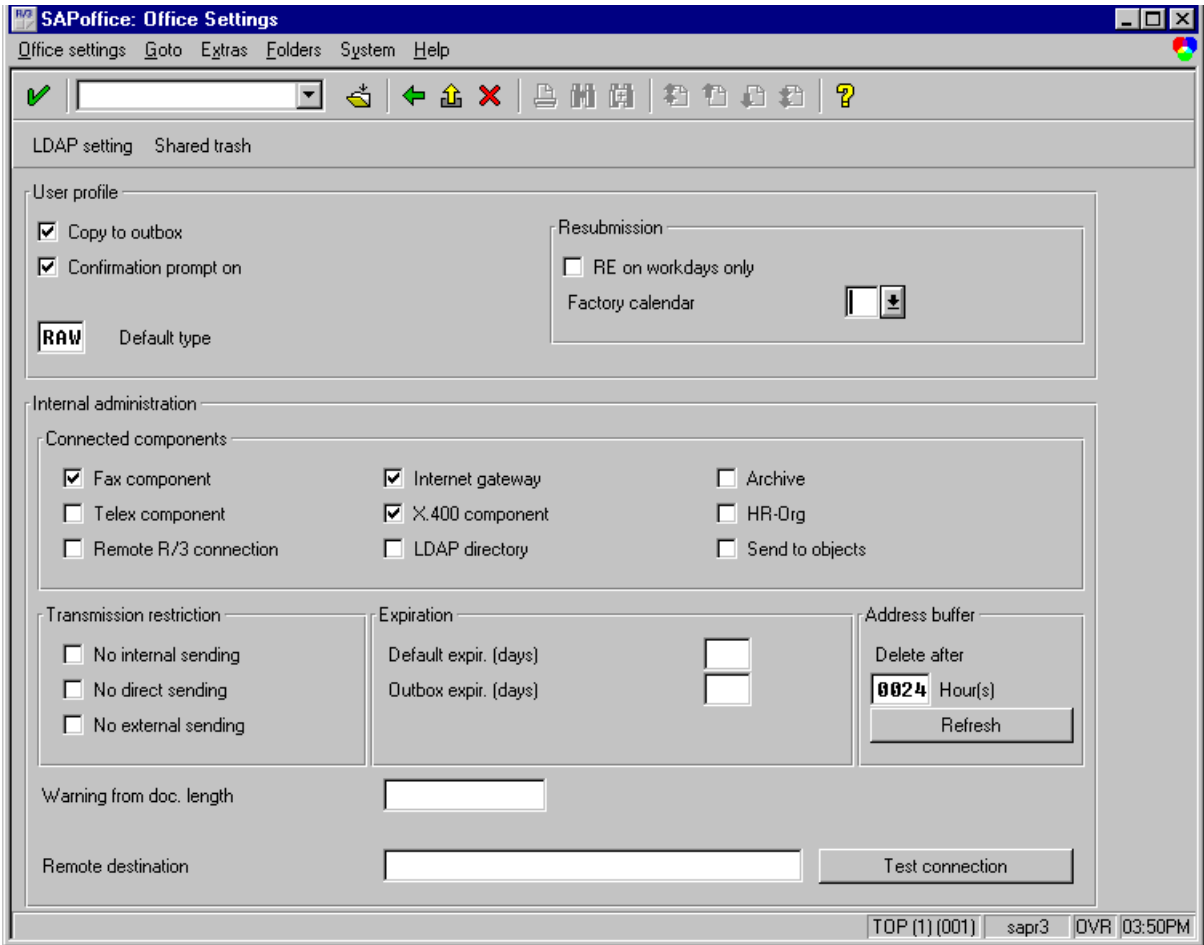
Call **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, (**View > Jobs**)).



From here you can start the sending process in dialog or you can schedule a background job for the sending process.

Activate the Fax Module in SAPoffice

Call **Tools > Administration, Administration > Process technology, Office > General office settings** (transaction SO16).



Switch on Connected components: Fax component.

Save SAPoffice settings.

Assign a Fax Number to Each R/3 User:

Each user who wants to send messages from R/3 via fax or other external communication services must have an originator address of the appropriate address type.

1. Call **Tools > Administration, User maintenance > Users** (transaction SU01)

2. Enter the user name and click **Change**

The screenshot shows the 'Maintain User' dialog box with the following fields and values:

- User: TESTUSER
- Last changed by: BENUTZER
- Date/Time: 26.11.1998 16:41:45
- Status: Saved
- FormOfAddr: Company
- Last name: TOPCALL INTERNATIONAL
- Format: TOPCALL INTERNATIONAL
- Telephone no.: 01/66133
- Fax: 01/66133

3. Enter the user's fax number
4. Save the user address

Send Fax Out of SAPoffice

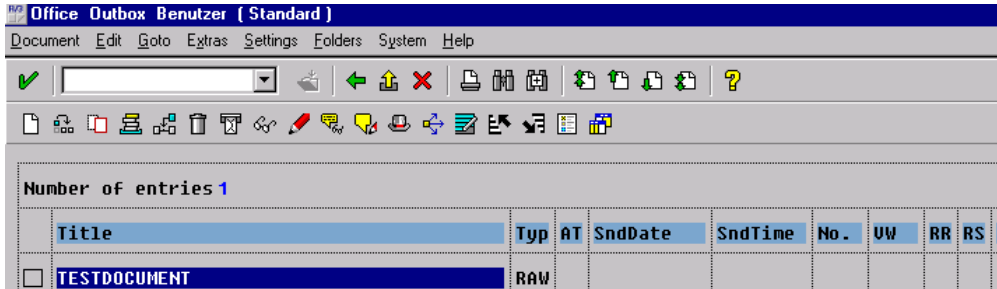
You have to create a SAPoffice document and to send it to a fax number.

1. Call **Office > Outbox (transaction SO02) > Document > Create > New** (or Ctrl+F1)

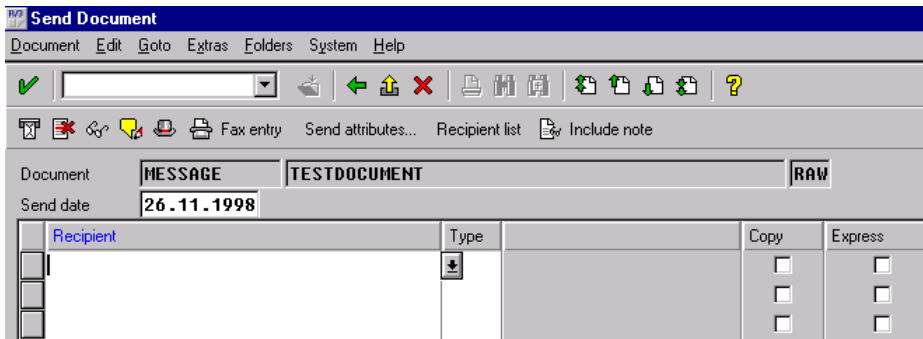
The 'Create Document: Header' dialog box contains the following information:

- Type: RAW
- Title: TESTDOCUMENT
- Tar. folder: OUTBOX
- Change option after sending:
 - Modifiable
 - Modifiable by auth.
 - Not modifiable

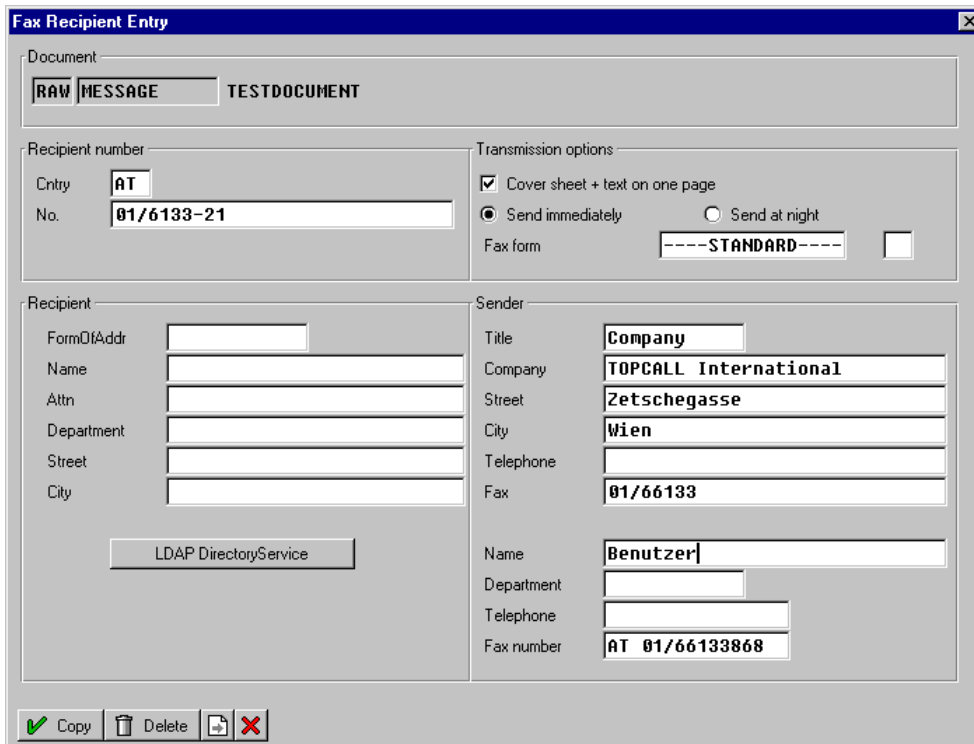
- Enter Type and Title of document. Continue with the content input for your document. Save your document. Select your document for sending



- Call Document > Send (or Shift+F8)



- Choose 'Fax entry' for the destination address (or Shift+F5).



5. Insert Country code and receiving fax number in the 'Fax Recipient Entry'. Continue (with copy).
6. Send the fax at the end with the Send push button or Shift+F8.

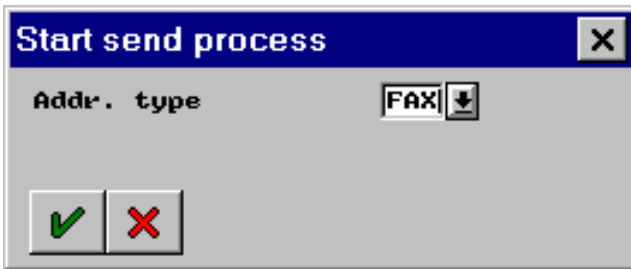
Activate sending process manually

Normally, the send process is scheduled following a special pattern (look at [SAP Message Send Time and Date](#)). Therefore waiting for the sending could take quite a long time. So you can activate the sending process manually.

1. From **SAPconnect Administration (Transaction SCOT (View: Jobs))** call **Goto > Start send process**

With release 4.6x you have to call **Utilities > Start send process**

2. Enter Addr. Type: FAX



3. Select **FAX** and click **OK**

Then the message is processed:

Process means message between SAP and KCS or message is on the fax line.

If everything is ok, then, after a while (depends on the settings of TCLINKSC/SAP/RFCPoICycle) TC/LINK-SC picks up the message and transfers it to KCS.

Review Status of Outgoing Fax

1. Call **Office > Outbox** (transaction SO02)
2. Double click on the receiver column of the outgoing document (No.,VW, RR, RC, CC).

Title	Typ	AT	SndDate	SndTime	No.	UW	RR	RS	CC
TESTDOCUMENT	RAW		26.11.1998	17:23:09	1				

3. Review the status

Transmission information [X]

Document: MESSAGE TESTDOCUMENT

Recipient: AT 01/6133-21 via Telefax

General attributes:

- Reply required
- Copy
- No printing
- Express
- ToDo
- Blind copy
- No forwarding
- Repeat send

Acknowledgement:

- When received
- Only if not received
- Document read

Send message: only if error occurs

Transmission information:

Sender: Benutzer

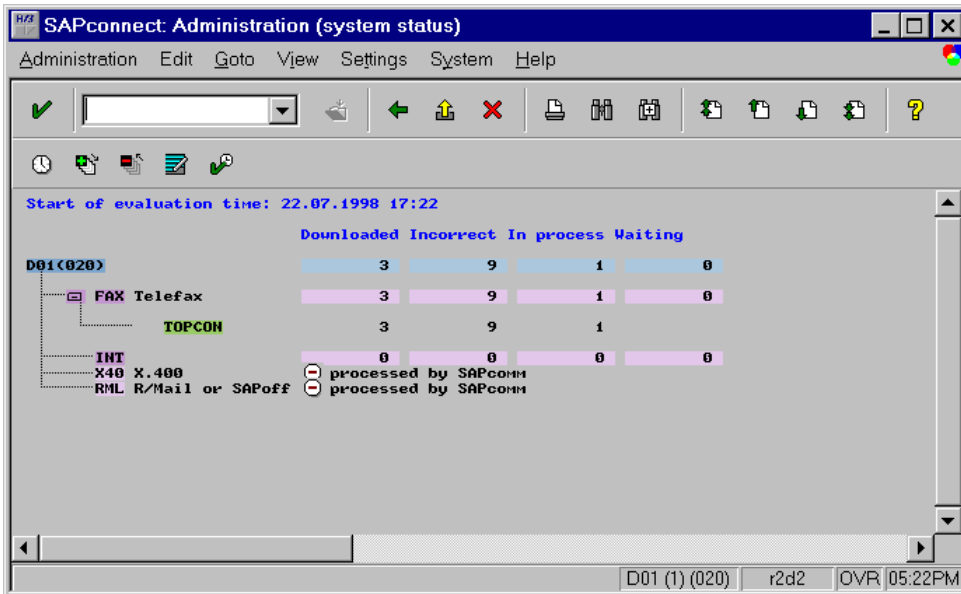
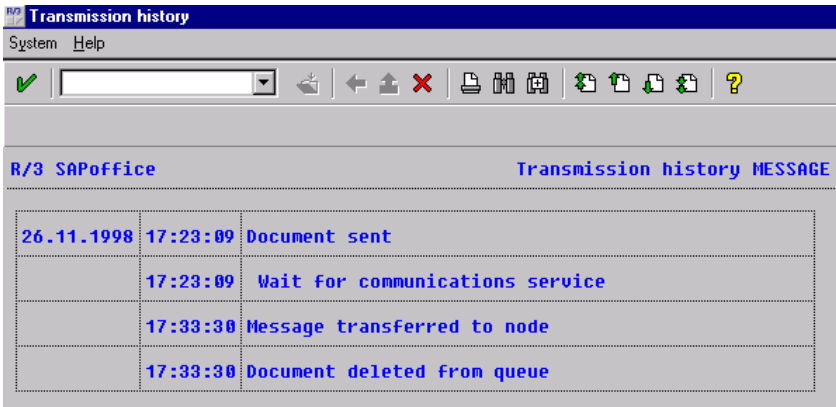
Sent: on 26.11.1998 at 17:23:09

Status: Message transferred to node

Transm. history [icon]

[icon] Address [icon]

4. You can also review the transmission history of the sending request – click **Transm. History**.



List of Useful SAP R/3 Transactions

- SM59** Managing the RFCDestination
- SCOT** Managing the SAPconnect nodes, starting the send process, examining SAPconnect traces etc.
- SO12** Managing SAPoffice user's profile (incl. own fax, Internet and X.400 addresses).
- SO16** Activating FAX, X.400 and SMTP components for SAPoffice users
- SO28** Inbound Distribution, SAP Postmaster and Routing
- SO01** Opening the SAPoffice inbox
- SO02** Opening the SAPoffice outbox

SUØ1 Managing SAP R/3 users

SMGW Gateway Monitor, check registered systems

SU3 Managing logged in user (important if SU01 and SU02 not allowed, because no special rights needed)

Installation on SAP R/3 Release 4.6 x

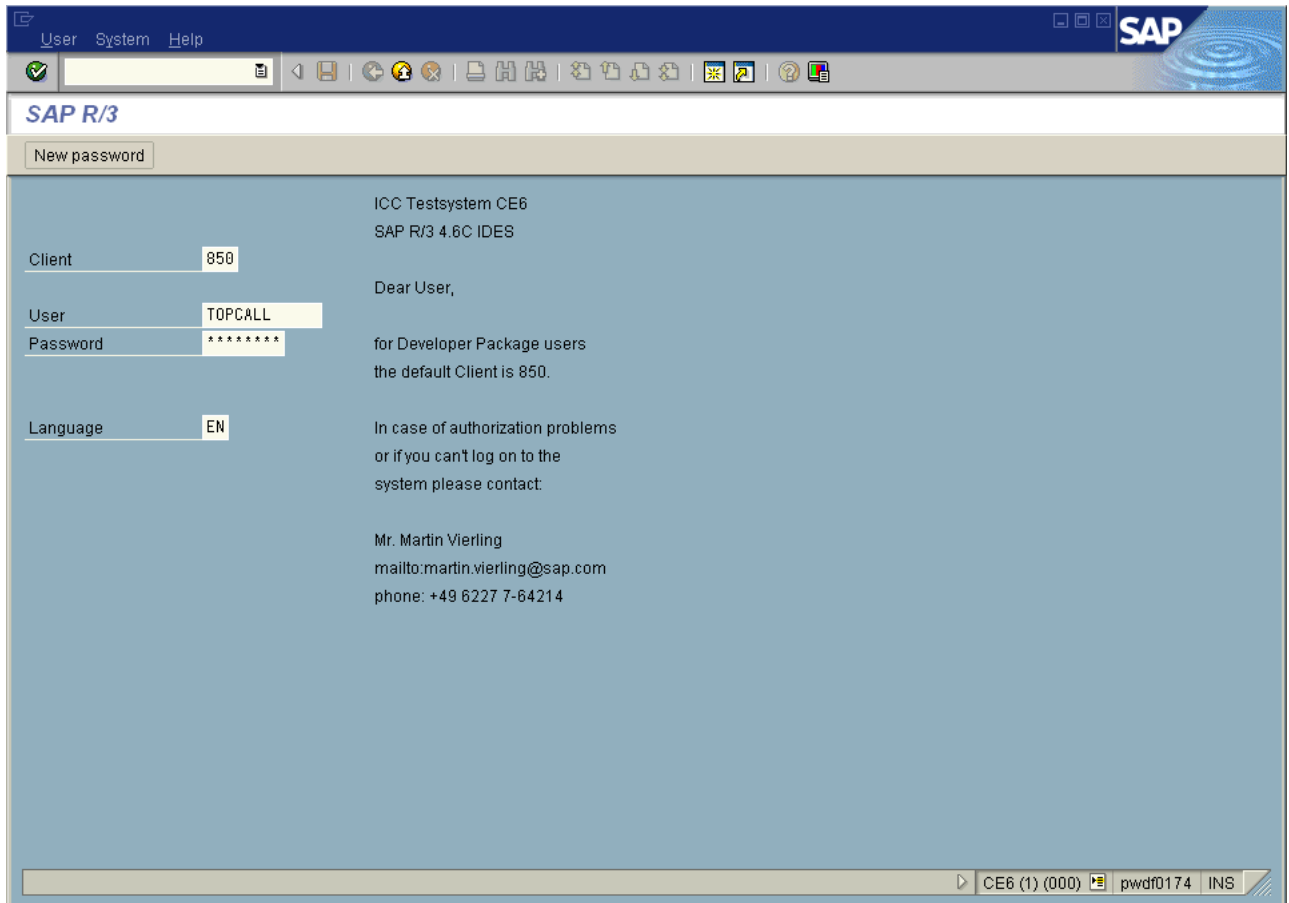
Note To distinguish between the digit zero and the capital letter O it will be displayed like this:

Digit zero	Ø
Capital letter O	O

Important Most entries are case sensitive!

Logon with SAP GUI

Log on into the R/3 system with the normal "Dialog" R/3 user (NOT CPI-C user!)

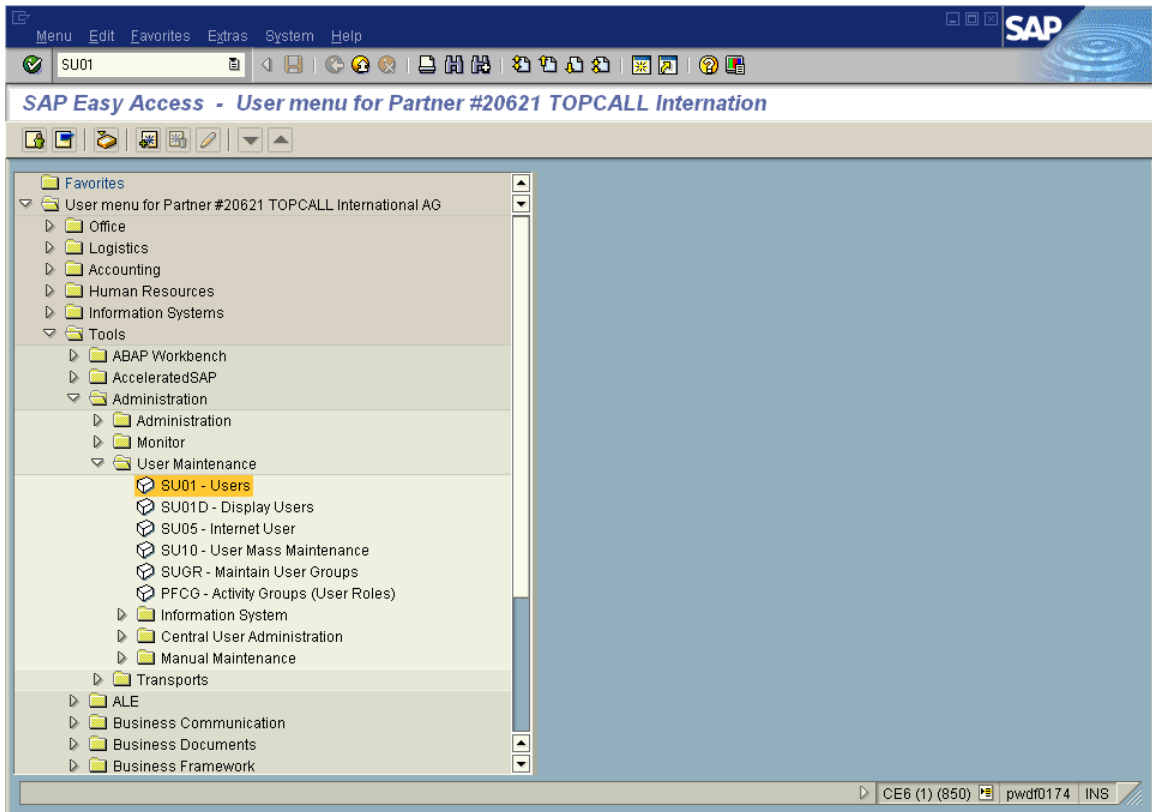


Create an RFC User for TC/LINK-SC

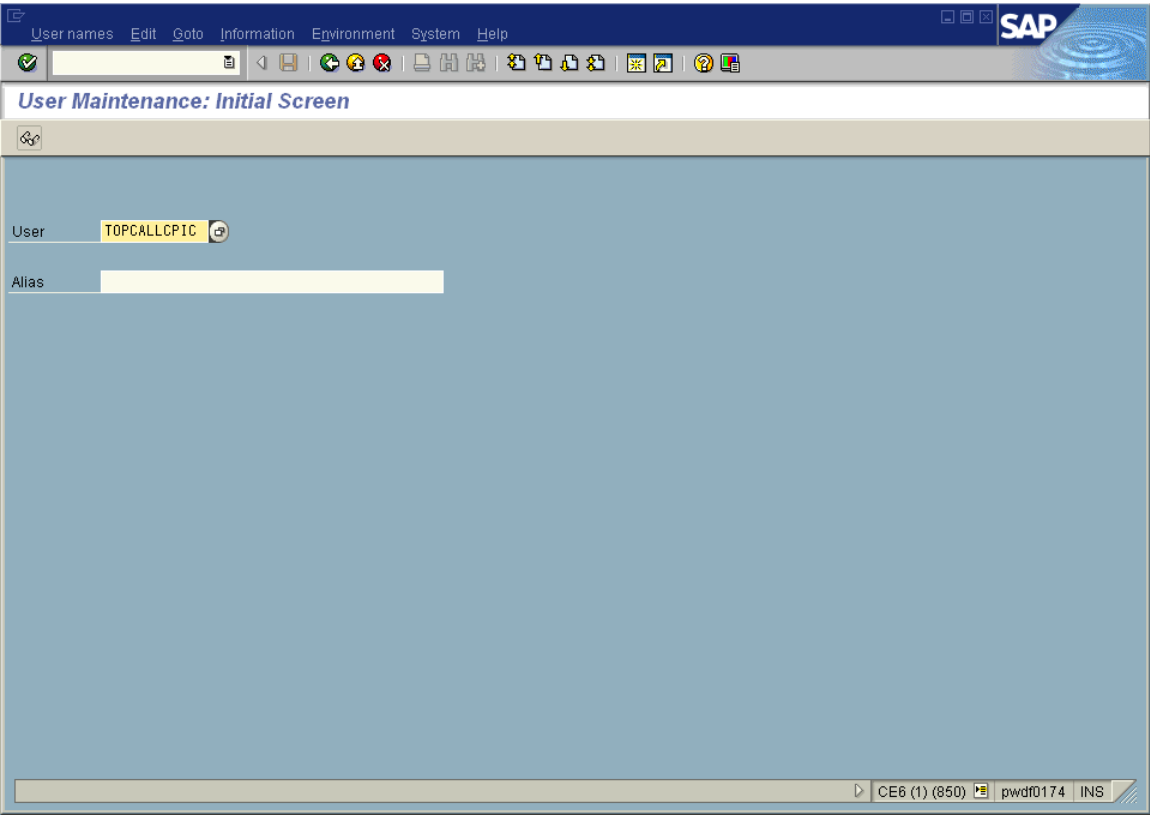
Create a user for the fax server to logon to the R/3 system:

1. Call: **Tools > Administration, User maintenance > Users** (transaction SU01)

2. Start transaction SU01



3. Type in the user name and select the **Menu User names > create**

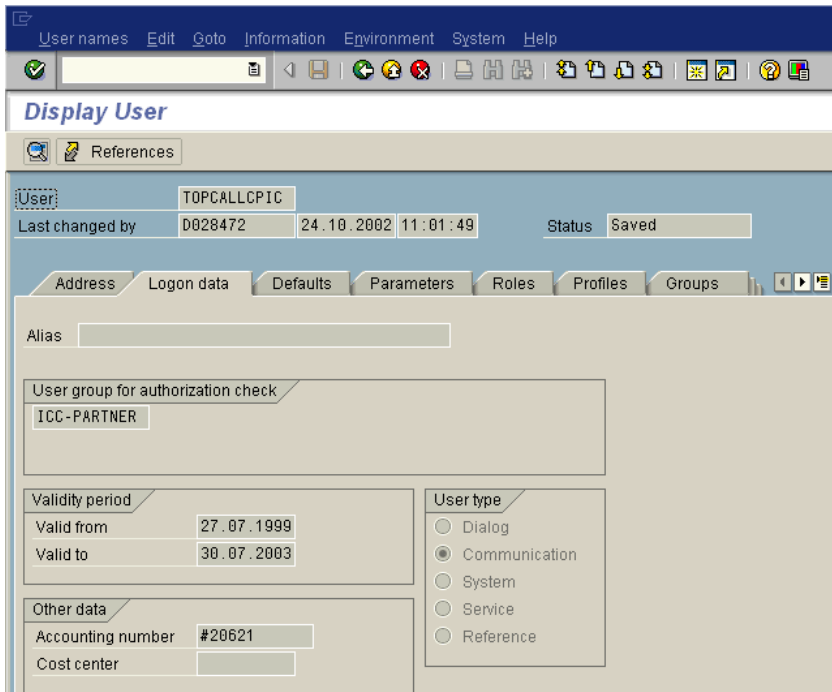


4. Insert dummy address data of user into the first screen

The screenshot shows a web-based interface for displaying user information. The title bar reads 'Display User'. Below the title bar, there is a 'References' section. The main content area is divided into several sections: 'Person', 'Communication', and 'Company'. The 'Person' section contains fields for Title (Mr.), Last name (TOPCALL International AG), First name (Partner #20621), Acad. title, Format (Partner #20621 TOPCALL International AG), Function, Department, Room no., Floor, and Building. The 'Communication' section contains fields for Language (German), Telephone no. (PHONE), Fax (0166133 21), Internet mail (linksc_ce2@topcall.co.at), and Comm. type (Remote Mail). The 'Company' section is currently empty.

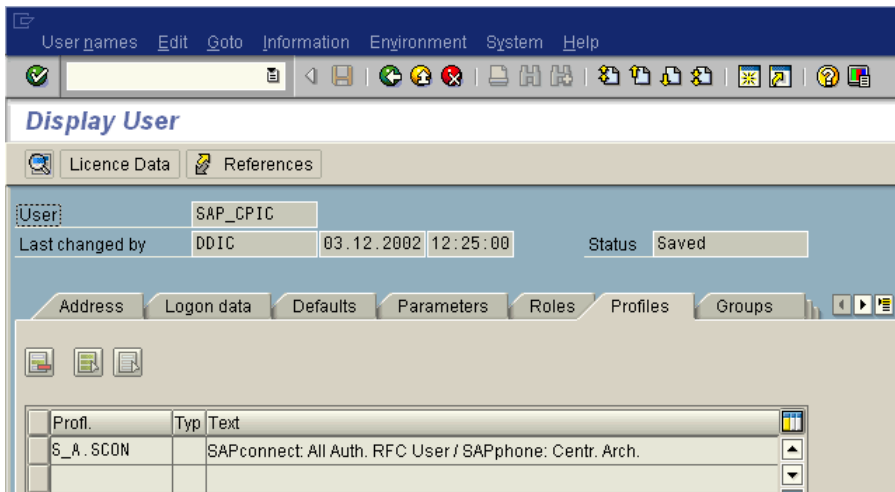
5. In the **Address** section type in any Last name you might want to use the same name then your CPI-C user
 Name and password must match with the values set in the configuration of the fax server.

6. Go to next input screen : **Logon data**



The type of user must be “Communication”

7. Go to the next input screen



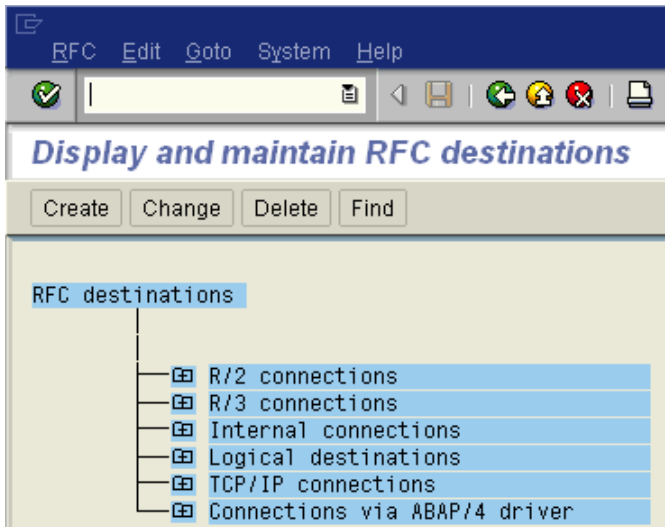
8. Assign the authorization profile “S_A.SCON ” to the user

9. Now save the user data

Create an RFC Destination to TC/LINK-SC

Create an RFC destination for outbound calls:

1. Call: **Tools > Administration, Administration > Network > RFC destinations** (transaction SM59)



2. Choose: **Create**

The screenshot shows a software window titled "RFC Destination" with a menu bar (Destination, System information, Test, System, Help) and a toolbar. The window is divided into several sections:

- Test connection:** A button labeled "Test connection".
- RFC destination:** A text field containing "BC-CON_TOPCALL2".
- Technical settings:** A section with a "Connection type" dropdown set to "T", a "New entry" button, and a "Trace" checkbox.
- Description:** A section with a "Description" label and a text area containing "RFC Connection".
- Ligon:** A section with fields for "Language", "Client", "User", and "Password". The "User" field has a "Current user" checkbox. The "Password" field is masked with asterisks and has a note "is still blank" and an "Unencrypted password (2.0)" checkbox.
- Attributes:** A section with "Created by" and "Last changed by" labels, each followed by two empty text boxes.

3. Enter a name of the RFC destination (e.g., BC-CON_TOPCALL)
4. Set connection type 'T' (=TCP/IP)
5. Enter a description.

6. Press **Enter**.

The next screen will appear.

The screenshot shows a software window titled "RFC Destination BC-CON_TOPCALL2". The window has a menu bar with "Destination", "System information", "Test", "System", and "Help". Below the menu bar is a toolbar with various icons. The main content area is divided into several sections:

- Test connection**: A button labeled "Test connection".
- RFC destination**: A text field containing "BC-CON_TOPCALL2".
- Technical settings**: A section with a tabbed interface. The "Technical settings" tab is active, showing:
 - Connection type**: A dropdown menu set to "TCP/IP connection".
 - Activation Type**: Three buttons: "Start", "Registration", and "Trace". The "Registration" button is highlighted.
- Registration**: A section with a tabbed interface. The "Registration" tab is active, showing:
 - Program ID**: A text field containing "SAPGW.TCLINKSC", which is highlighted in yellow.
- Security Options**: A section with a tabbed interface. The "Security Options" tab is active, showing:
 - SNC**: Two radio buttons, "Activ" and "Inactv.". The "Inactv." button is selected.
- Description**: A section with a tabbed interface. The "Description" tab is active, showing:
 - RFC Connection**: A text field containing "RFC Connection".

7. Select activation type 'Registration'.

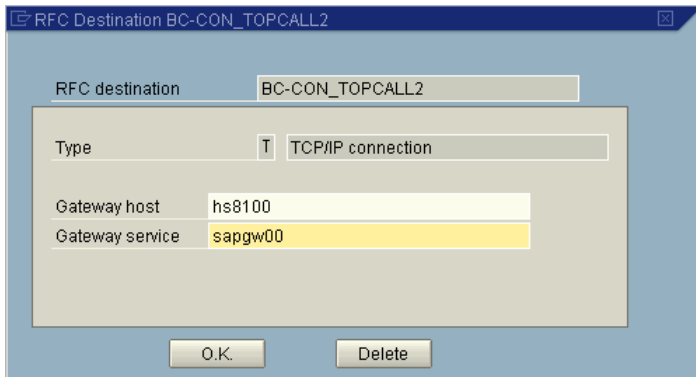
8. Enter TC/LINK-SC's Program ID, case sensitive (e.g., SAPGW.TCLINKSC, where SAPGW is the TC/LINK-SC workstation name.

Must be the same, as configured during TC/LINK-SC setup). This program ID must match with the value defined with parameter PROGID in the saprfc.ini file on the fax server.

Destination > Gateway Options (Optional)

This is only necessary, if more than one application server should be connected to KCS, than only one server is the appropriate gateway, which must be entered here.

1. Choose the menu point **Destination > Gateway options**

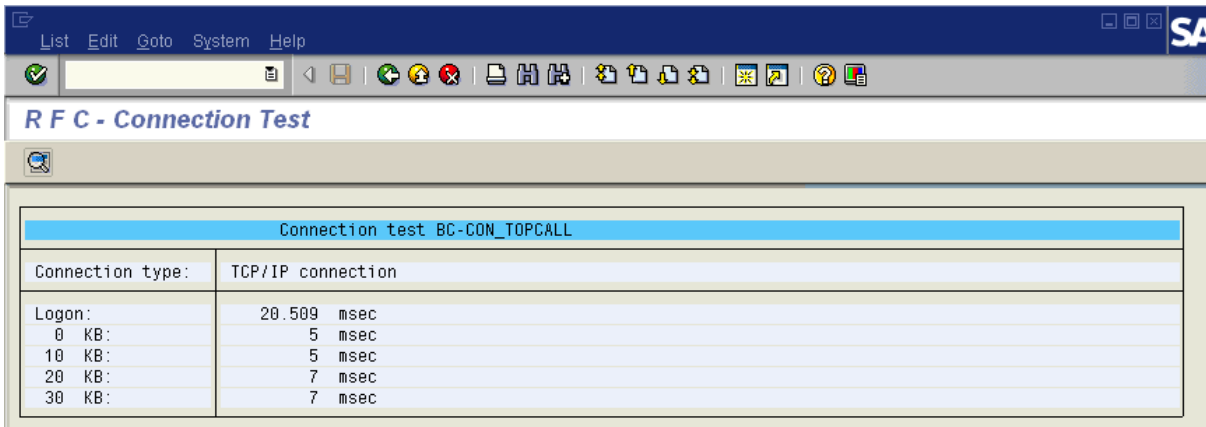


2. Set the gateway options of the RFC destination.
3. Enter the host name and the service of the SAP gateway. (Must be the same, as configured during TC/LINK-SC setup). This host name and the service must match with the value defined with parameter GWHOST and GWSERV in the saprfc.ini file on the fax server. (look at [RFC Connection Parameters \(SAPRFC.INI File\)](#) for detailed information of the RFC connection parameters)
4. Click OK and save the RFC Destination.
5. Now click **Test connection** to verify if everything is ok. (TC/LINK-SC and SAP gateway must be running, of course).

Test the RFC Connection to TC/LINK-SC

Verify if the RFC connection to TC/LINK-SC works. Click test connection button (see screen before)

If your connection is ok you should get a screen like this.



SAP Configuration

Administration (system status)

Start of evaluation time: 03.12.2002 10:41

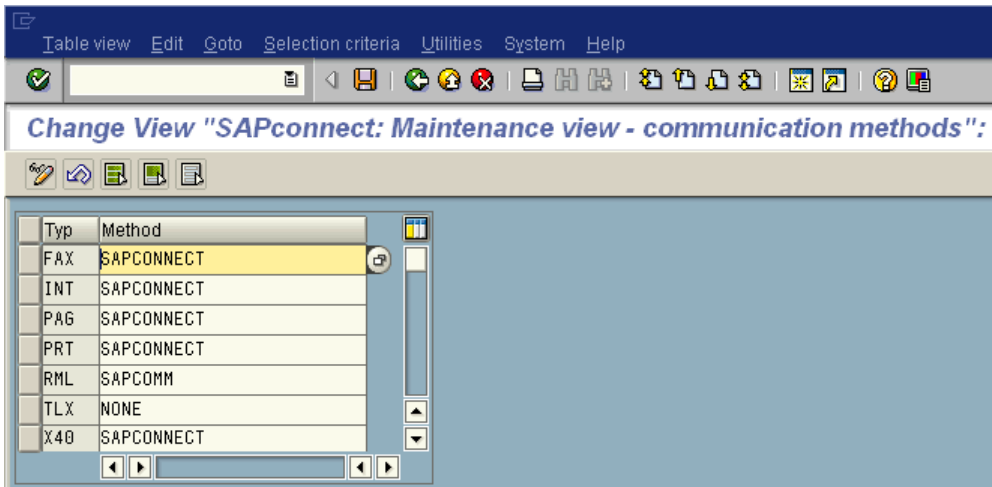
	Completed	Error	In transit	Waiting	Duration In transit	Duration Waiting
					hh:mm	hh:mm
CE6 (850)	7	1	5	202		
FAX Telefax	0	0	5	0	2:55	1:00
INT Internet	7	1	0	0	0:00	0:01
CAECON	0	0	0	0	0:00	0:00
MRSCON	7	1	0	0	0:00	0:01
NODE1	0	0	0	0	0:00	0:00
SXC1	0	0	0	0	0:00	0:00
TCMA	0	0	0	0	0:00	0:00
TCNODE	0	0	0	0	0:00	0:00
TCTQA	0	0	0	0	0:00	0:00
TEACH	0	0	0	0	0:00	0:00
TOPCON	0	0	0	0	0:00	0:00
X40 X.400	0	0	0	0	0:00	0:00
SXC1	0	0	0	0	0:00	0:00
RML R/Mail or	0	0	0	202	0:00	0:00
processed by SAPcomm						
PAG	0	0	0	0	0:00	0:00
CAECON	0	0	0	0	0:00	0:00
FERCON	0	0	0	0	0:00	0:00

Do the SAPconnect configuration:

- Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect**(transaction SCOT, View: System Status).
- Within this transaction you can go over the menu 'View' to the different views, which are displayed on this slide and on the following slides.
- System Status:
From here you can view all defined output methods (e.g., FAX/INT/X40) and the already defined nodes (e.g., SXC1/COMFAX) and you will find information about the processing status.

Customizing – Communication Methods

Menu **Settings > Communication Methods**

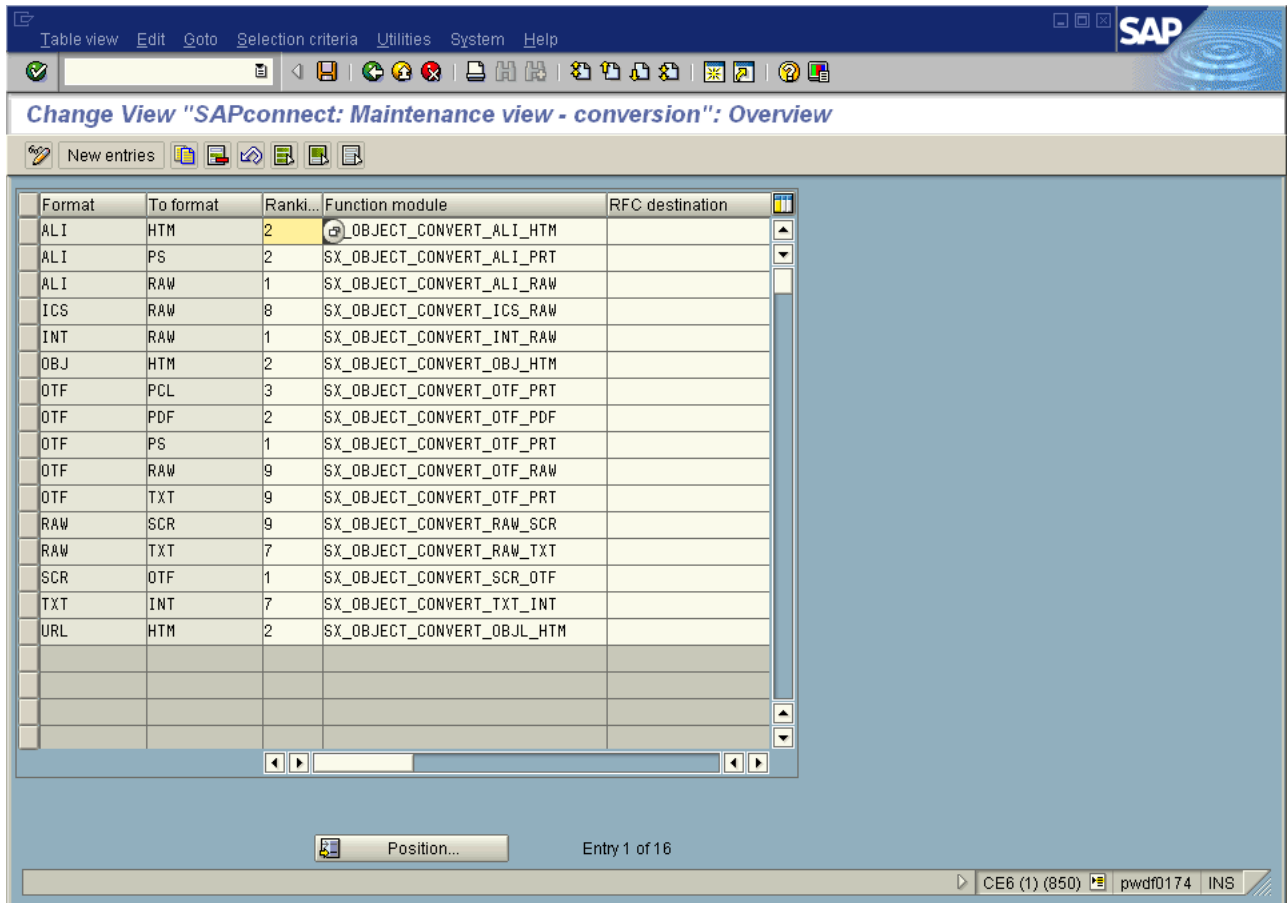


Set communication method SAPconnect for fax:

- Click: Communication methods.
- Set the value for Fax to SAPCONNECT.
- Save the communication methods.

Customizing – Conversion Rules

Menu "Settings" > Conversion Rules



The screenshot shows the SAP SAPconnect: Maintenance view - conversion interface. The title bar reads "Change View 'SAPconnect: Maintenance view - conversion': Overview". The main area contains a table with the following data:

Format	To format	Ranki...	Function module	RFC destination
ALI	HTM	2	SX_OBJECT_CONVERT_ALI_HTM	
ALI	PS	2	SX_OBJECT_CONVERT_ALI_PRT	
ALI	RAW	1	SX_OBJECT_CONVERT_ALI_RAW	
ICS	RAW	8	SX_OBJECT_CONVERT_ICS_RAW	
INT	RAW	1	SX_OBJECT_CONVERT_INT_RAW	
OBJ	HTM	2	SX_OBJECT_CONVERT_OBJ_HTM	
OTF	PCL	3	SX_OBJECT_CONVERT_OTF_PRT	
OTF	PDF	2	SX_OBJECT_CONVERT_OTF_PDF	
OTF	PS	1	SX_OBJECT_CONVERT_OTF_PRT	
OTF	RAW	9	SX_OBJECT_CONVERT_OTF_RAW	
OTF	TXT	9	SX_OBJECT_CONVERT_OTF_PRT	
RAW	SCR	9	SX_OBJECT_CONVERT_RAW_SCR	
RAW	TXT	7	SX_OBJECT_CONVERT_RAW_TXT	
SCR	OTF	1	SX_OBJECT_CONVERT_SCR_OTF	
TXT	INT	7	SX_OBJECT_CONVERT_TXT_INT	
URL	HTM	2	SX_OBJECT_CONVERT_OBJL_HTM	

At the bottom of the window, there is a "Position..." button and the text "Entry 1 of 16". The status bar at the very bottom shows "CE6 (1) (850) pwwdf0174 INS".

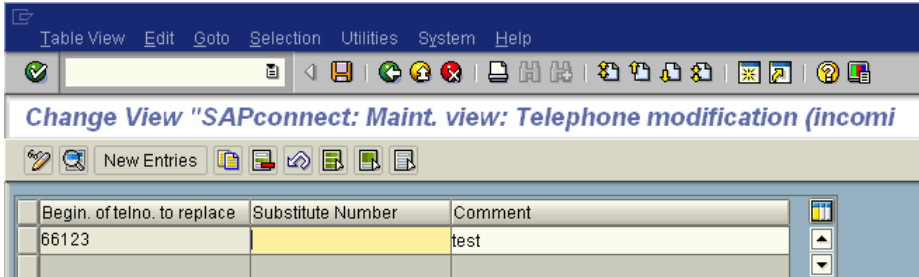
Add a conversion rule (optional):

In case that the fax server does not support Postscript or PDF format, but another printer language format, e.g., HP PCL, you have to add a new conversion rule. If the fax server supports PS or PDF you can skip this step.

1. Click: **Conversion rules, New entries.**
2. Enter a new rule with:
 - Format = OTF
 - To format = extension of the supported printer format e.g., PCL
 - Ranking = a value between 3 and 8
 - Function module = SX_OBJECT_CONVERT_OTF_PRT
 - all other fields = empty
3. Save the conversion rules.

Important In this case you also have to set the device type of your node to an appropriate value, e.g., HPLJ4, see below: Administration (nodes) -2-.

Customizing – Recipient No Change (Incoming)

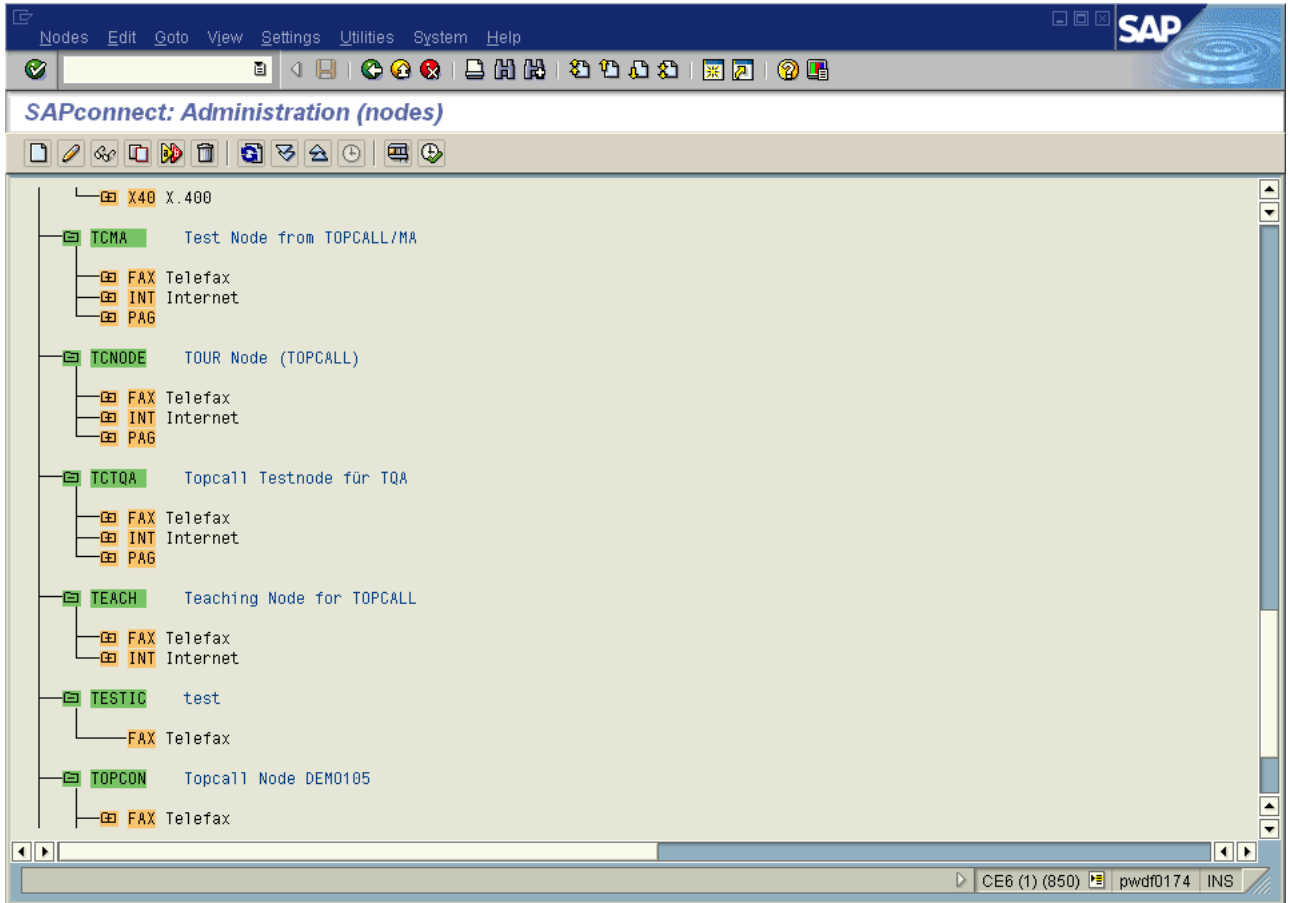


Define exception rules for manipulating the recipient's fax number in inbound messages. This is for the match of the recipients number as provided by the PBX or the fax server with the R/3 user's fax number as stored in the R/3 address management.

- New entries.
- Enter a new rule with
 - the beginning sequence of a fax number that shall be replaced
 - the substitute sequence that shall be inserted instead
 - a comment
- Save the rule.

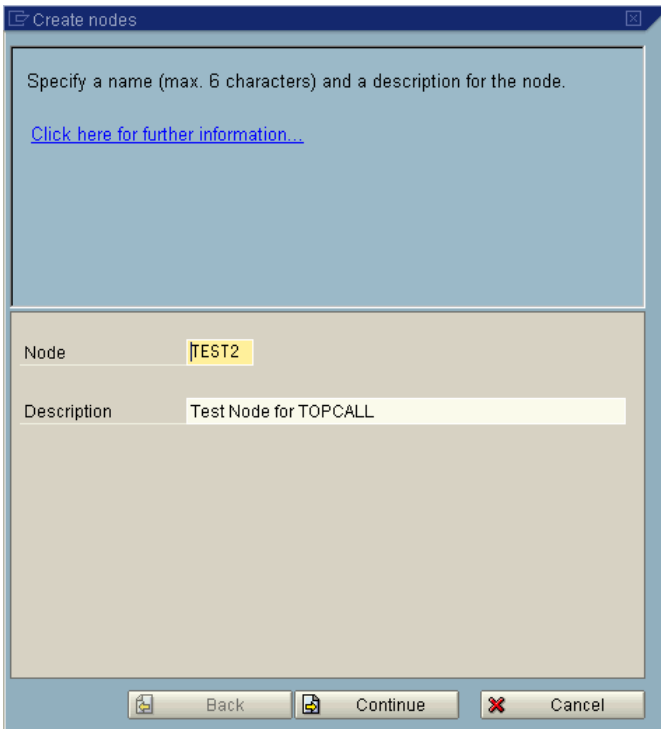
Define a Node and Its Attributes

1. Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: Node).

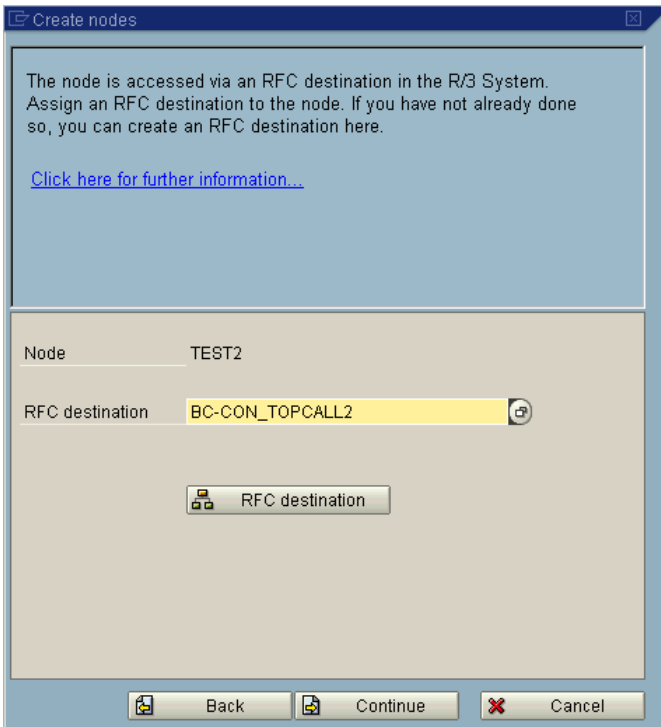


2. Enter a new node with push button 'Create node'
3. Enter name of the node (6 characters) and a description

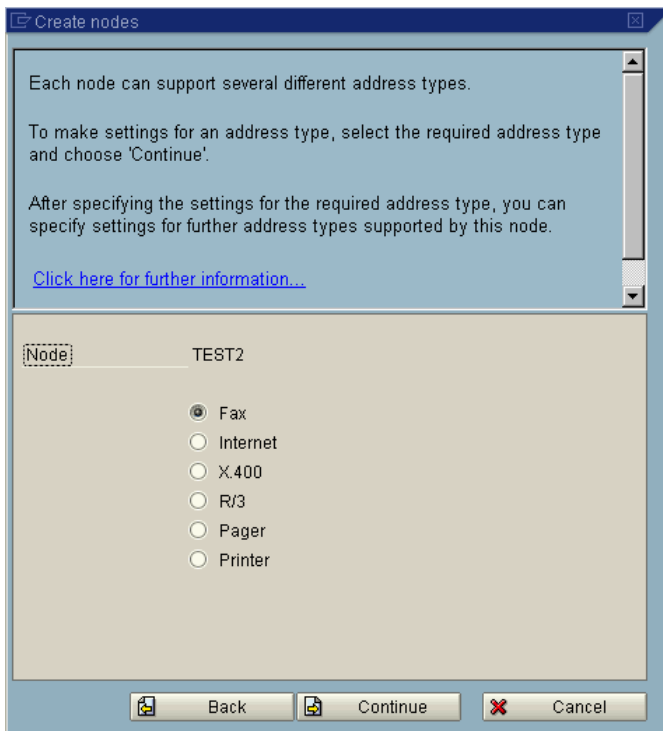
4. Enter the RFC destination created before



5. Click Continue and enter the created RFC destination:

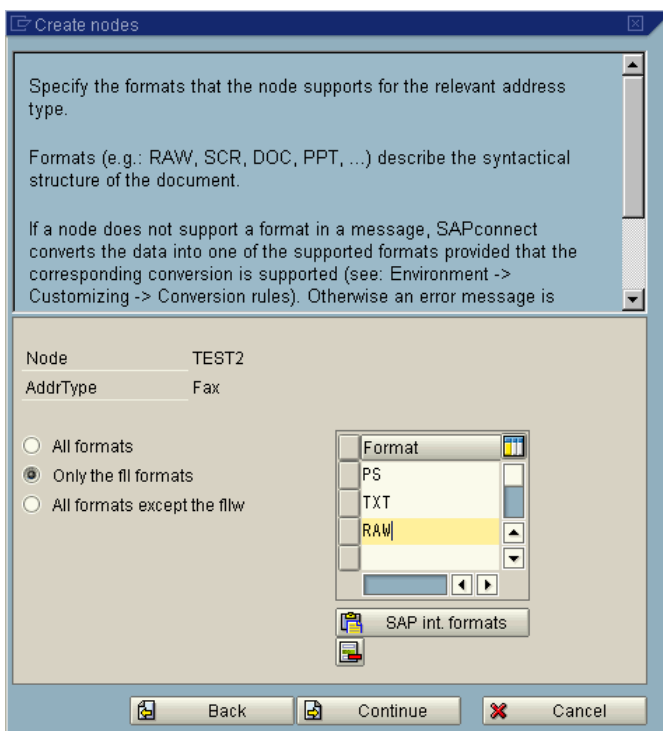
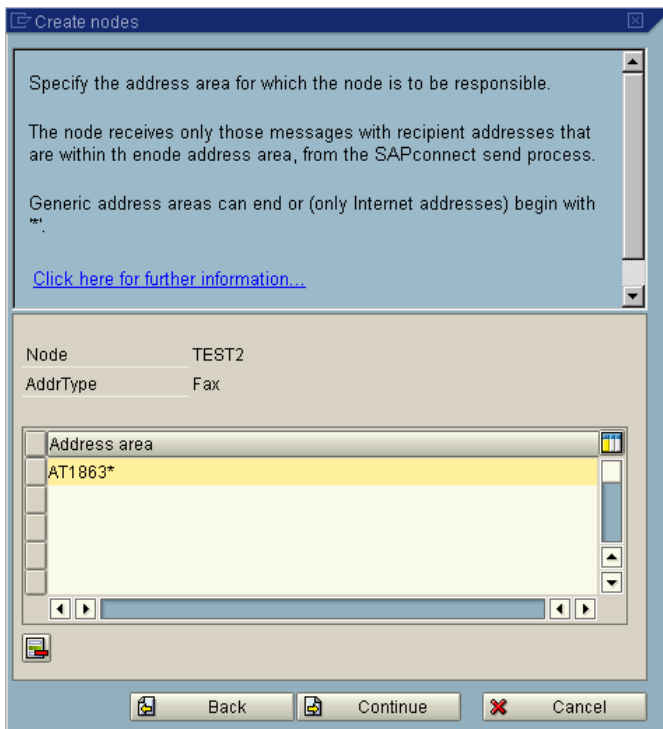


6. Click Continue and configure at least one supported address type:

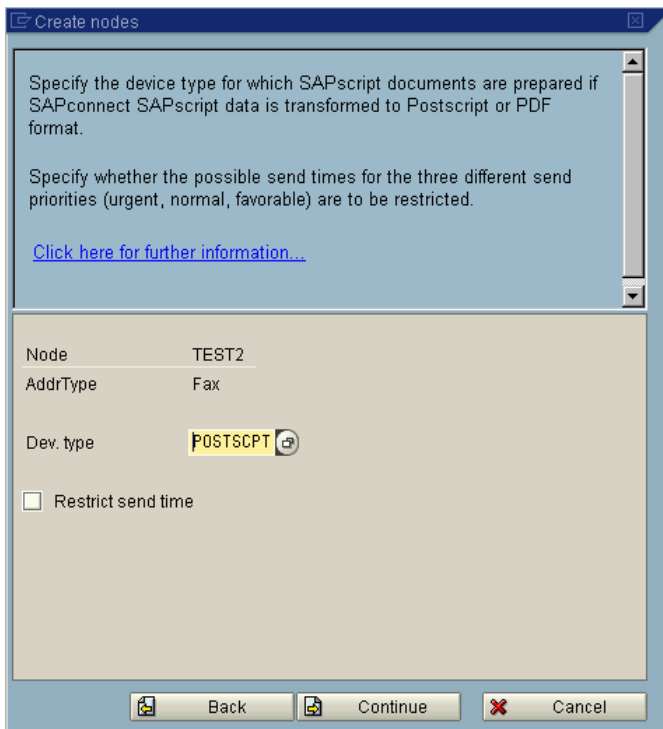


For example fax:

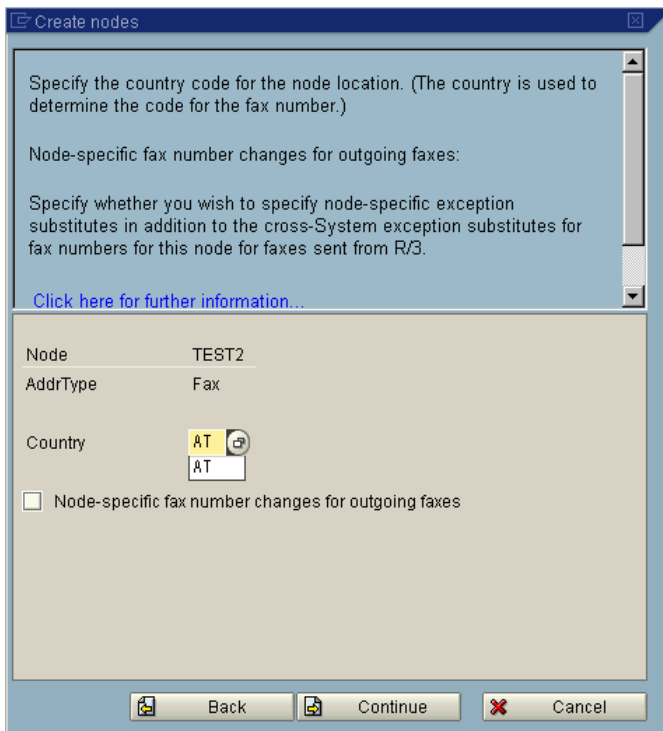
7. Specify the address area and the supported formats:



8. You must then specify the device type:



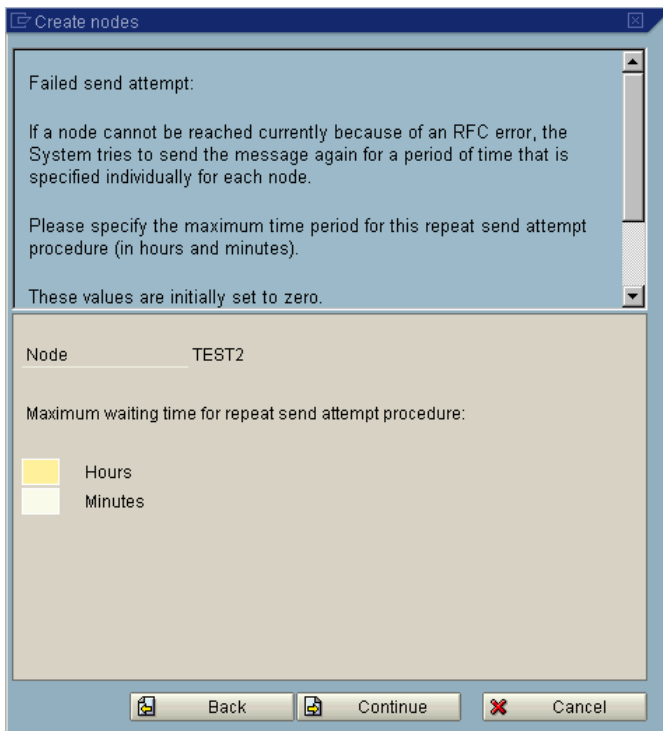
9. Next you must specify the node specific country code:



You can then set further address types, which are configured similar:

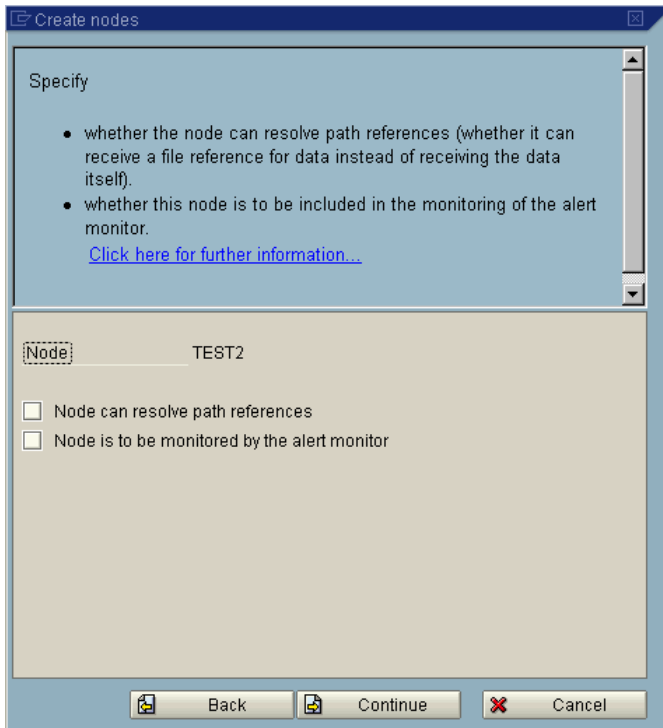


10. After you finished all address types you have to set some general node configurations:



The maximum waiting time for the repeat send attempt procedure. In the example above, they are left empty, but could be filled out, according to the customers desired behavior.

The maximum waiting time for the repeat send attempt procedure.

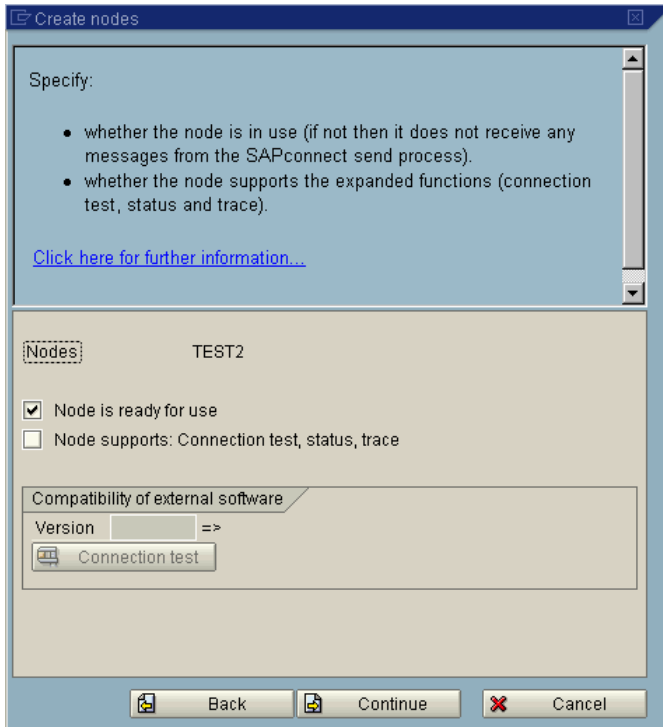


- 11.** If you check the “Node can resolve path references”, then the attachments are only send as a reference.

Therefore it should not be checked. Otherwise probably attachments cannot be accessed.

12. If you check the “Node is to be monitored by the alert monitor, then the RFC destination is checked periodically by the Alert Monitor.

This can lead to event log entries of the LINK-SC, because it does not recognize these checks.

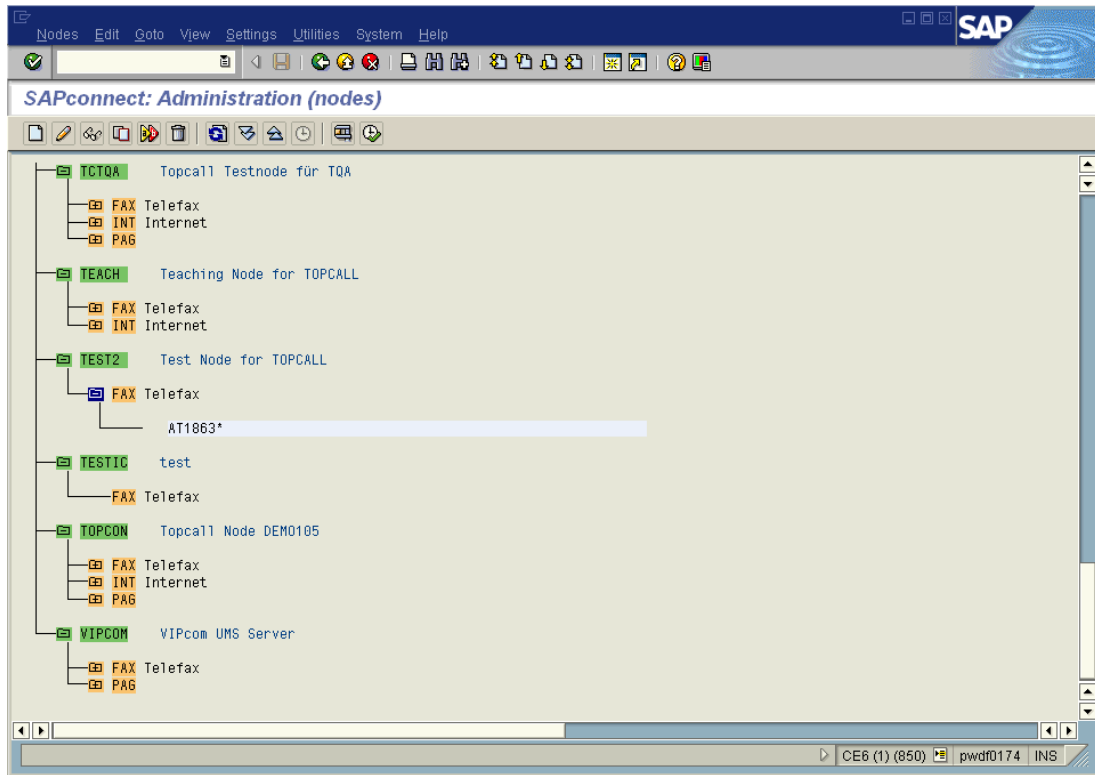


13. Check “Node is ready for use”

14. If you check “Node supports: Connection test, status, trace”, then an additional software checks the connection.

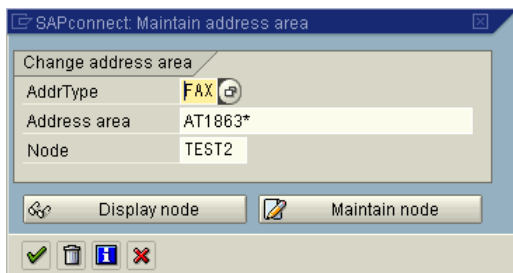
This is not supported by TC/LINK-SC. If you will do an connection test, you can use the RFC Connection test (SM59)

Then the node is finished:



Define Routing

You can define the routing later on by changing the “SAPconnect View“ to “Routing” and double-click on an address:



Routing Test

Test the routing of a fax message:

- SAPconnect (transaction SCOT, (**Utilities > Routing test**)).

SAPconnect: Test routes

Sender and recipient	
Sender	TOPCALL
RecipientAddr.type	FAX
Recipient addr.	AT18635

Outbound node and modified recipient address	
Node	TEST2
Recipient addr.	18635

- Enter a communication service ('FAX') and an address, press Enter.
- In the box 'Outbound node and modified recipient address' will be displayed, which node would be used when sending a fax to that number, and how the number would be adapted according to the international country codes and your exception rules.

Schedule a SAPconnect Background Send Process

- Call: **Tools > Administration, Administration > Process technology > Communication > SAPconnect** (transaction SCOT, (View-> Jobs)).

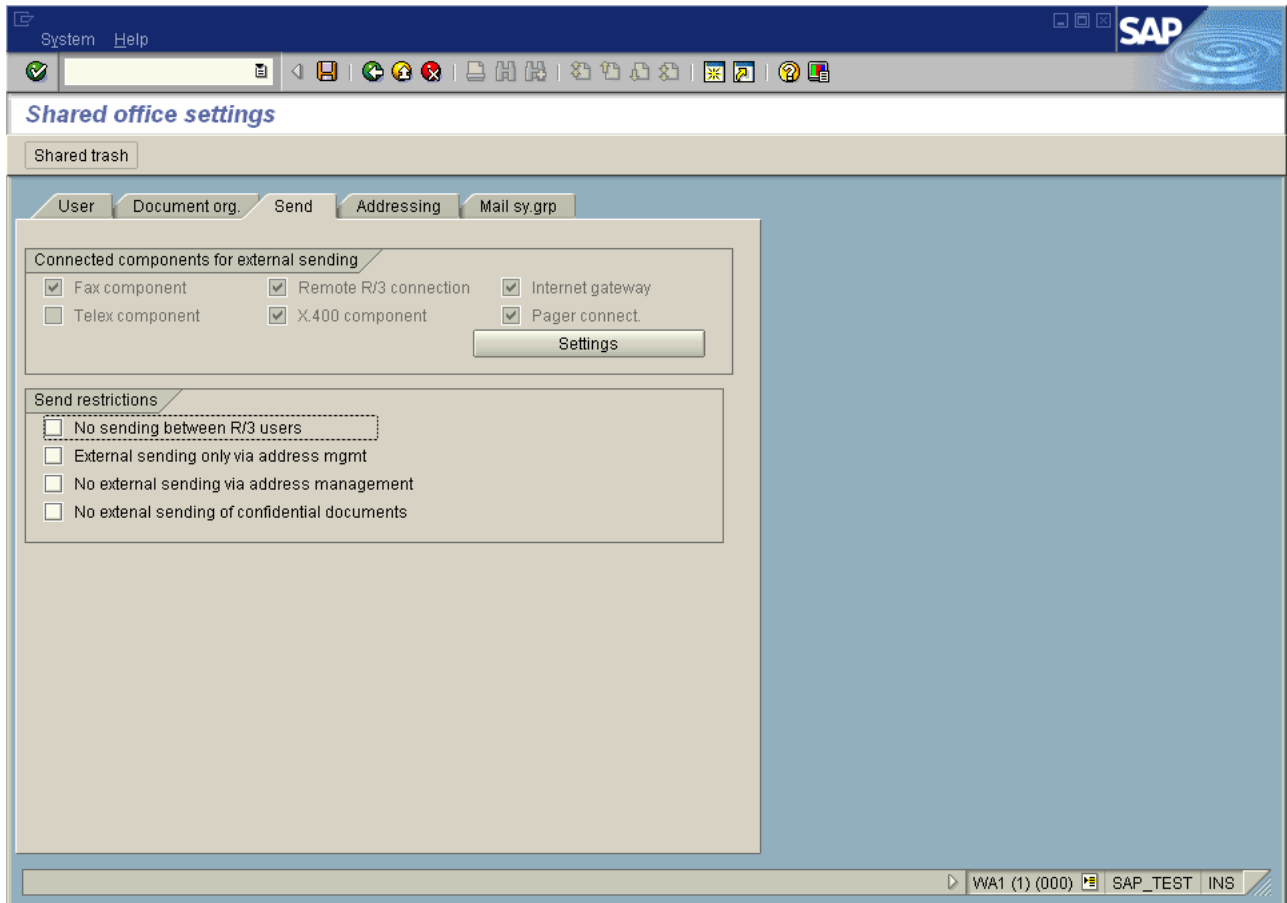
Start of evaluation time: 03.12.2002 10:48

	Completed	Error	In transit
CE6 (850)	7	1	5
In dialog	5	0	2
ALL	2	1	1
CAE_FAX_JOB1	0	0	1
FAXJOBS	0	0	0
FAXSEND	0	0	1
FAXTEST	0	0	0
SENDFAX	0	0	0
SENDMAIL	0	0	0

From here you can start the sending process in dialog or you can schedule a background job for the sending process.

Activate the Fax Module in SAPoffice

- Call: **Tools > Administration, Administration > Process technology, Office > General office settings** (transaction SO16).

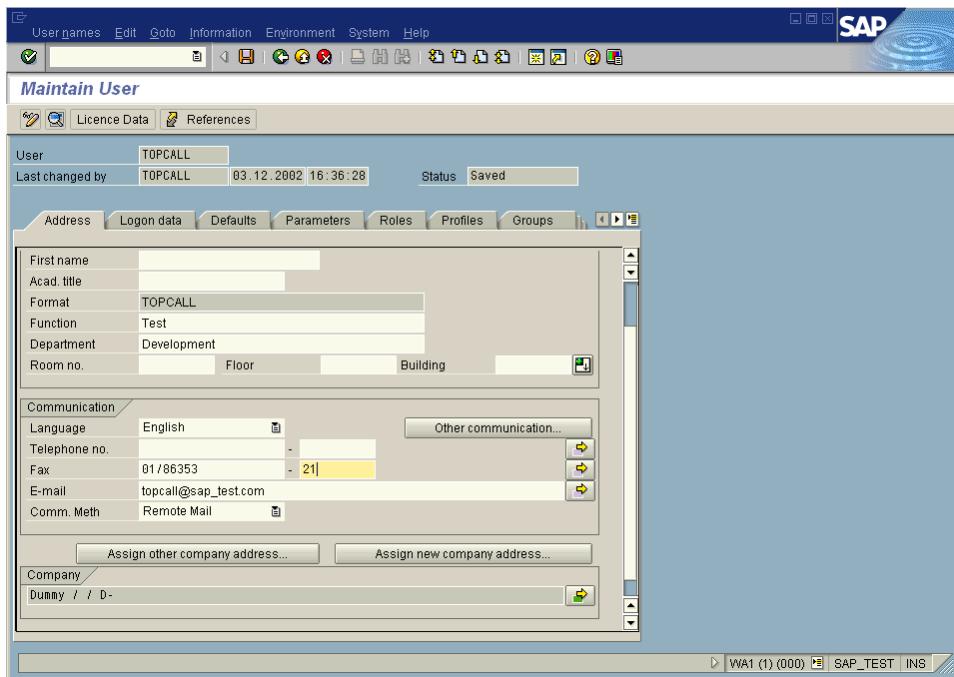


- Switch on Connected components: Fax component.
- Save SAPoffice settings.

Assign a Fax Number to Each R/3 User:

Each user who wants to send messages from R/3 via fax or other external communication services must have an originator address of the appropriate address type.

Call: **Tools > Administration, User maintenance > Users** (transaction SU01), enter the user name and click **Change**.

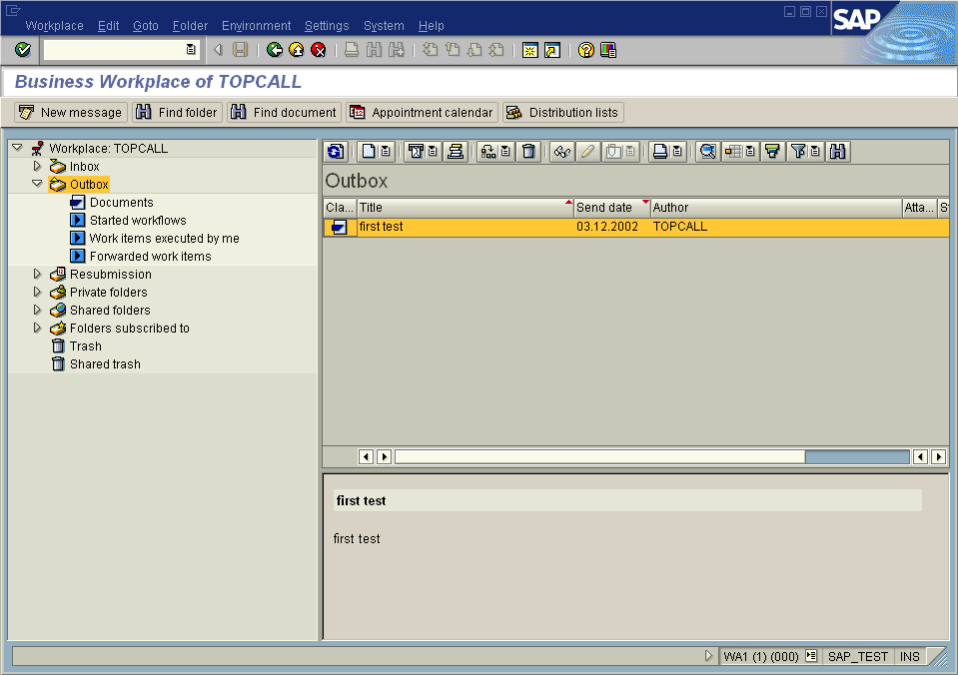


Enter the user's fax number. Save the user address.

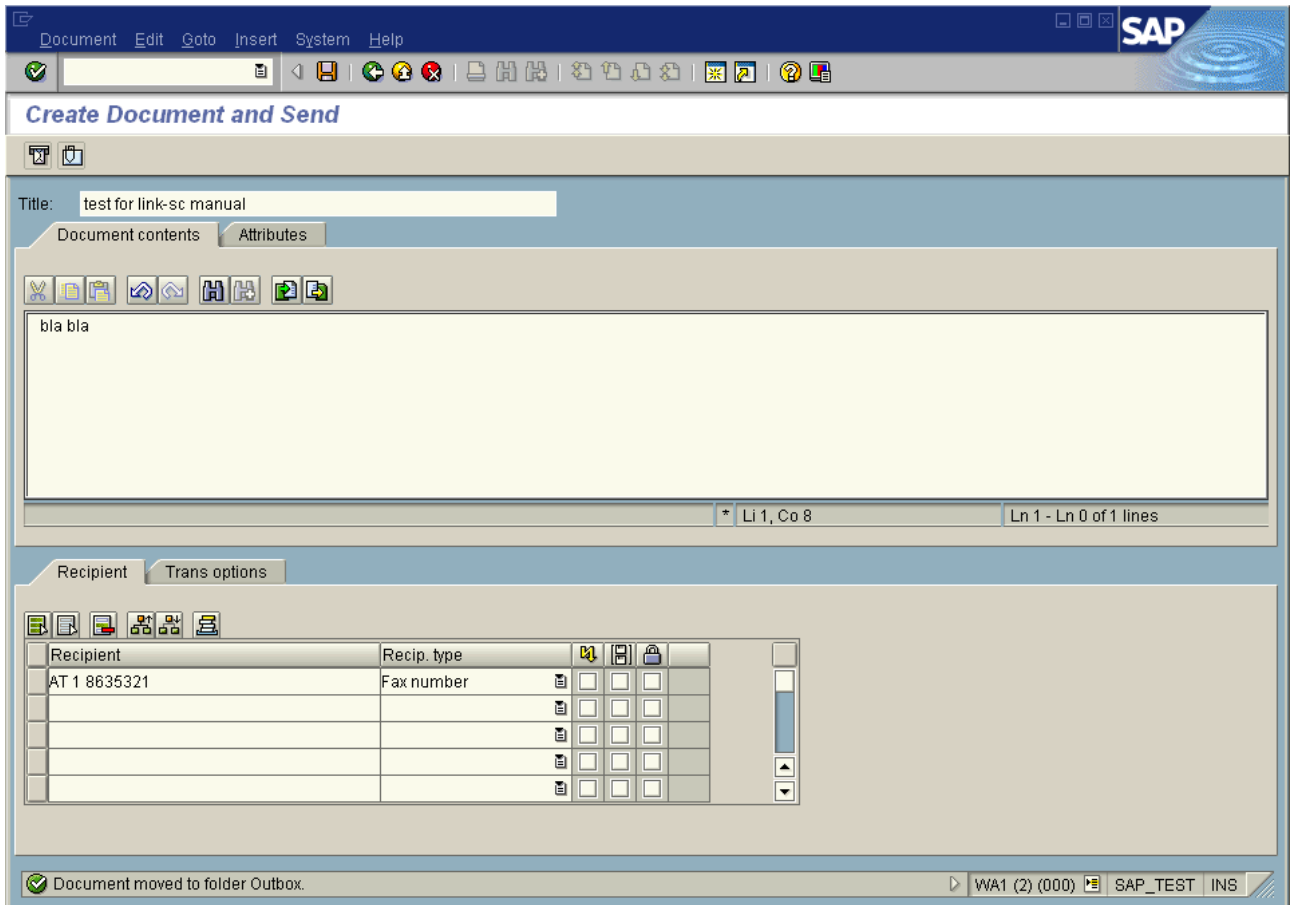
Send Fax Out of SAPoffice

You have to create a SAPoffice document and to send it to a fax number.

- 1. Call: **Office > Outbox** (transaction SO02)



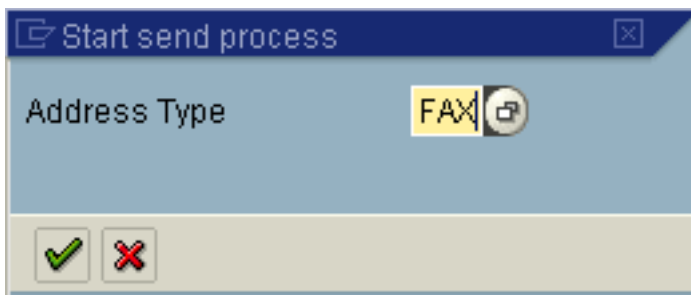
2. Select, **New Message** (or Shift+F4).



3. Click **Send** (or Shift+F8)

Activate Sending Process manually: Normally the send process is scheduled following a special pattern (look at [SAP Message Send Time and Date](#)), therefore waiting for the sending could take quite a long time. So you can activate the sending process manually.

4. From SAPconnect Administration (Transaction SCOT (View: Jobs)): **Utilities > Start send process** and Enter **Addr. Type** : FAX



5. Select **FAX** and click **OK**.

Then the message is processed:

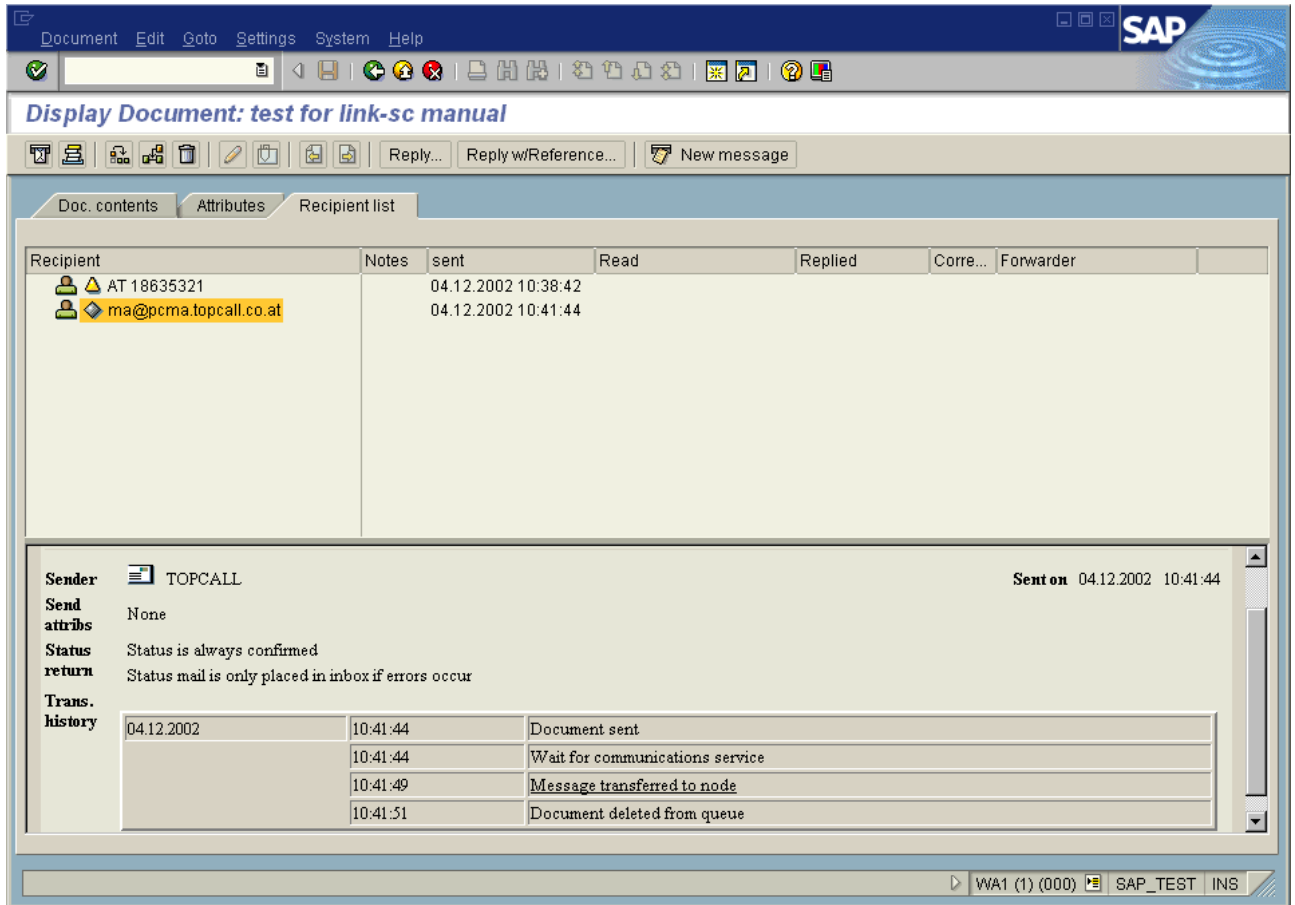
Process means message between SAP and KCS or message is on the fax line. If everything is OK, then, after a while (depends on the settings of TCLINKSC/SAP/RFCPollCycle) TC/LINK-SC picks up the message and transfers it to KCS.

Review Status of Outgoing Fax

Call: **Office** > **Outbox** (transaction SO02).

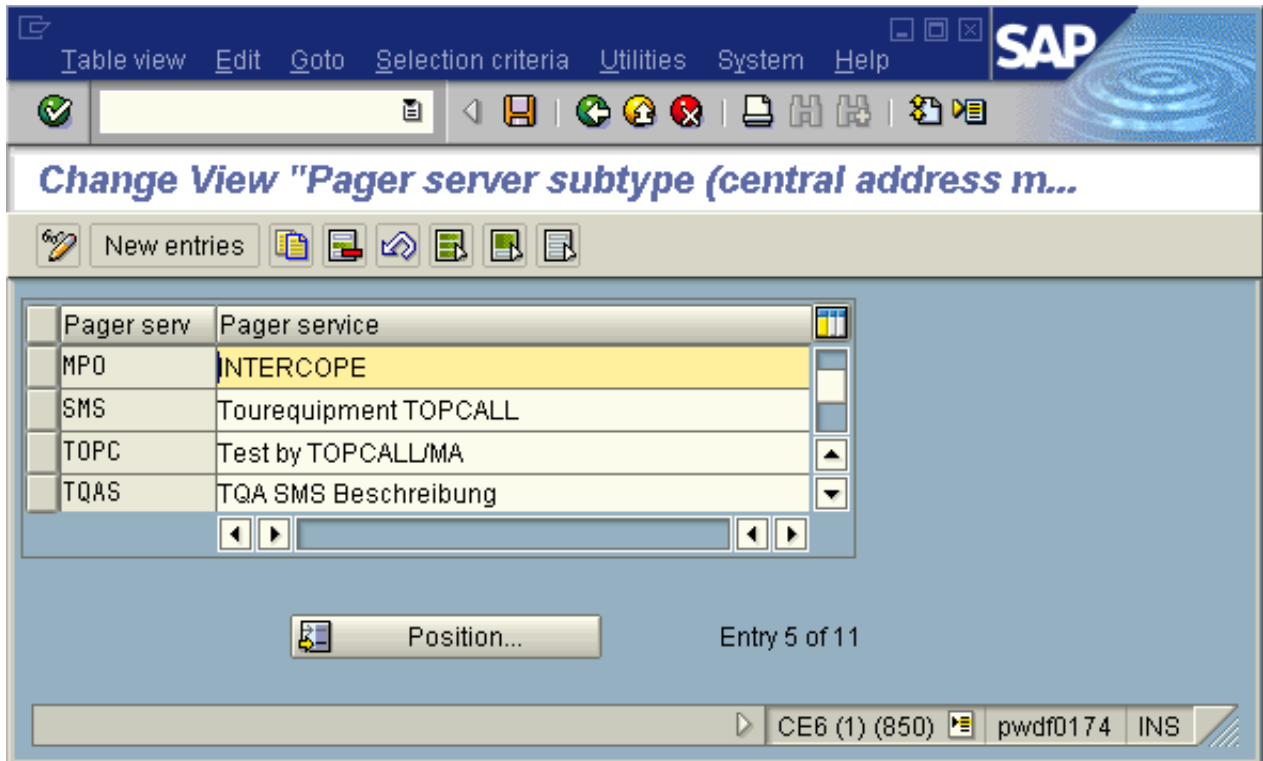
Double-click on the message.

Review the status.



Configuration of the PAG Service

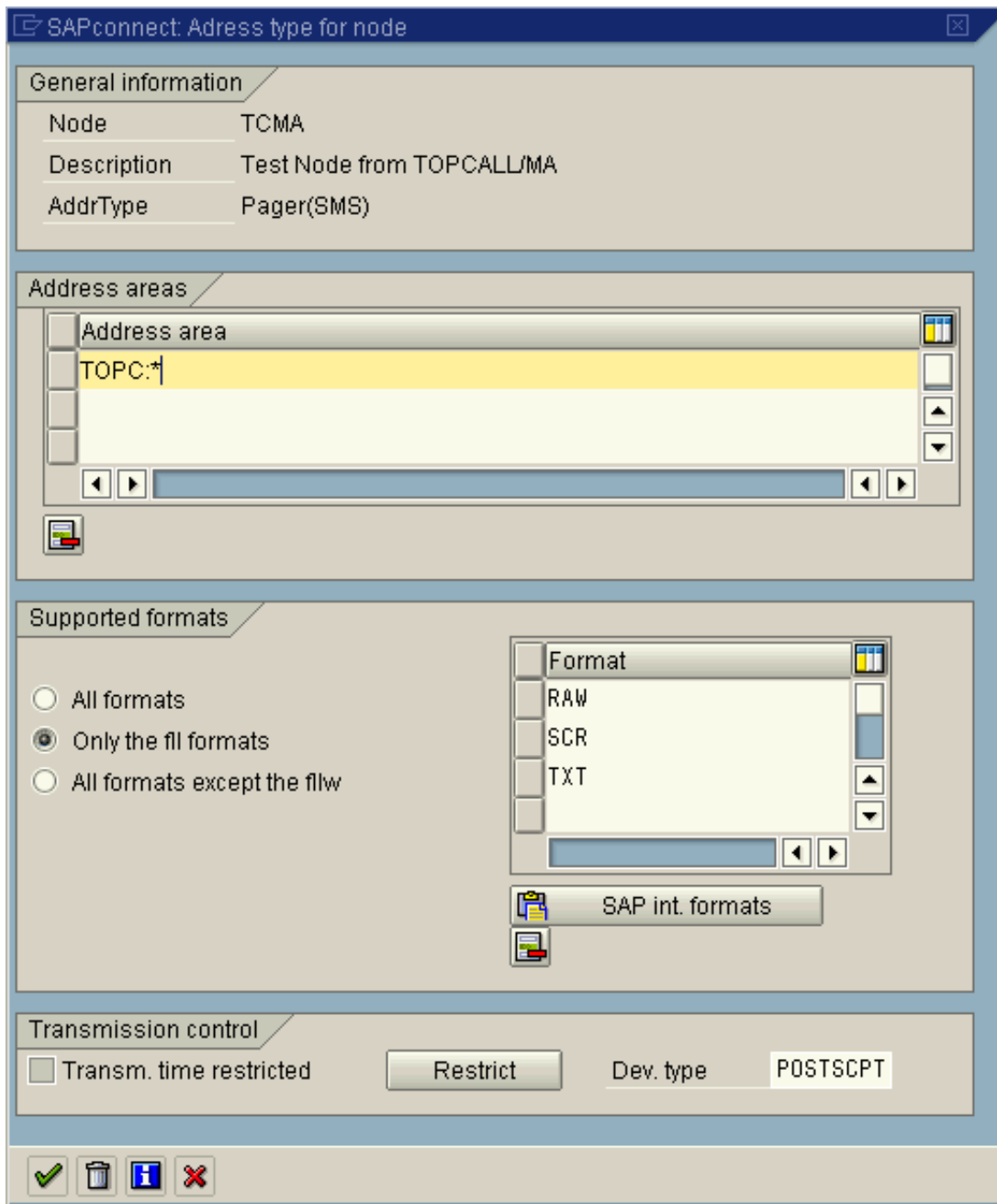
To use the SAP PAG service you have to define a Paging Provider in SAP. This can be done with Transaction "SA14" (e.g., "TOPC" as Pager service name):



After you have specified a name, like "TOPC" and configured the SAPconnect node for PAG (Transaction "SCOT"), you can send a pager message out of SAPoffice with following addressing syntax:

e.g., TOPC:0186353295 (= <PagerServiceName>:<PagerNumber>)

The routing to the node works like other services (e.g., configure the address range, like TOPC:*):



List of Useful SAP R/3 Transactions

SM59 Managing the RFCDestination

SCOT Managing the SAPconnect nodes, starting the send process, examining SAPconnect traces etc

SO12 Managing SAPoffice user's profile (incl. own fax, Internet and X.400 addresses).

SO16 Activating FAX, X.400 and SMTP components for SAPoffice users

SO28 Inbound Distribution, SAP Postmaster and Routing

SOØ1 Opening the SAPoffice inbox

SOØ2 Opening the SAPoffice outbox

SUØ1 Managing SAP R/3 users

SMGW Gateway Monitor, check registered systems

SU3 Managing logged in user (important if SU01 and SU02 not allowed, because no special rights needed)

Installation on SAP Web Application Server 6.20

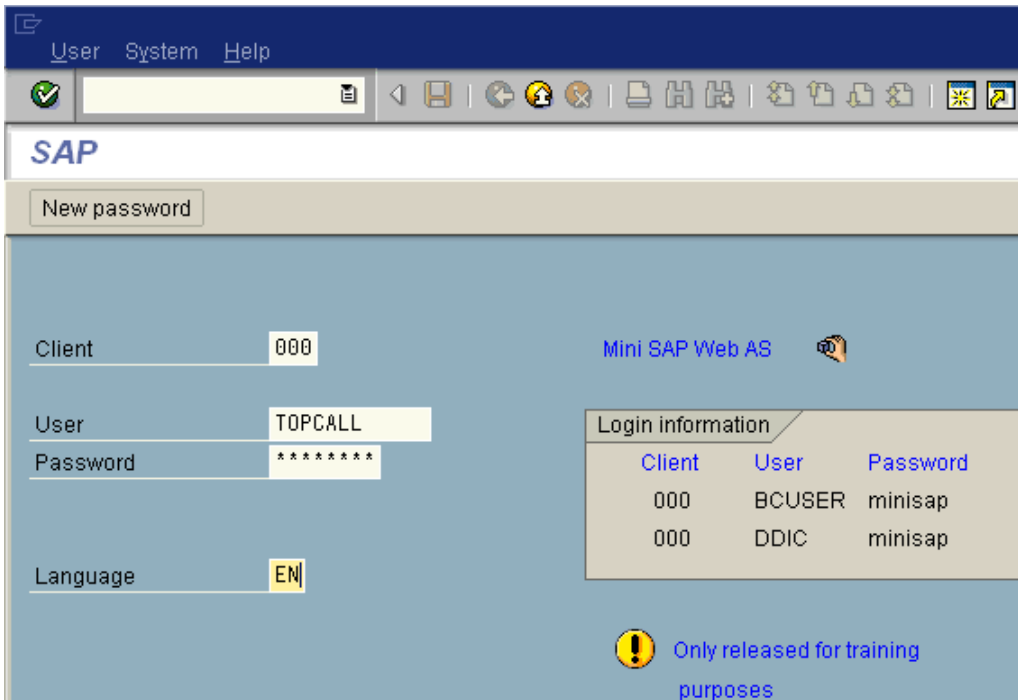
Note To distinguish between the digit zero and the capital letter O it will be displayed like this:

Digit zero	Ø
Capital letter O	O

Important Most entries are case sensitive!

Logon with SAP GUI

Log on into the R/3 system with the normal "Dialog" R/3 user (NOT CPI-C user!)

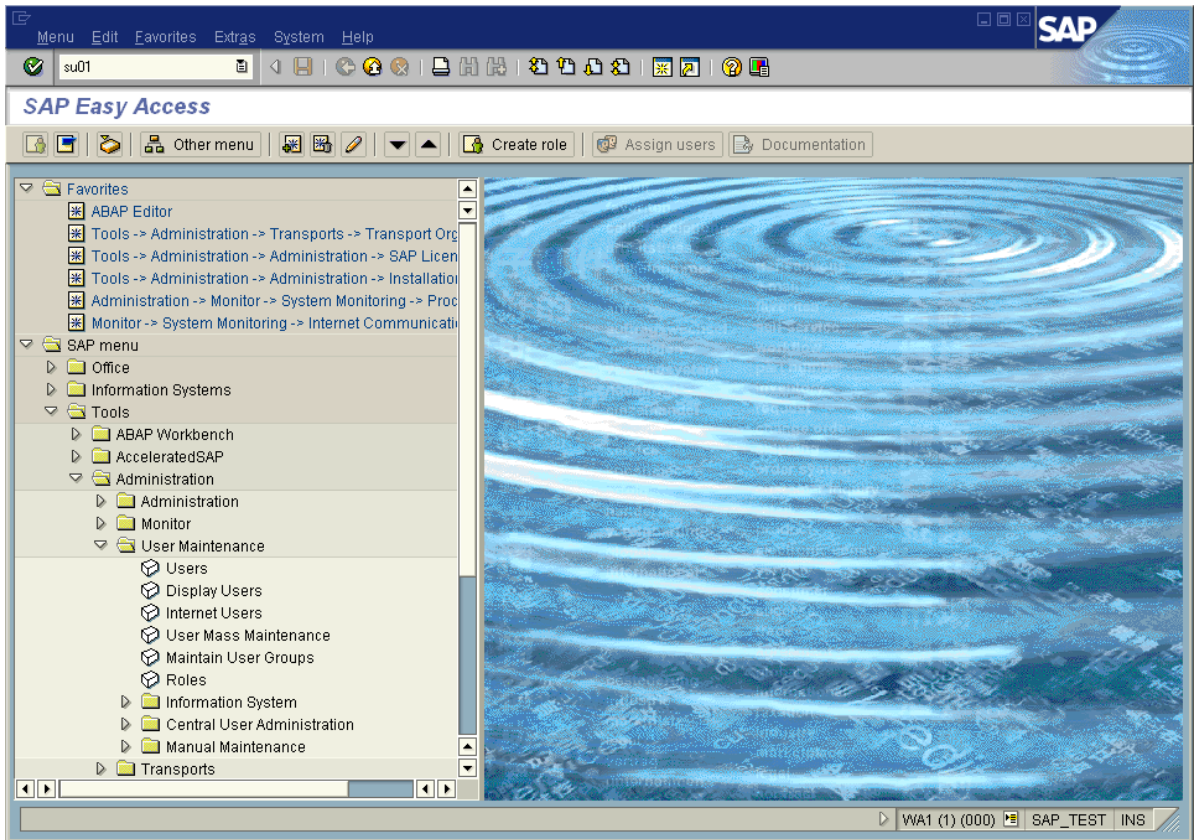


Create an RFC user for TC/LINK-SC

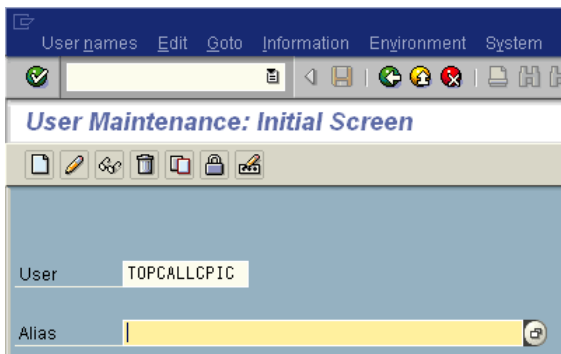
Create a user for the fax server to logon to the R/3 system:

1. Call: **Tools > Administration, User maintenance > Users** (transaction SU01)

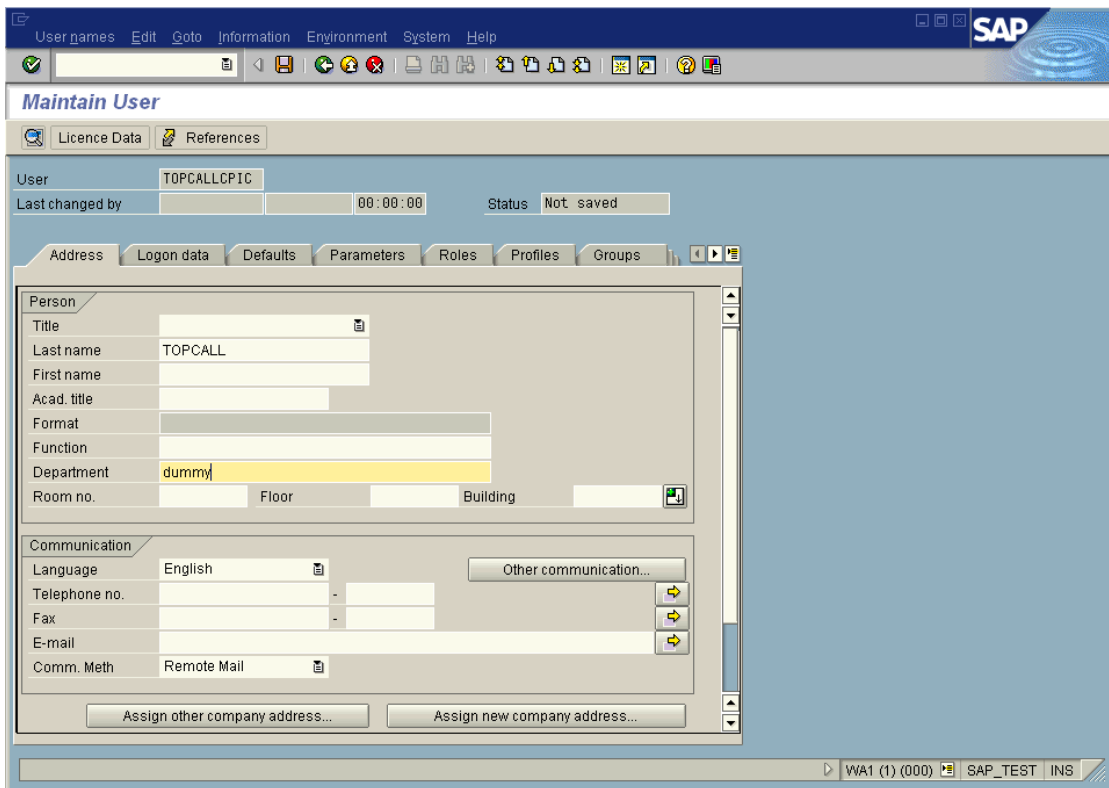
2. Start transaction SU01



3. Type in the user name and select the Menu **User names** > **Create**

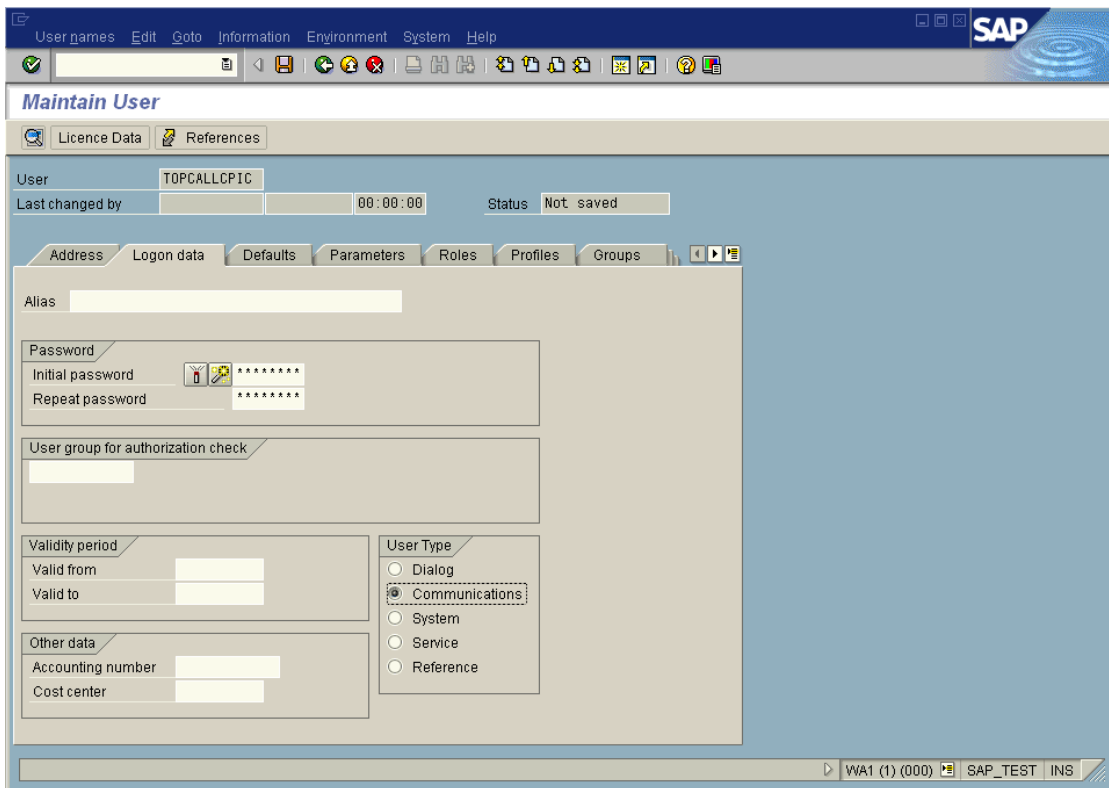


4. Insert dummy address data of user into the first screen.



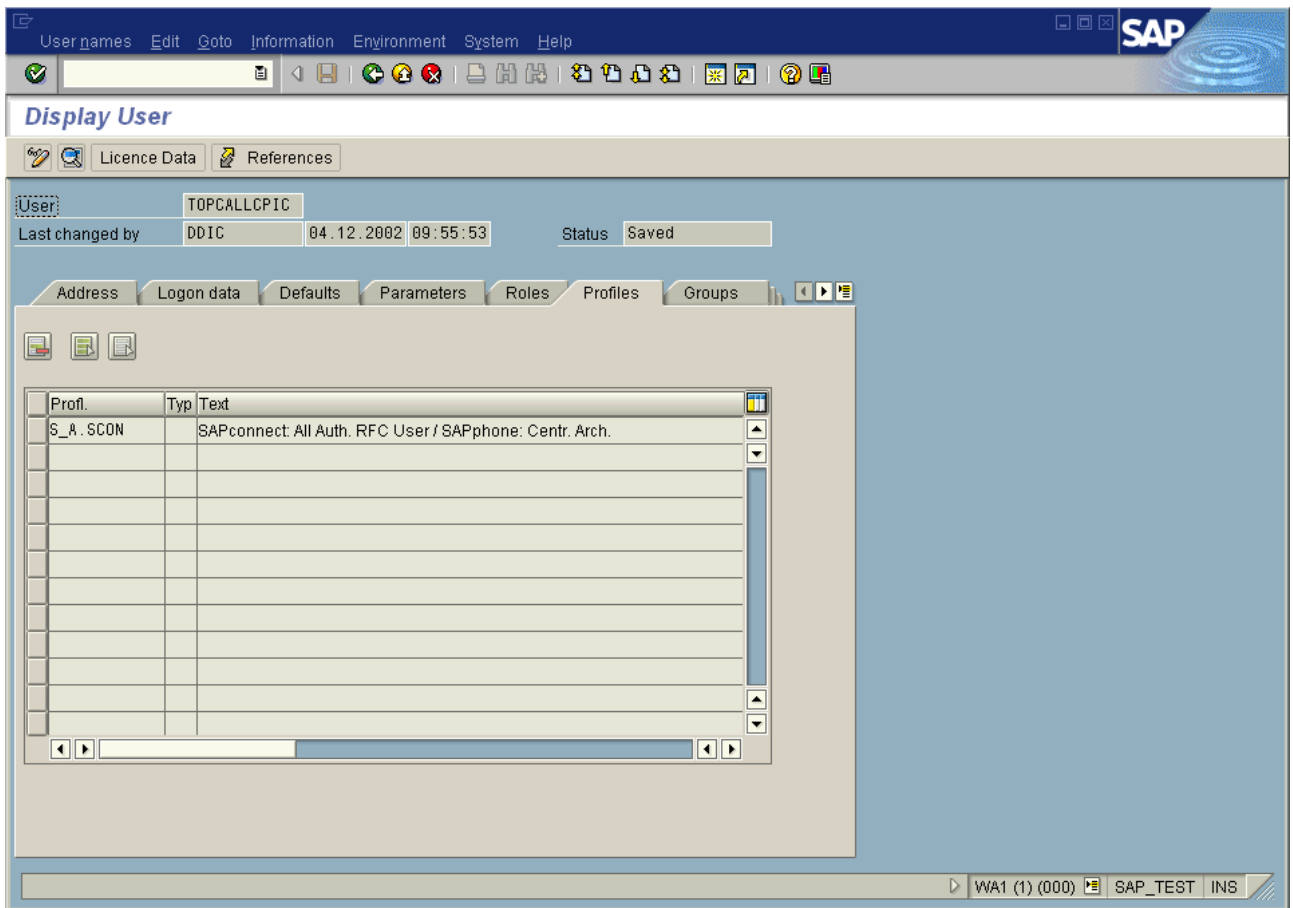
5. In the "Address" section type in any Last name you might want to use the same name then your CPI-C user.

6. Go to next input screen : Logon data



- Name and Password must match with the values set in the configuration of the link server.
- The type of user must be "Communication".

7. Go to the next input screen

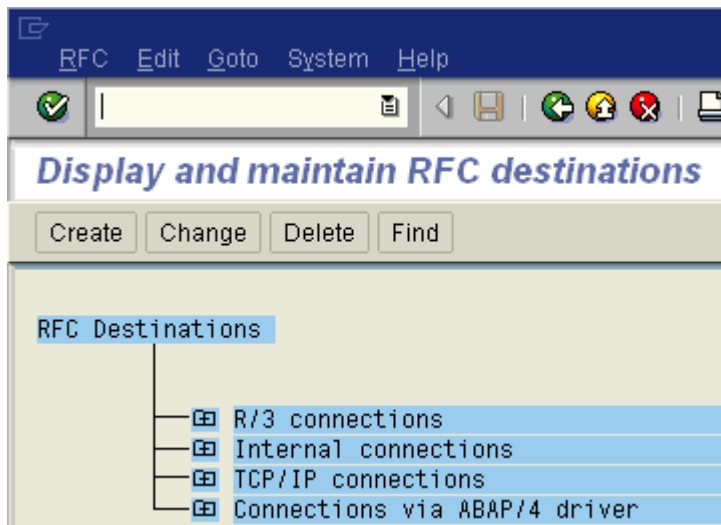


8. Assign the authorization profile "S_A.SCON" to the user.
9. Save the user data.

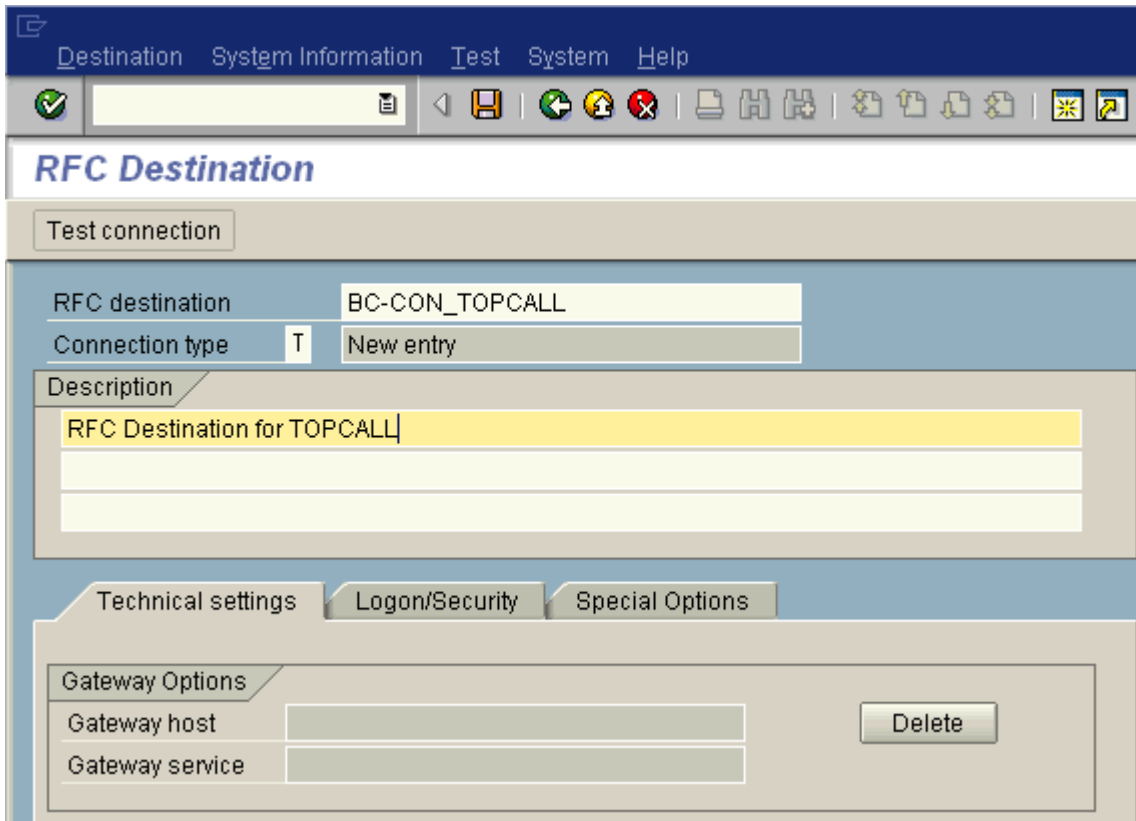
Create an RFC Destination to TC/LINK-SC

Create an RFC destination for outbound calls:

1. Call: **Tools > Administration, Administration > Network > RFC destinations** (transaction SM59)



2. Choose: Create



3. Enter a name of the RFC destination (e.g., BC-CON_TOPCALL)
4. Set connection type 'T' (=TCP/IP).
5. Enter a description.

6. Press Enter.

The next screen will appear.

The screenshot shows a software window titled "RFC Destination BC-CON_TOPCALL". The window has a menu bar with "Destination", "System information", "Test", "System", and "Help". Below the menu bar is a toolbar with various icons. The main area contains several sections:

- Test connection** and **Unicode Test** buttons.
- RFC destination**: BC-CON_TOPCALL
- Connection type**: T (selected), TCP/IP connection
- Description**: RFC Destination for TOPCALL
- Technical settings**, **Logon/Security**, and **Special Options** tabs.
- Activation Type**:
 - Start on Application Server
 - Start on Explicit Host
 - Start on Front End Work Station
 - Registered Server Program
- Registered Server Program**:
 - Program ID**: PCMA.TCLINKSC5
- Gateway Options**:
 - Gateway host**: [Empty field]
 - Gateway service**: [Empty field]
 - Delete** button

7. Select activation type 'Registered Server Program'.

8. Enter TC/LINK-SC's Program ID, case sensitive (e.g., PCMA.TCLINKSC5, where PCMA is the TC/LINK-SC workstation name.

Must be the same, as configured during TC/LINK-SC setup). This program ID must match with the value defined with parameter PROGID in the saprfc.ini file on the fax server.

Gateway Options (Optional)

This is only necessary, if more than one application server should be connected to KCS, than only one server is the appropriate gateway, which must be entered here.

1. Set the gateway options of the RFC destination.
2. Enter the host name and the service of the SAP gateway.
(Must be the same, as configured during TC/LINK-SC setup).

This host name and the service must match with the value defined with parameter GWHOST and GWSERV in the saprfc.ini file on the fax server. (look at [RFC Connection Parameters \(SAPRFC.INI File\)](#) for detailed information of the RFC connection parameters)

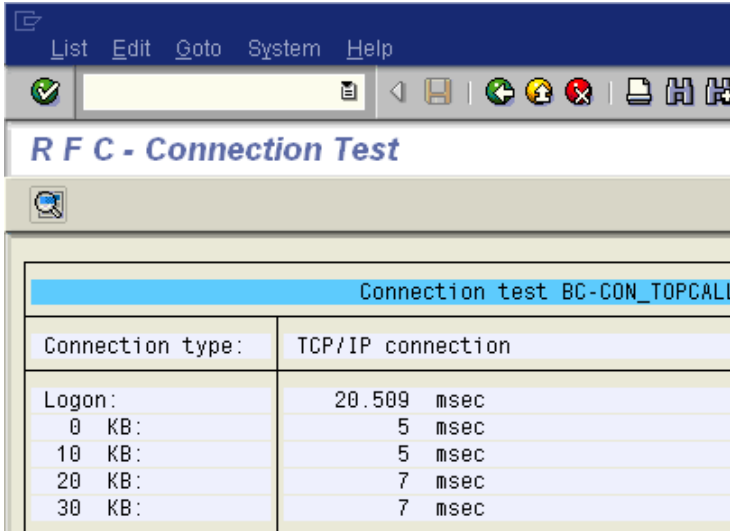
3. Click **OK** and save the RFC Destination.
4. Now click **Test connection** to verify if everything is ok.
(TC/LINK-SC and SAP gateway must be running, of course)

Test the RFC Connection to TC/LINK-SC

Verify if the RFC connection to TC/LINK-SC works.

Click test connection button (see screen before)

If your connection is ok you should get a screen like this.



SAP Configuration

Administration (system status)

Start of evaluation time: 03.12.2002 10:00

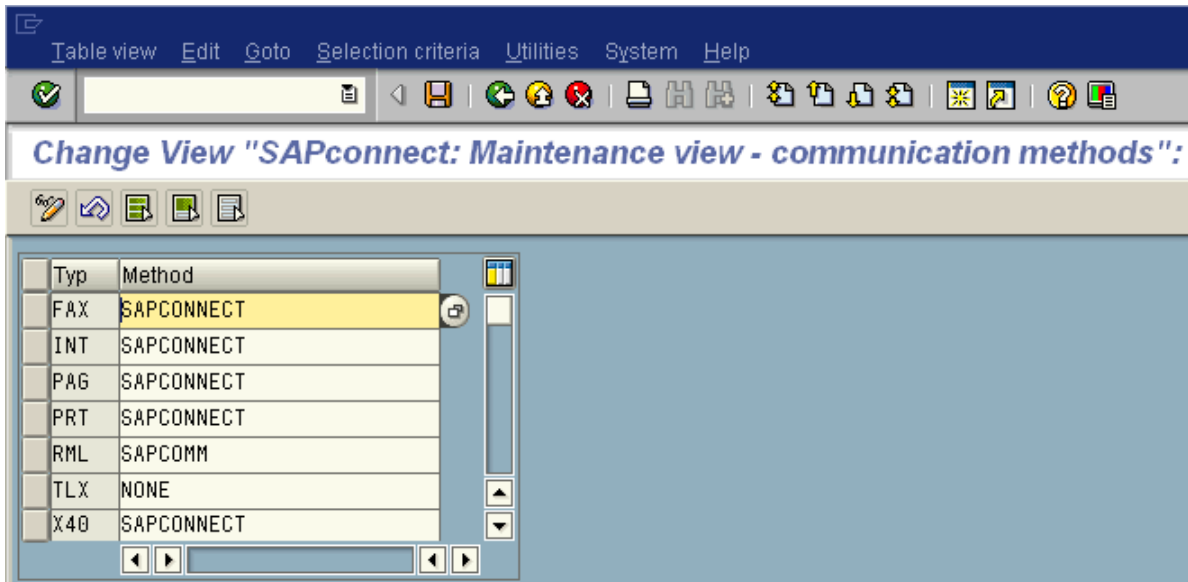
	Completed	Error	In transit	Waiting	Duration	
					In transit	Waiting
					∅ hh:mm	∅ hh:mm
WA1 (000)	0	0	1	0		
FAX Telefax	0	0	0	0	0:00	0:00
INT Internet	0	0	1	0	0:00	0:01
SMTP	0	0	0	0	0:00	0:00
TOPC	0	0	1	0	0:00	0:01
X40 X.400	0	0	0	0	0:00	0:00
RML Remote Ma	0	0	0	0	0:00	0:00
PAG	0	0	0	0	0:00	0:00
PRT	0	0	0	0	0:00	0:00

Do the SAPconnect configuration:

- Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: System Status).
- Within this transaction you can go over the menu 'View' to the different views, which are displayed on this slide and on the following slides.
- System Status:
From here you can view all defined output methods (e.g., FAX/INT/X40) and the already defined nodes (e.g., SXC1/COMFAX) and you will find information about the processing status.

Customizing – Communication Methods

1. Menu **Settings > Communication Methods**



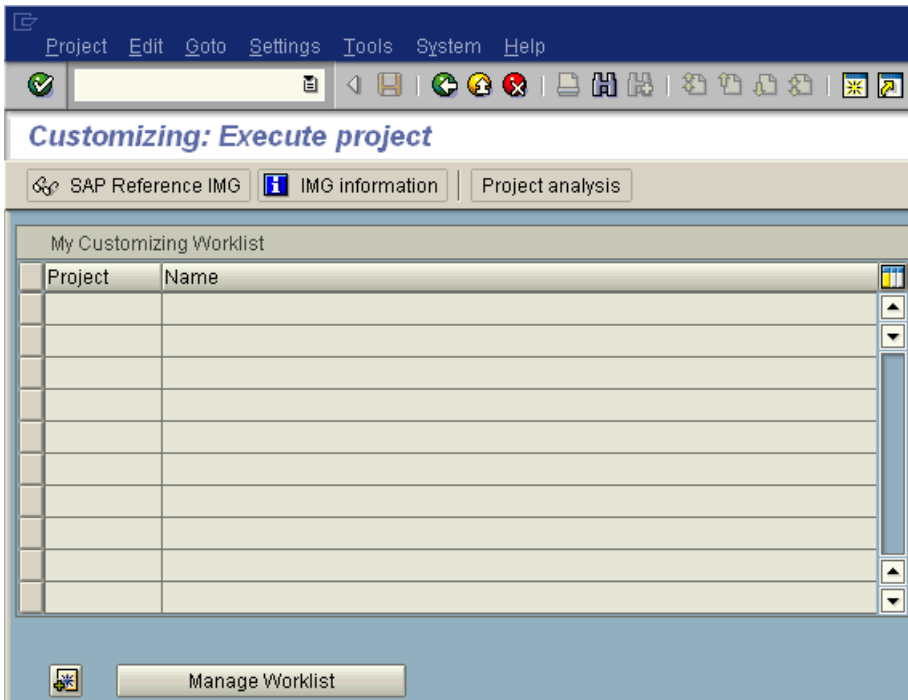
Set communication method SAPconnect for fax:

2. Click: Communication methods.
3. Set the value for Fax to SAPCONNECT.
4. Save the communication methods.

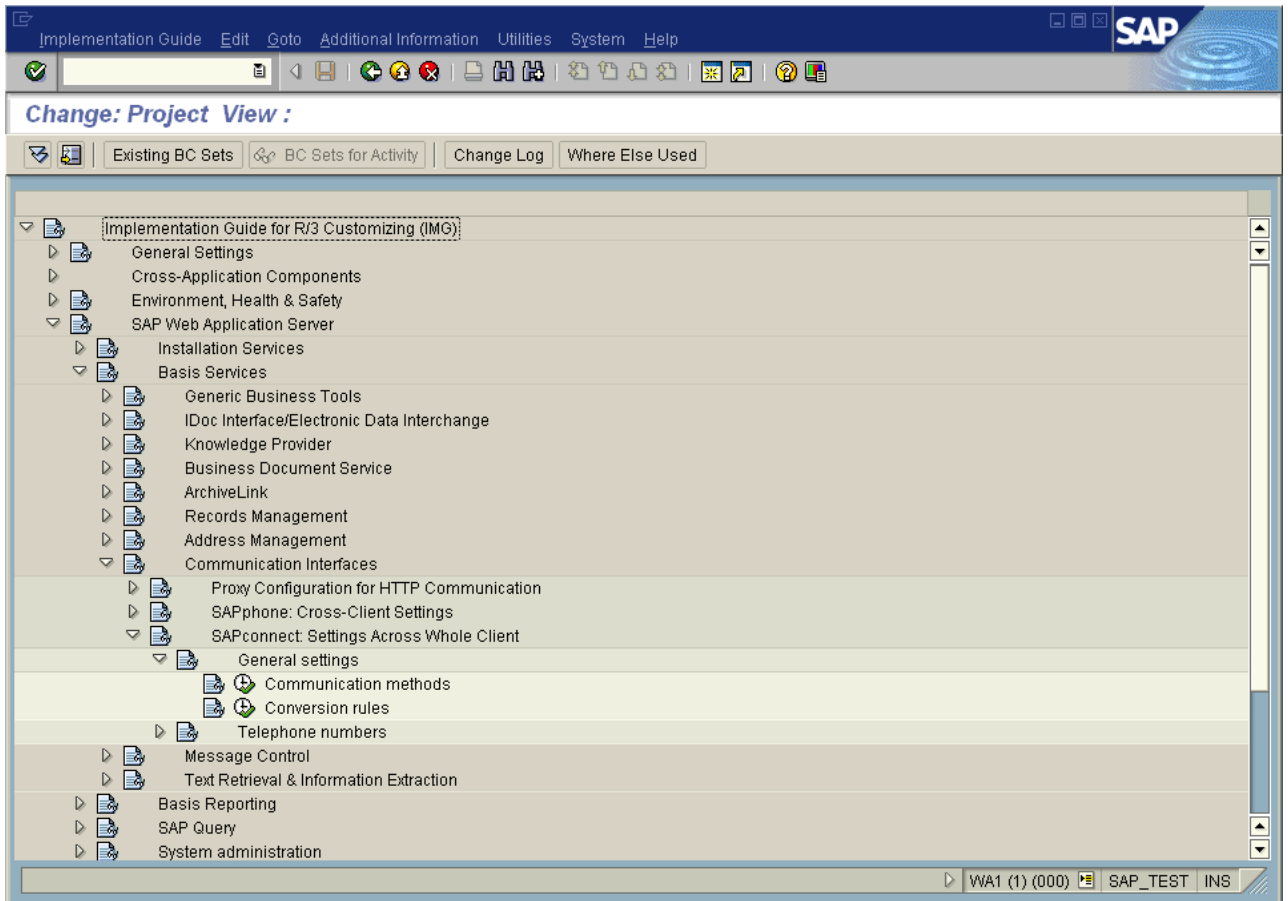
Customizing – Conversion Rules

In prior releases it was possible to specify general conversion rules, directly from the SAPconnect Administration.

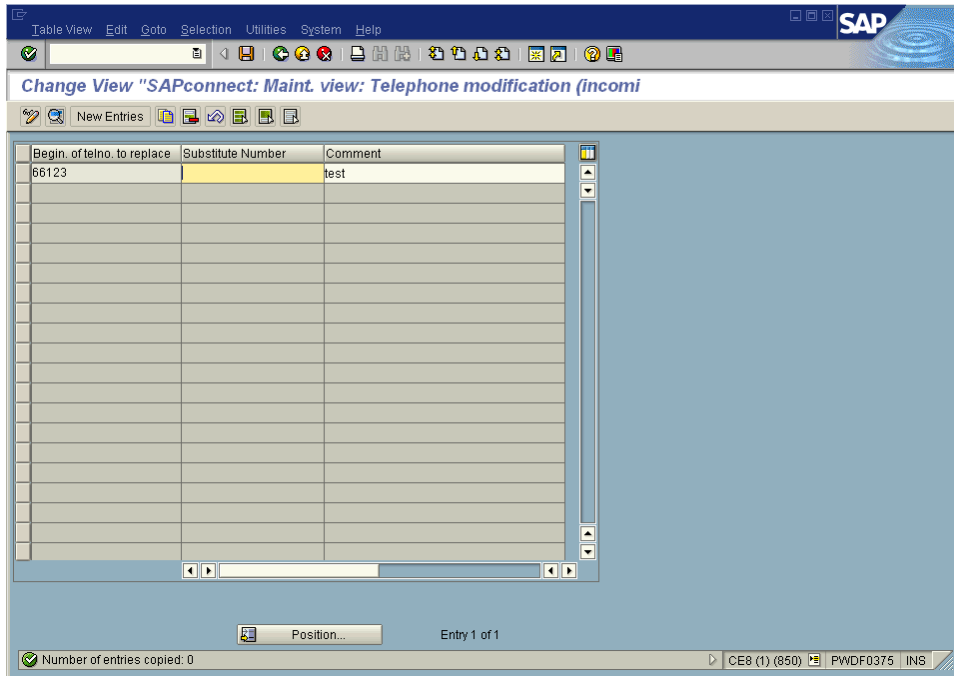
In 6.20 you can specify only conversion rules on node basis (see below). The general conversion rules are reachable over the transaction "SPRO":



1. Click the "SAP Reference IMG" button and follow the tree down to "Conversion Rules":



Customizing – Recipient No Change (Incoming)



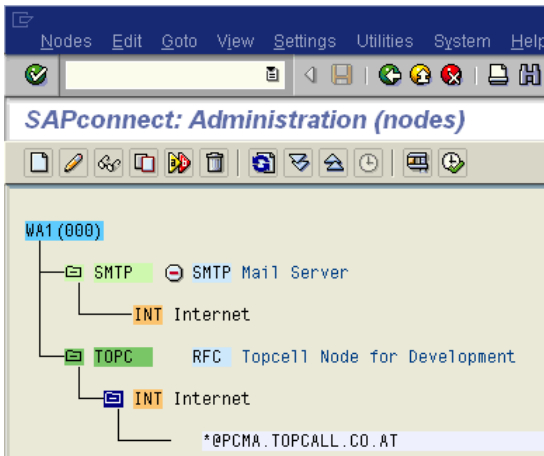
Define exception rules for manipulating the recipient's fax number in inbound messages. This is for the match of the recipients' number as provided by the PBX or the fax server with the R/3 user's fax number as stored in the R/3 address management.

New entries

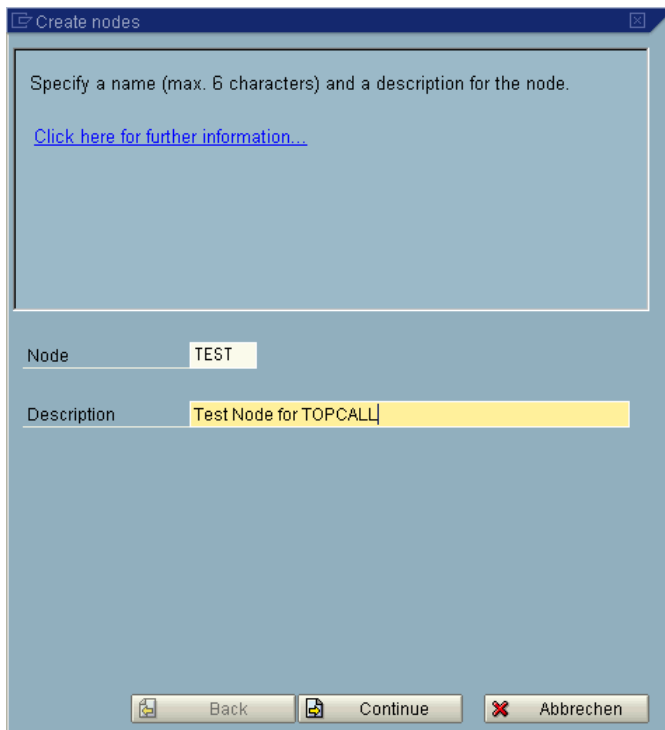
- Enter a new rule with
 - the beginning sequence of a fax number that shall be replaced
 - the substitute sequence that shall be inserted instead
 - a comment
- Save the rule.

Define a Node and Its Attributes

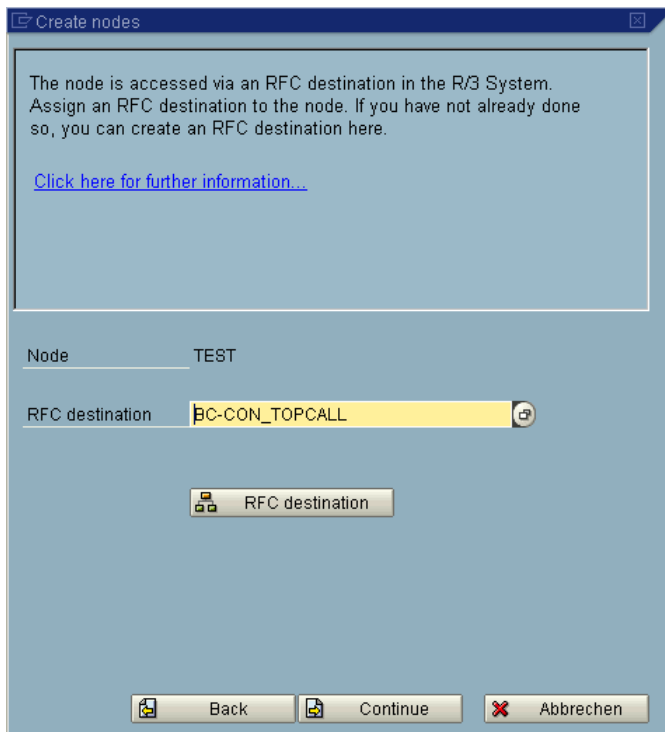
Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, View: Node).



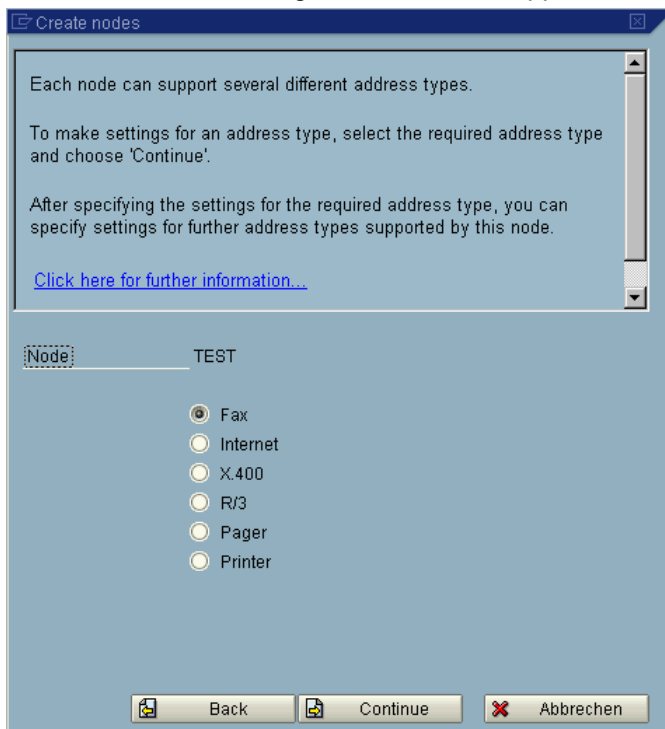
- Enter a new node with push button 'Create node'.
Enter name of the node (6 characters) and a description.
Enter the RFC destination created before.



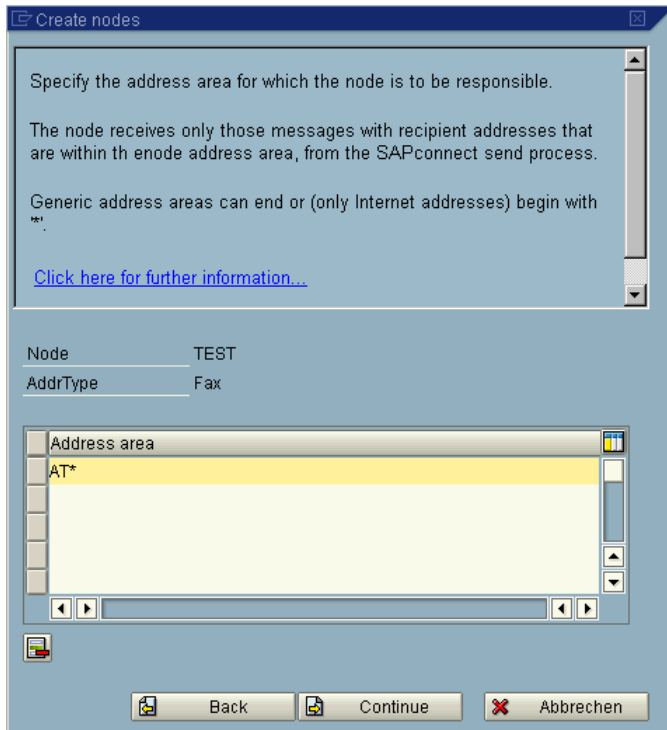
- Click Continue and enter the created RFC destination:



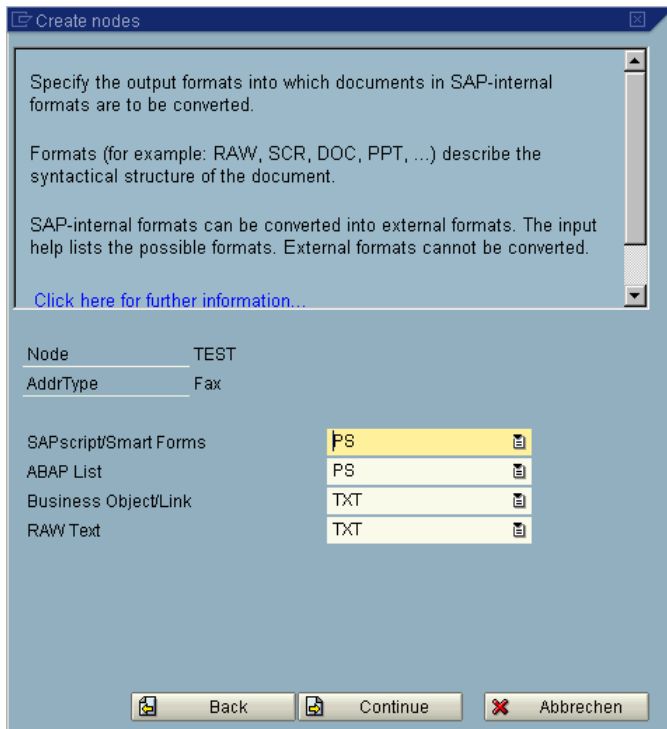
- Click Continue and configure at least one supported address type:



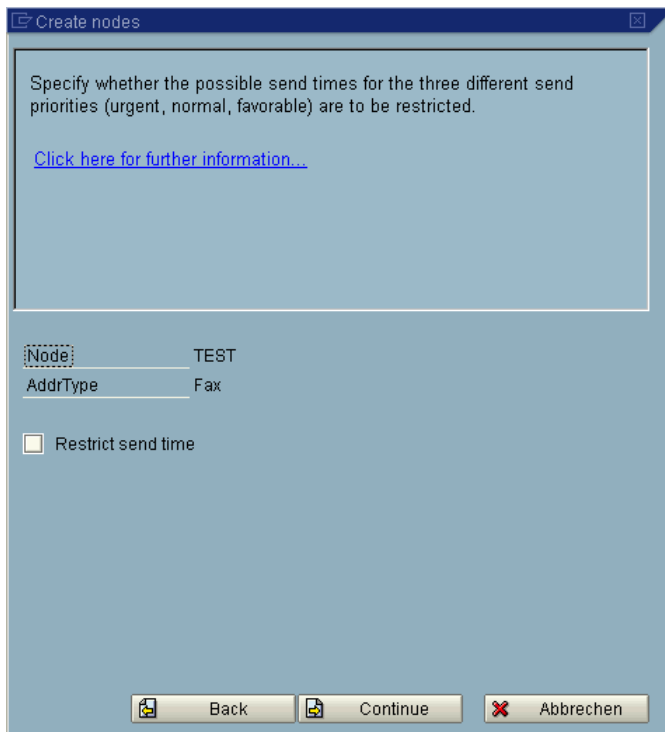
- For example fax:



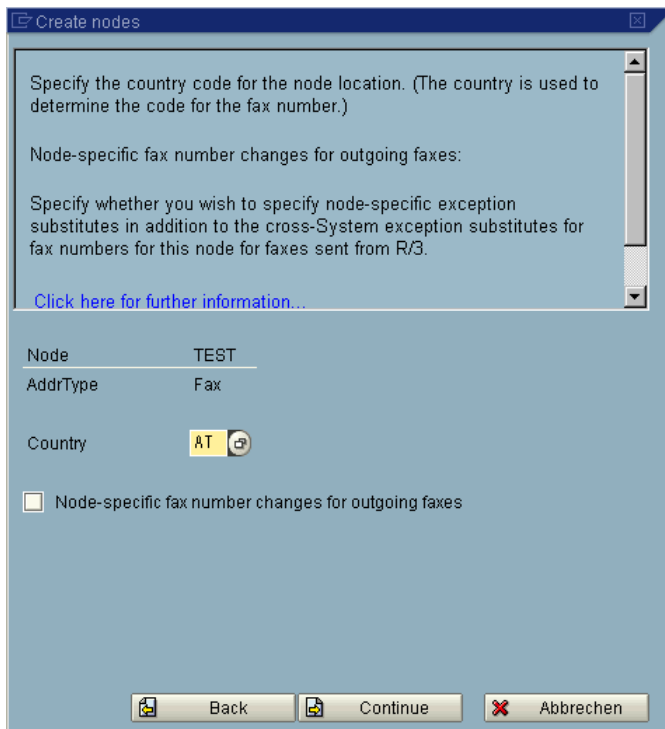
- Specify the address area and the address specific conversion rules:



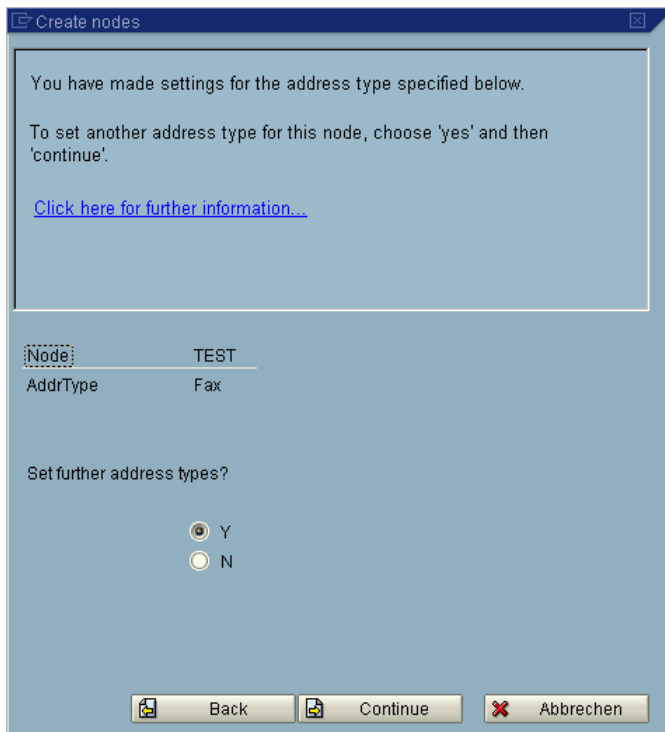
- You can then restrict the sending time:



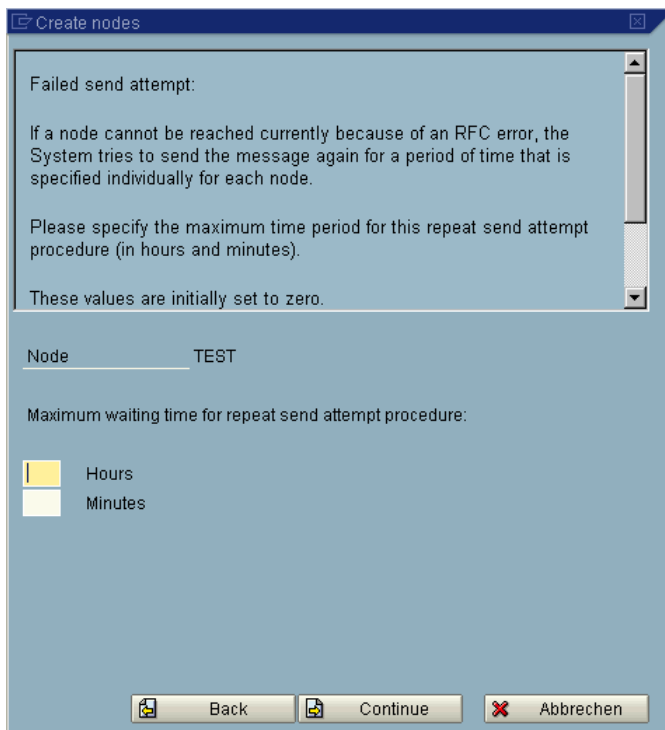
- Next you must specify the node specific country code:



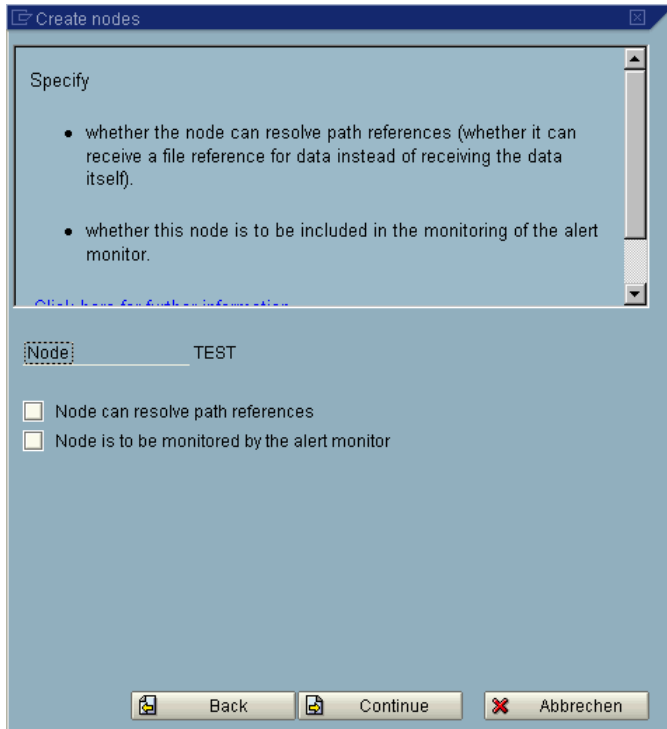
- You can then set further address types, which are configured similar:



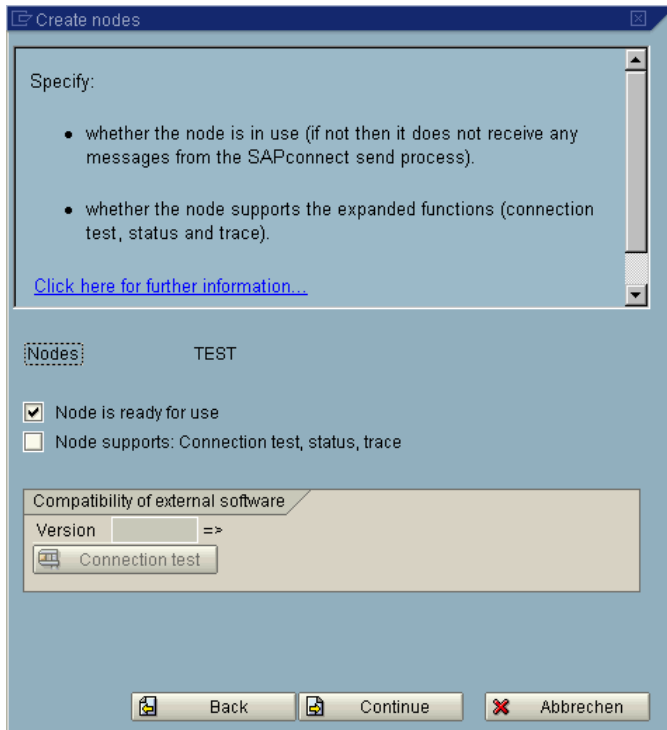
- After you finished all address types you have to set some general node configurations:



- The maximum waiting time for the repeat send attempt procedure. In the example above, they are left empty, but could be filled out, according to the customers' desired behavior.

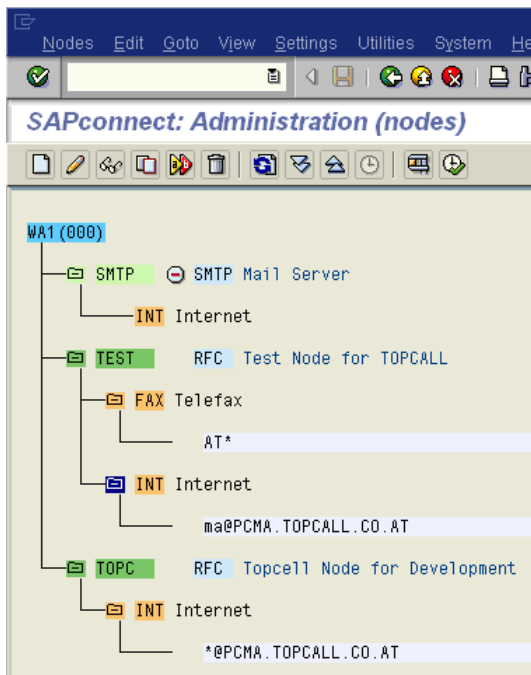


- If you check the “Node can resolve path references”, then the attachments are only send as a reference. Therefore it should not be checked. Otherwise probably attachments cannot be accessed.
- If you check the “Node is to be monitored by the alert monitor”, then the RFC destination is checked periodically by the Alert Monitor. This can lead to event log entries of the LINK-SC, because it does not recognize these checks.



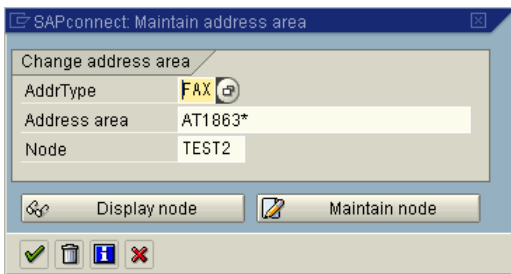
- Check “Node is ready for use”
- If you check “Node supports: Connection test, status, trace”, then an additional software checks the connection. This is not supported by TC/LINK-SC. If you will do an connection test, you can use the RFC Connection test (SM59)

- Then the node is finished:



Define Routing

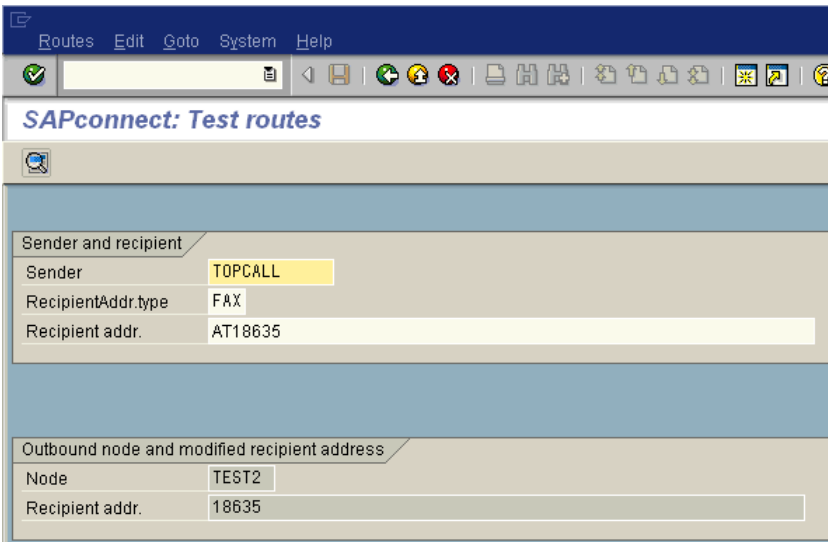
You can define the routing later on by changing the “SAPconnect View“ to “Routing” and double-click on an address:



Routing Test

Test the routing of a fax message:

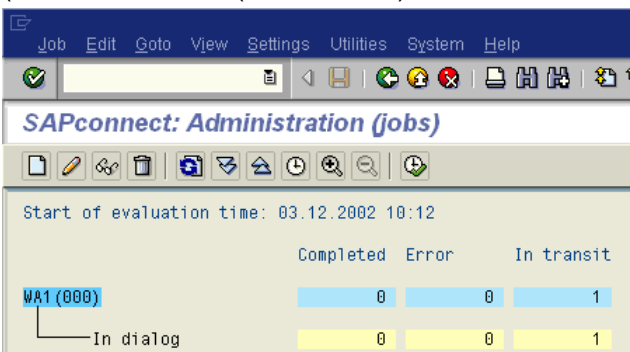
- SAPconnect (transaction SCOT, (**Utilities** > **Routing** test).



- Enter a communication service ('FAX') and an address, press Enter.
- In the box 'Outbound node and modified recipient address' will be displayed, which node would be used when sending a fax to that number, and how the number would be adapted according to the international country codes and your exception rules.

Schedule a SAPconnect Background Send Process

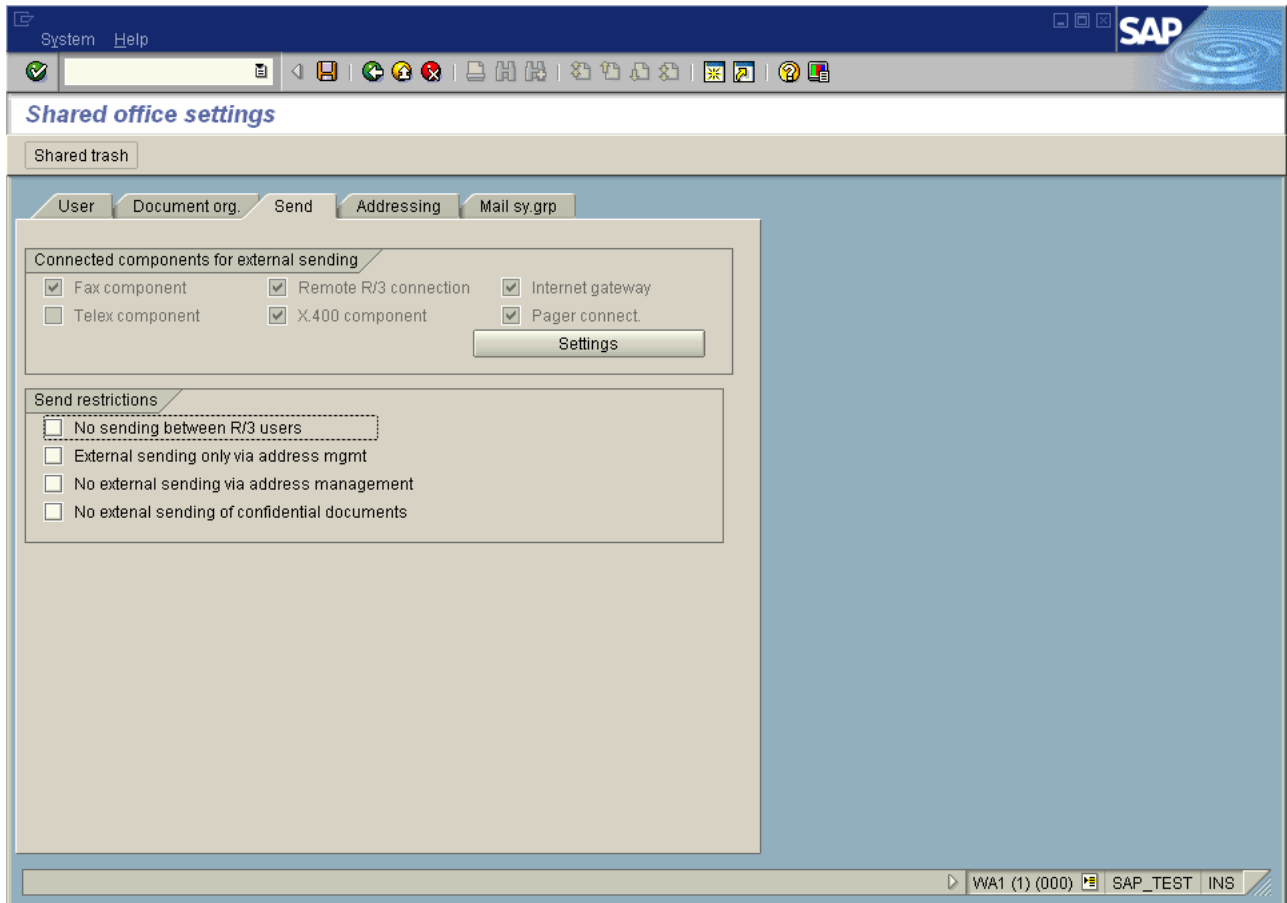
Call: **Tools > Administration, Administration > Process technology, Communication > SAPconnect** (transaction SCOT, (**View > Jobs**)).



From here you can start the sending process in dialog or you can schedule a background job for the sending process.

Activate the Fax Module in SAPoffice

- Call: **Tools > Administration, Administration > Process technology, Office > General office settings** (transaction SO16).

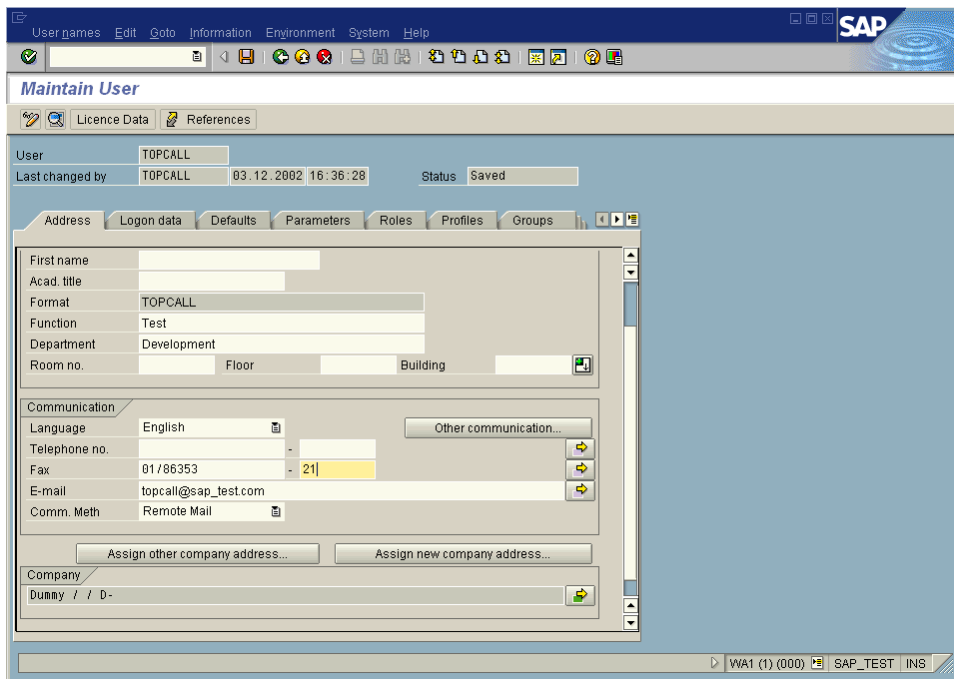


- Switch on Connected components: Fax component.
- Save SAPoffice settings.

Assign a Fax Number to Each R/3 User:

Each user who wants to send messages from R/3 via fax or other external communication services must have an originator address of the appropriate address type.

Call: **Tools > Administration, User maintenance > Users** (transaction SU01), enter the user name and click **Change**.

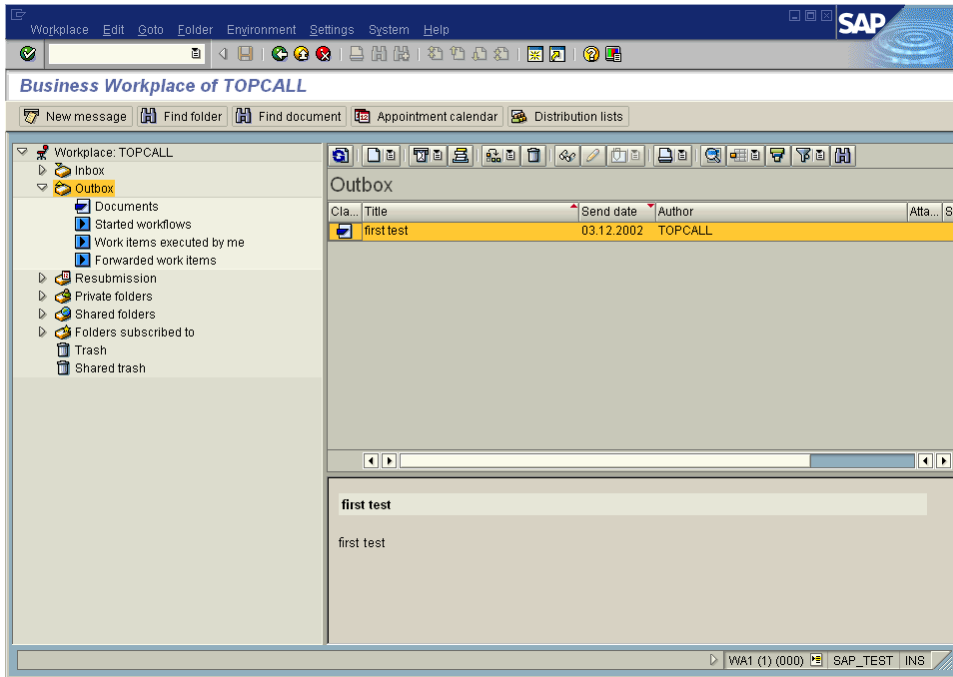


Enter the user's fax number. Save the user address.

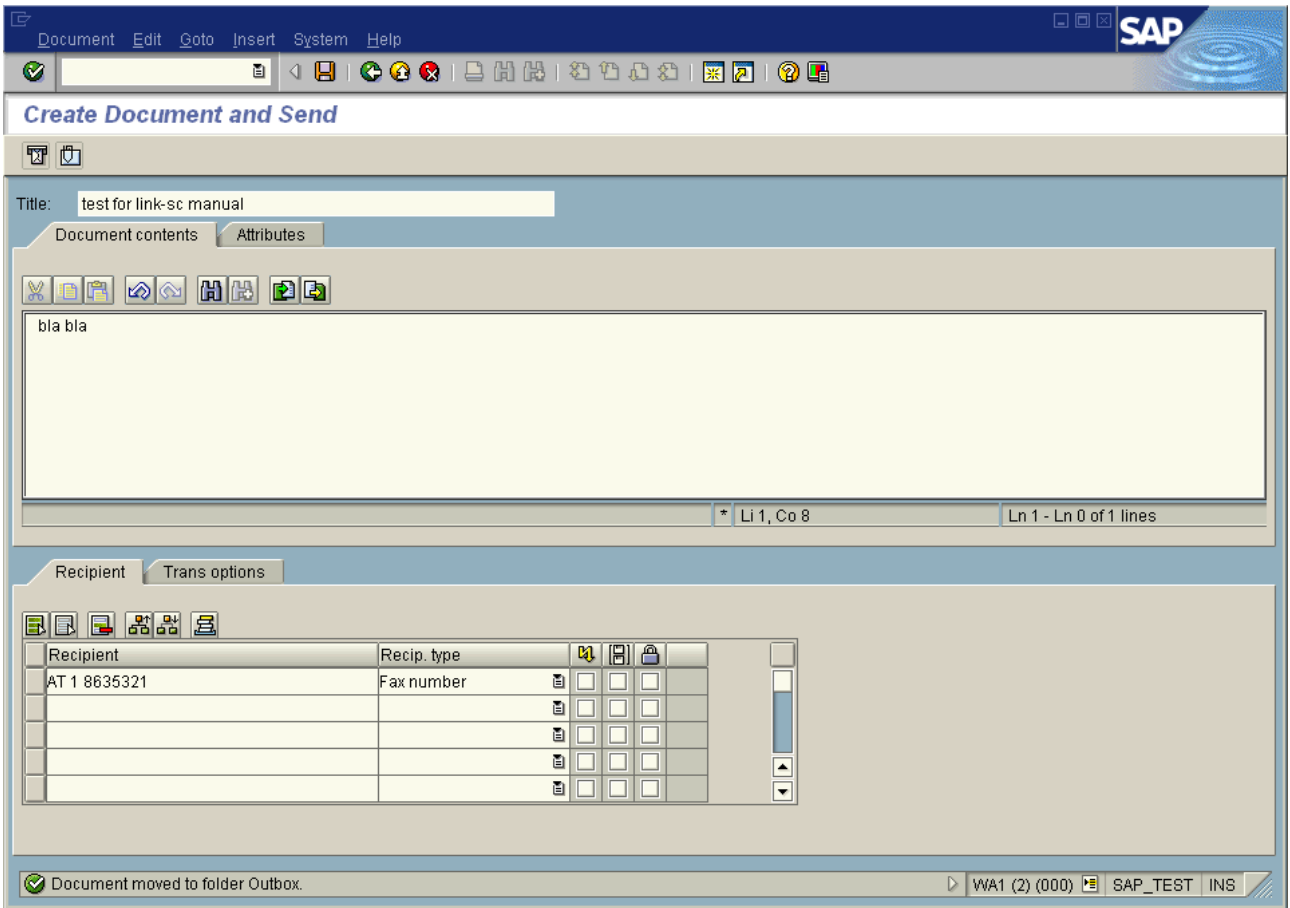
Send Fax Out of SAPoffice

You have to create a SAPoffice document and to send it to a fax number.

1. Call: **Office > Outbox** (transaction SO02)



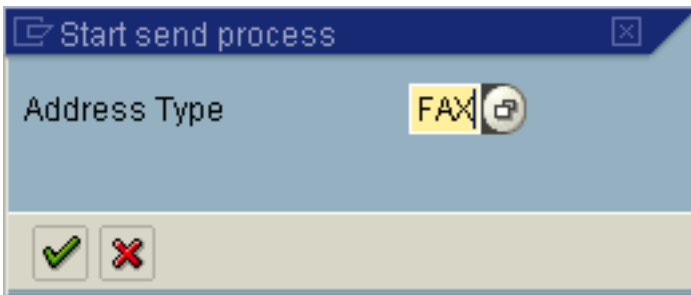
2. Select, **New Message** (or Shift+F4).



3. Click **Send** (or Shift+F8)

Activate Sending Process manually: Normally the send process is scheduled following a special pattern (look at [SAP Message Send Time and Date](#)), therefore waiting for the sending could take quite a long time. So you can activate the sending process manually.

4. From SAPconnect Administration (Transaction SCOT (View: Jobs)): **Utilities > Start send process** and Enter **Addr. Type** : FAX



5. Select **FAX** and click **OK**.

Then the message is processed:

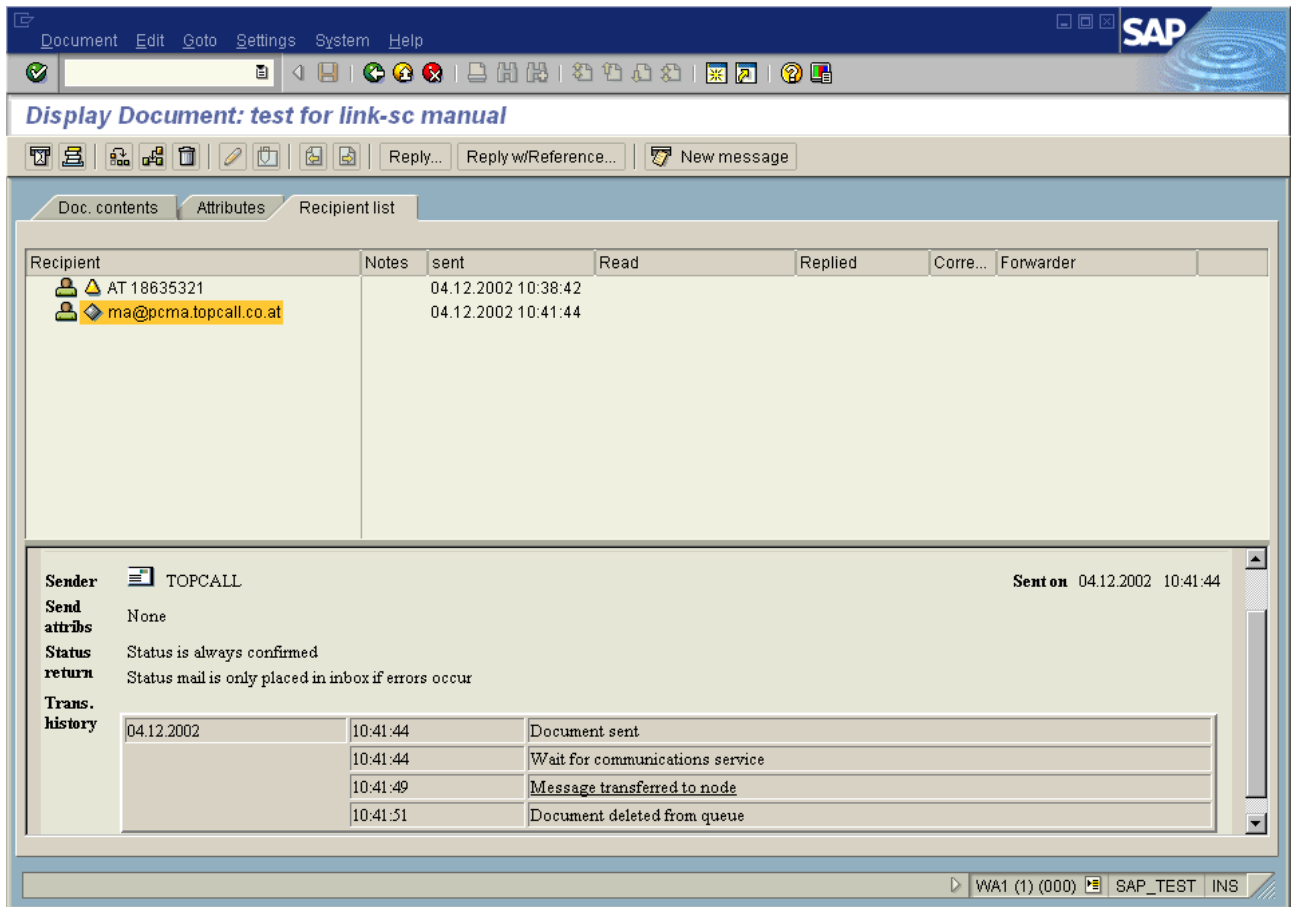
Process means message between SAP and KCS or message is on the fax line. If everything is OK, then, after a while (depends on the settings of TCLINKSC/SAP/RFCPollCycle) TC/LINK-SC picks up the message and transfers it to KCS.

Review Status of Outgoing Fax

Call: **Office** > **Outbox** (transaction SO02).

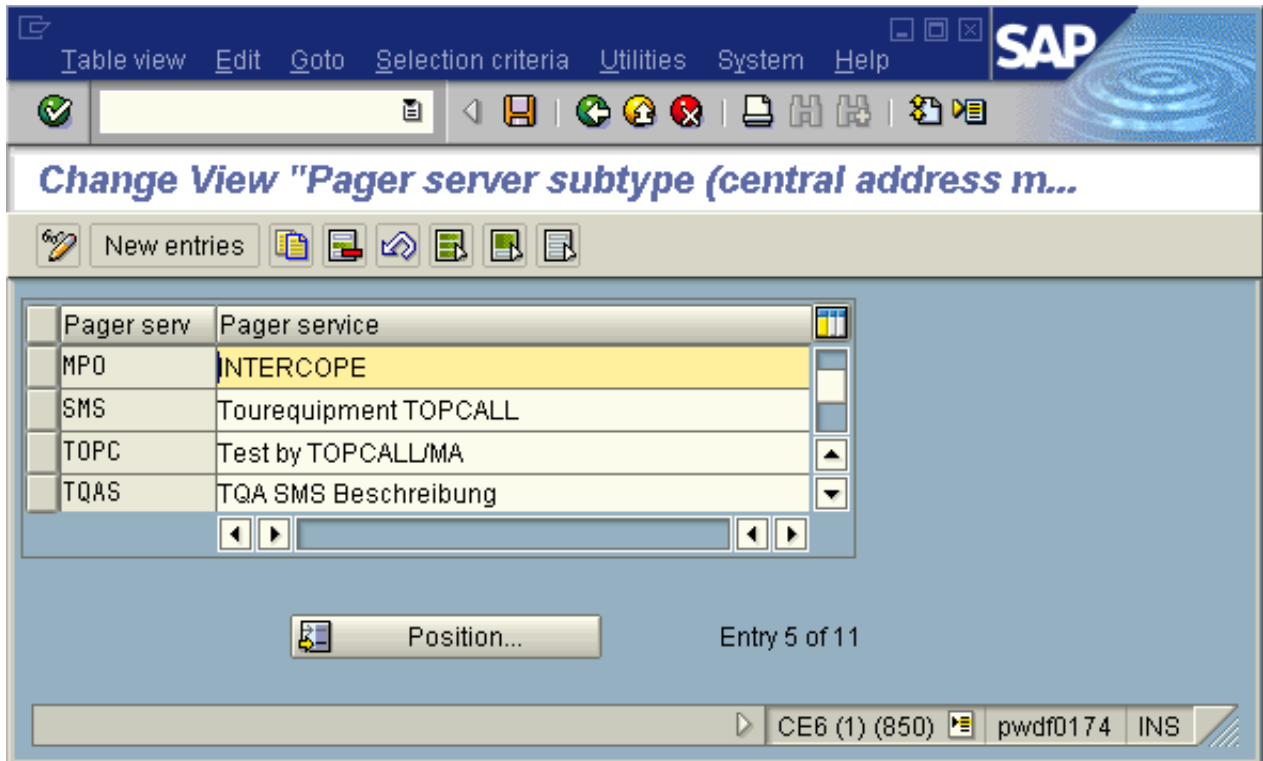
Double-click on the message.

Review the status.



Configuration of the PAG Service

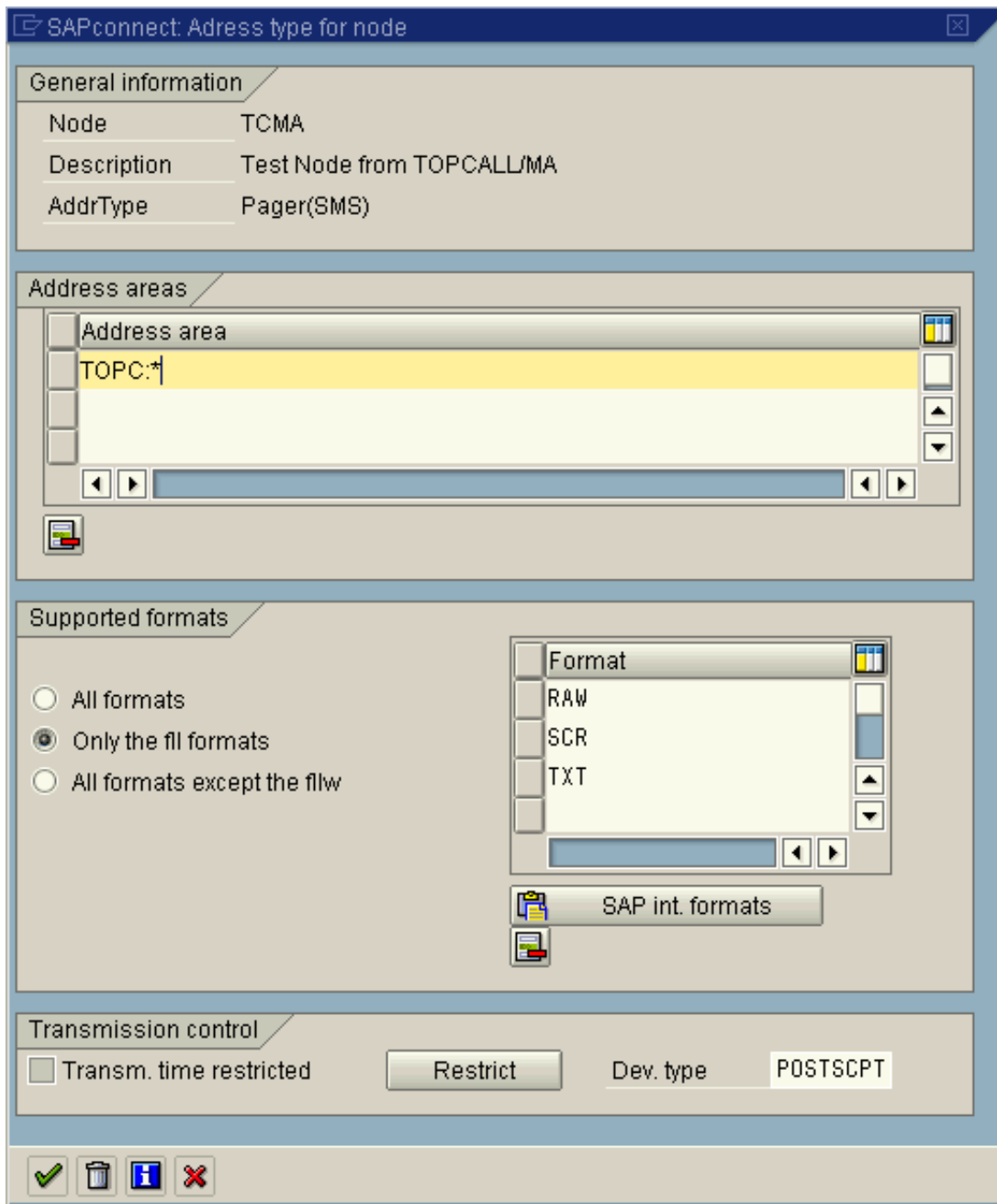
To use the SAP PAG service you have to define a Paging Provider in SAP. This can be done with Transaction "SA14" (e.g., "TOPC" as Pager service name):



After you have specified a name, like "TOPC" and configured the SAPconnect node for PAG (Transaction "SCOT"), you can send a pager message out of SAPoffice with following addressing syntax:

e.g., TOPC:0186353295 (= <PagerServiceName>:<PagerNumber>)

The routing to the node works like other services (e.g., configure the address range, like TOPC:*):



List of Useful SAP R/3 Transactions

SM59 Managing the RFCDestination

SCOT Managing the SAPconnect nodes, starting the send process, examining SAPconnect traces etc.

SO12 Managing SAPoffice user's profile (incl. own fax, Internet and X.400 addresses)

SO16 Activating FAX, X.400 and SMTP components for SAPoffice users

SO28 Inbound Distribution, SAP Postmaster and Routing

SOØ1 Opening the SAPoffice inbox

SOØ2 Opening the SAPoffice outbox

SUØ1 Managing SAP R/3 users

SMGW Gateway Monitor, check registered systems

SU3 Managing logged in user (important if SU01 and SU02 not allowed, because no special rights needed)

Installation on SAP with NetWeaver 7.x

Remark:

We will use in this description the character “Ø” instead of the digit zero to clearly distinguish it from the capital letter O.

Warning:

Most entries are case sensitive!

Note Starting with WAS 7.3, you need to use the transaction SCON instead of SCOT to maintain RFC nodes for Fax and SMS. For configuring the SMTP note, you can continue using the transaction SCOT.

Configuration Steps Overview

A) The following TC/LINK-SC specific configuration steps must be done on SAP in any case. These are the basic configuration steps for establishing the RFC connection between SAP and TC/LINK-SC.

- Create an RFC communication user for TC/LINK-SC (Transaction SUØ1)
- Create an “RFC destination” for TC/LINK-SC (Transaction SM59)
- Create an SAPconnect RFC communication node (Transaction SCOT)

B) The following general configuration steps are a prerequisite for the TC/LINK-SC operations. The configuration settings, however, are not TC/LINK-SC specific and they can already exist on SAP, if SAPconnect / SAP Business Workplace is already in use on the system.

- Schedule a SAPconnect background send job for sending SAP-outbound messages (Transaction SCOT)
- Set the “communication method” to “SAPconnect” for the address types you want to route with TC/LINK-SC (fax, pager, internet address, X.400). By default, the according communication methods in SAP 7.0 are already set to “SAPconnect”, so very likely there is nothing to do here. (Transaction SCOT)
- Check the SAP Business Workplace (old name: “SAPoffice”) profile whether external sending for fax, pager, ... is activated. By default, they are activated, so very likely nothing to do here. (Transaction SO16)

C) Other configuration requirements, depending on / implicated by the actual usage / configuration:

(Normally, these settings are not necessary for the simplest SAP<->TC/LINK-SC connection tests.)

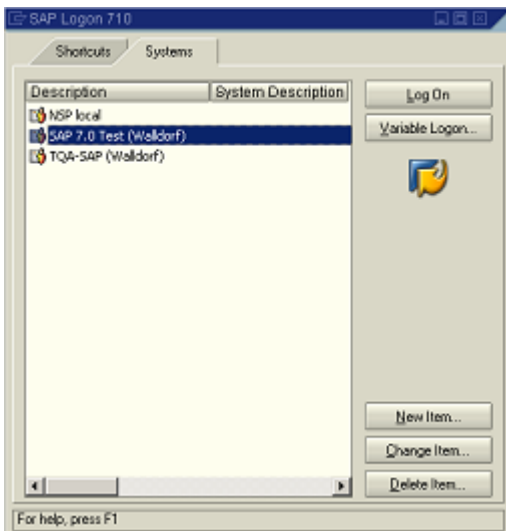
- Set the SAPconnect format conversion rules. This must be defined according to the output formats (PS / PCL / PDF) configured on the SAPconnect node. Each internal format → output format conversion, configured implicitly on the SAPconnect node, must have assigned an according conversion function here. (Transaction “SPRO”)
- Define the pager service (Transaction SA14) and pager address area on the SAPconnect node. (Transaction SCOT) This is interesting only if TC/LINK-SC will also be used for SMS transmission.
- Configuration for sending also internet e-mails (messages with address type ‘Internet’) through TC/LINK-SC
- Define telephone number substituting rules for SAP inbound faxes. This can be a solution, when the recipient telephone number of the inbound fax does not match with the fax address stored in the recipient SAP user record and so the inbound routing does not work. (Transaction SCOT)

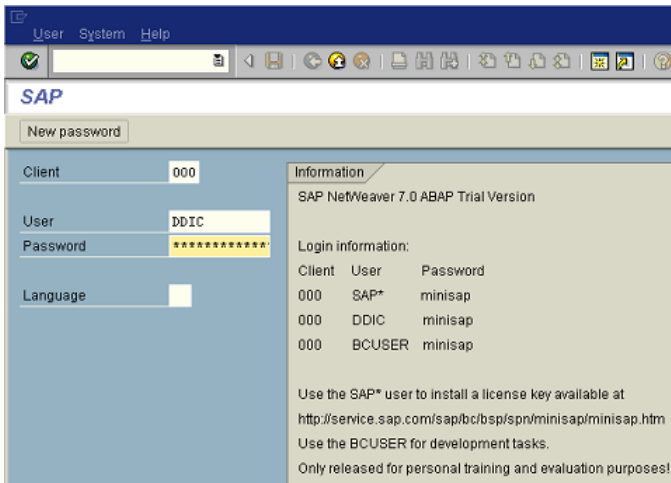
D) Finally: Prepare SAP users for sending / receiving messages:

- Assign a fax (and/or SMS, Internet, X.400) address to all SAP users communicating through TC/LINK-SC.

Logon with SAP GUI

Log on into the SAP 7.0 system with the SAP GUI application. (Do not use the RFC user for logon!)

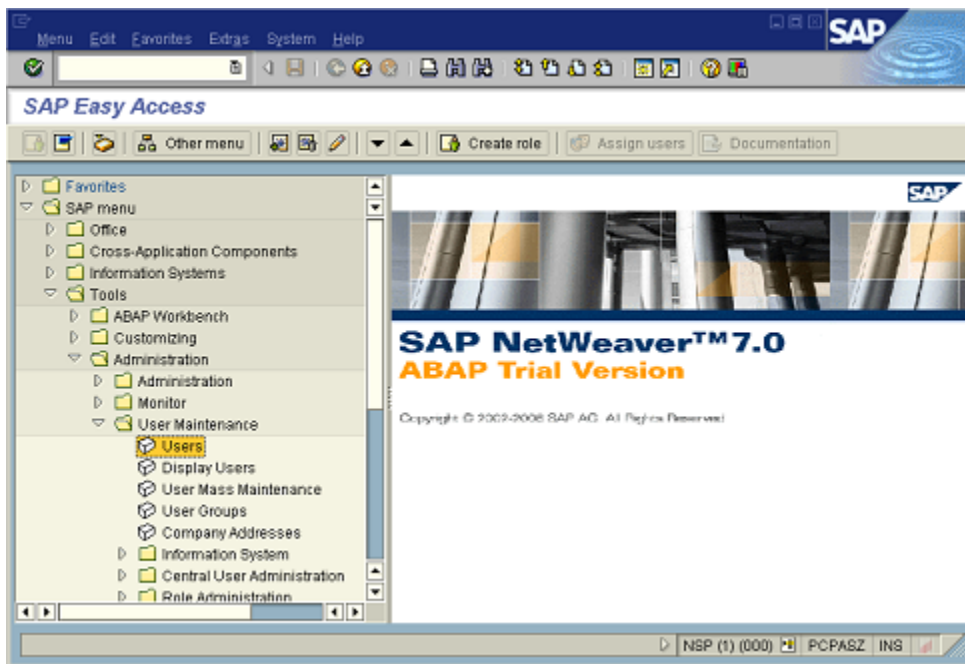




Create an RFC User for TC/LINK-SC

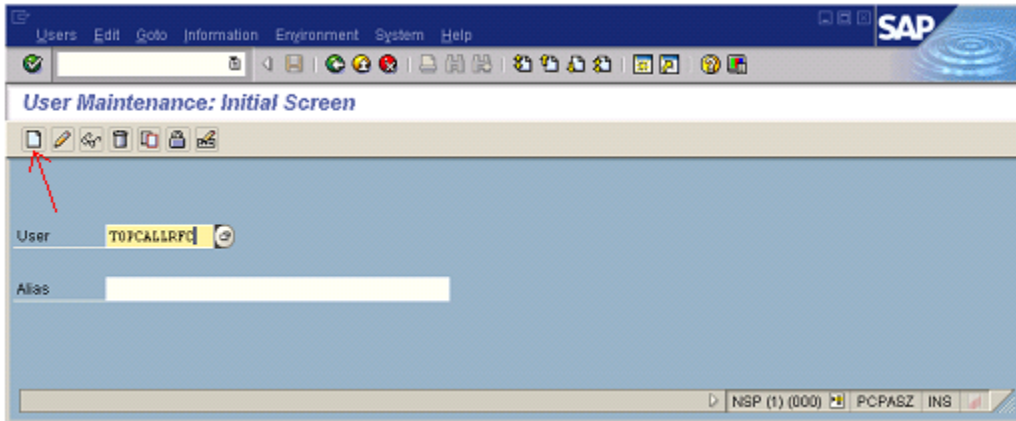
Create a special user for the SAP<->TC/LINK-SC RFC communication. This user with user type “Communications Data” will be used by TC/LINK-SC to log on into SAP.

- SAP menu: **Tools > Administration > User Maintenance > Users** (or call transaction SU01)

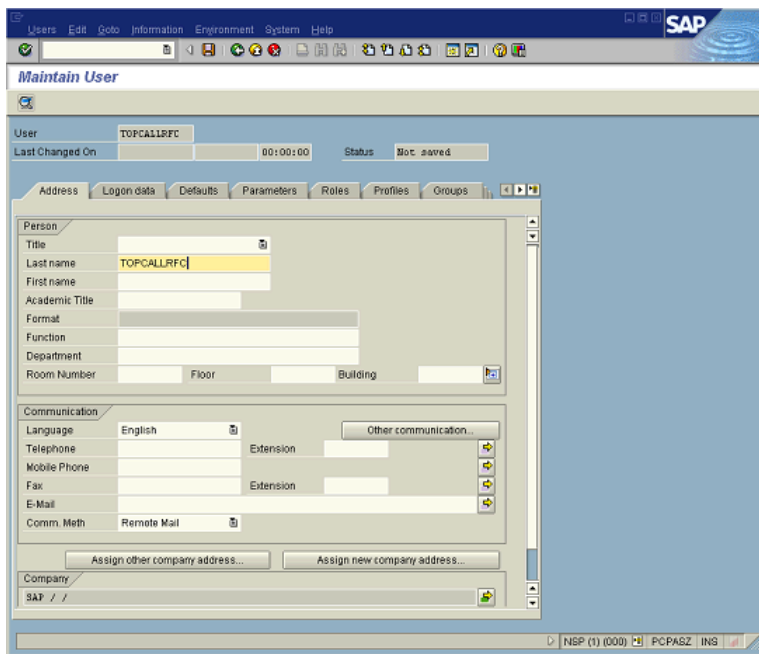


- Enter the name of the RFC user to be created (e.g., “TOPCALLRFC”) and select the menu **Users > Create** (or, alternatively, click the toolbar button with the white empty page pictogram). This user name

must be the same as configured on the link server in the registry setting ..\TOPCALL\

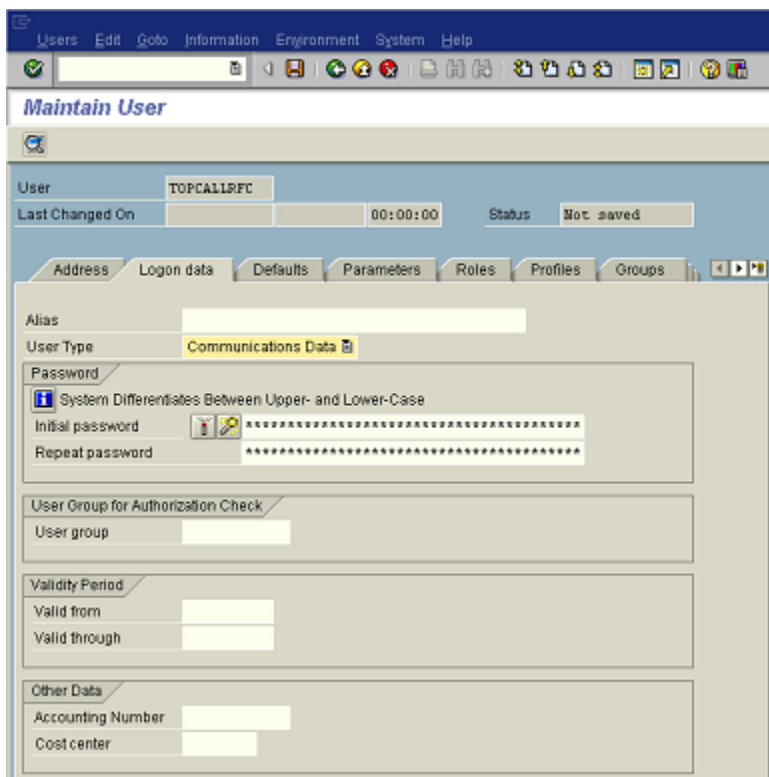


- Enter an (arbitrary) “Last name” on the “Address” tab.

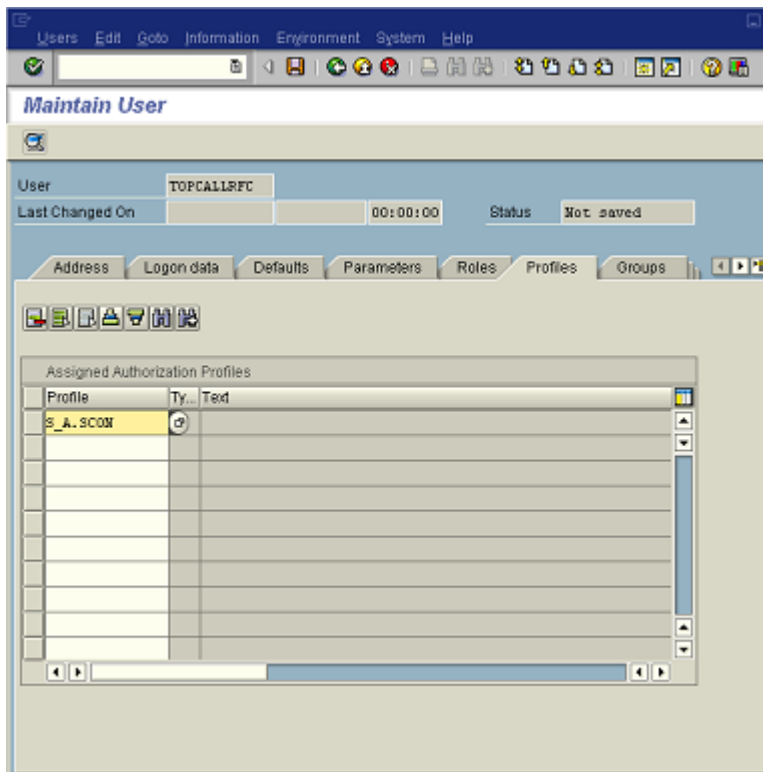


- Define user type as “Communication Data” and enter a password on the “Logon data” tab. This password must be the same as configured on the link server in the registry setting

- ..\TOPCALL\



- Enter profile “S_A.SCON” on the “Profiles” tab.

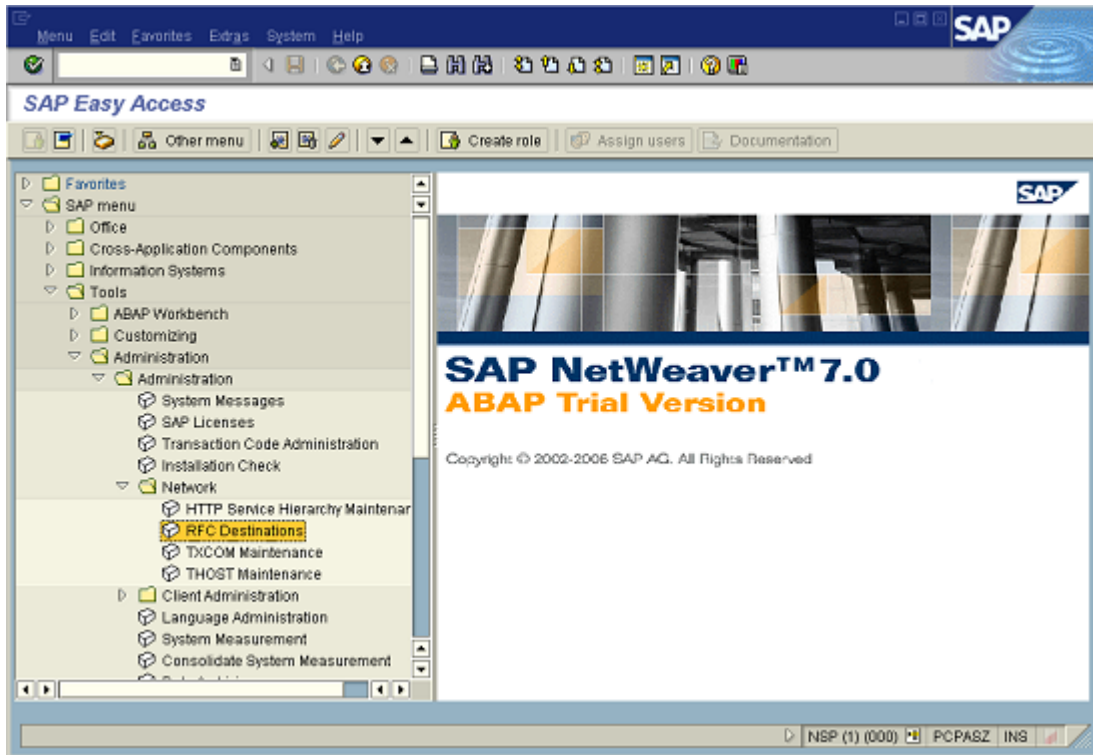


- Now, save the user data. (Menu **Users** > **Save** or click the toolbar button with the floppy disk pictogram)

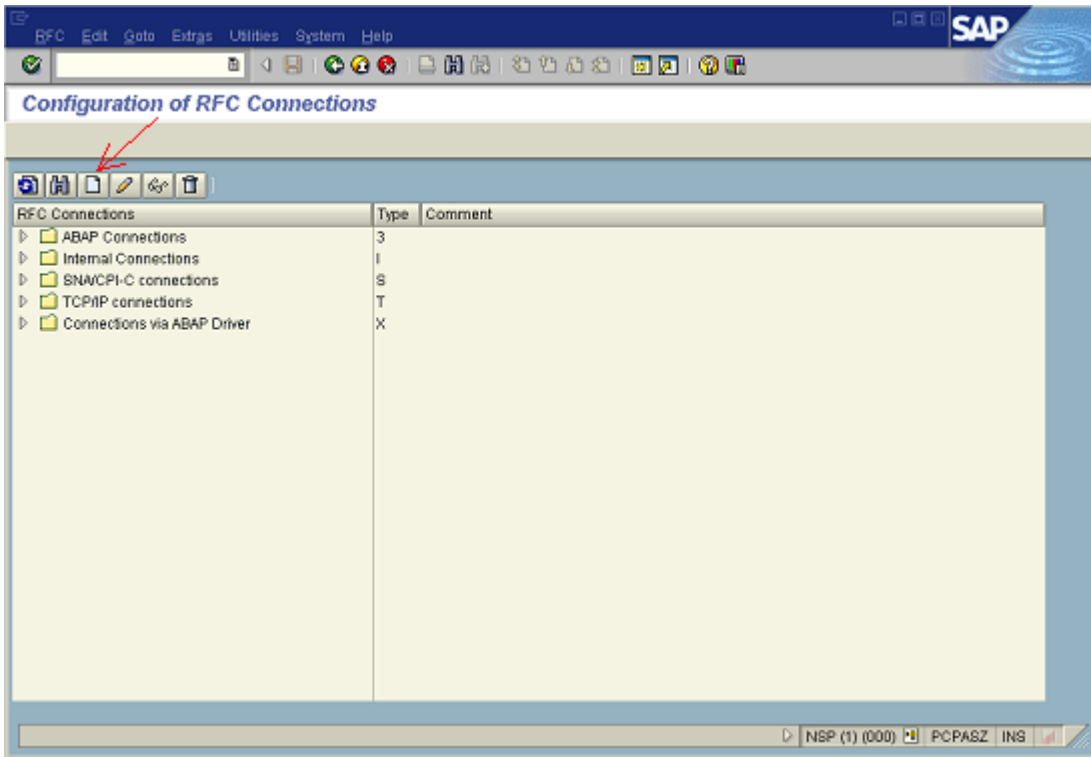
Create RFC Destination to TC/LINK-SC

Create SAP<->TC/LINK-SC RFC connection (“destination”) definition. This RFC destination will then be used by our SAPconnect RFC node that will be created as next step in [Create SAPconnect RFC Node](#).

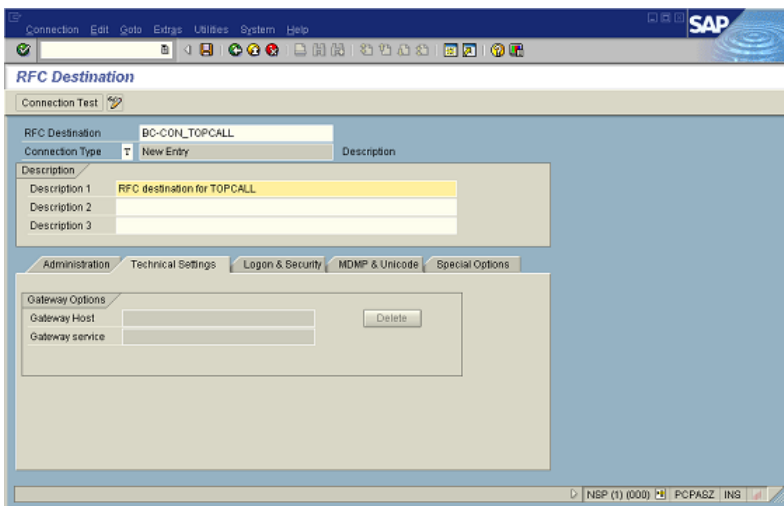
- SAP Menu: **Tools** > **Administration** > **Administration** > **Network** > **RFC Destinations** (or call transaction SM59)



- Choose menu **Edit > Create** (or the according toolbar button)

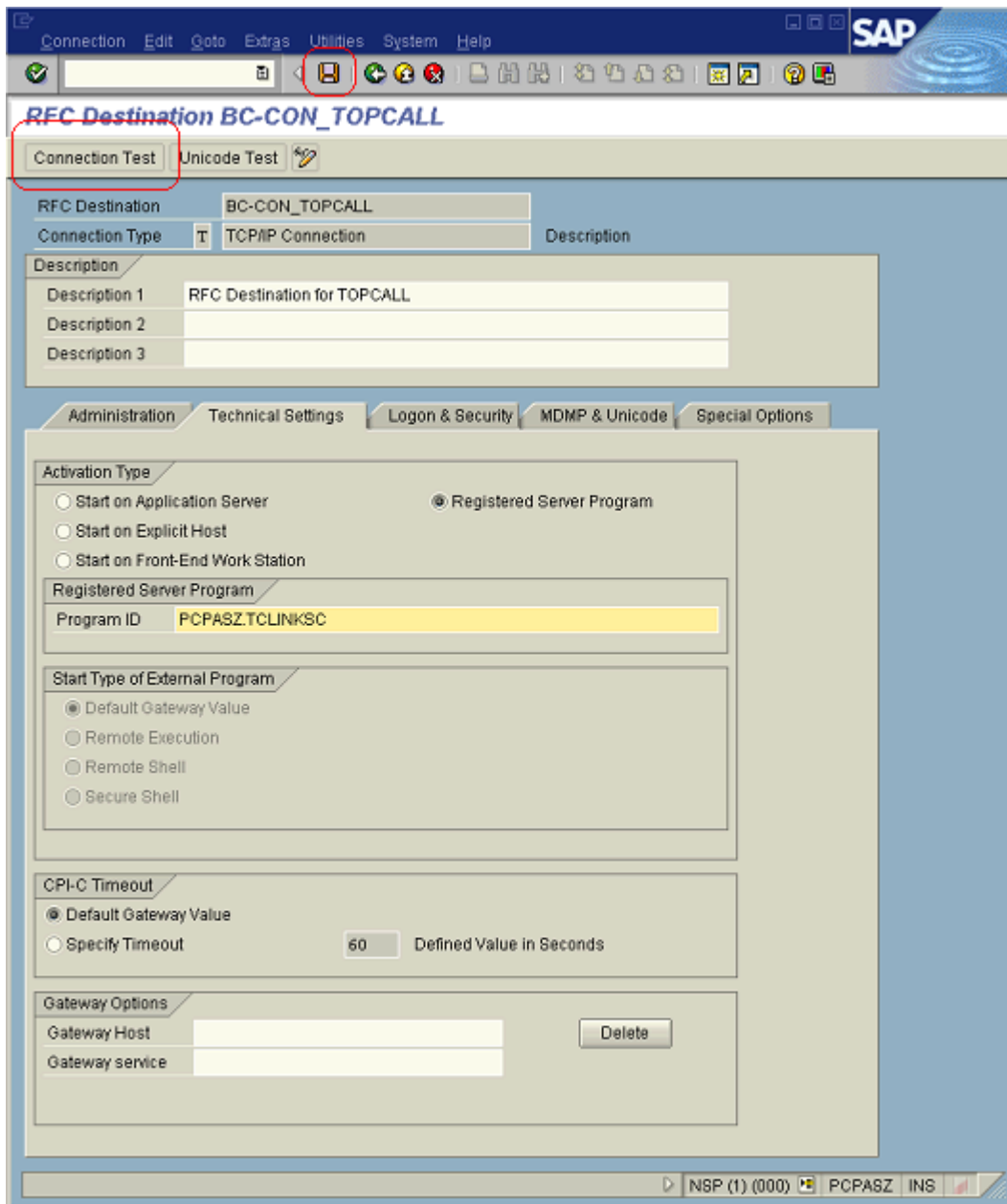


- Enter a name of the RFC destination (arbitrary, e.g., BC-CON_TOPCALL)
- Enter connection type “T” (=TCP/IP)
- Enter some description
- Press Enter on the keyboard to open the “Technical Settings” tab below



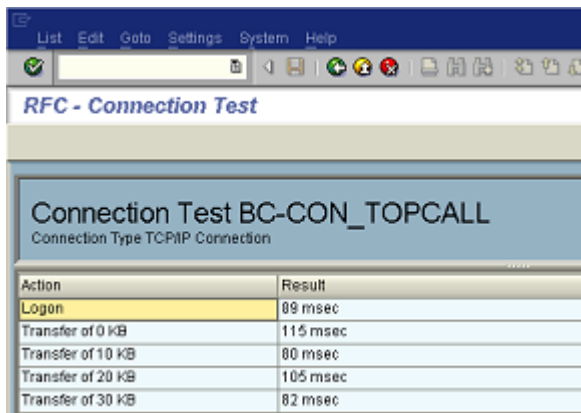
- Select activation type “Registered Server Program”.

- Enter TC/LINK-SC's Program ID, case sensitive. (E.g., PCPASZ.TCLINKSC5, where PCPASZ is the TC/LINK-SC workstation name. Note that this naming syntax with the computer name is not necessary at all.) This Program ID must be the same as configured during TC/LINK-SC setup. This configuration can be found on the TC/LINK-SC machine in the file c:\tcoss\tclp\saprfc.ini as PROGID parameter.
- Set CPI-C timeout. E.g., select Default Gateway Value (60 seconds)
- Set the gateway options (optional). This is necessary only if more than one application server should be connected to KCS. In this case, only one server is the appropriate gateway, which must be entered here. Enter the host name and the service of the SAP gateway on the "Gateway Options" tab. These values must be the same as configured during TC/LINK-SC setup: Gateway host name and the service must match with the value defined with parameter GWHOST and GWSERV in the saprfc.ini file on the link server. (Please consult [RFC Connection Parameters \(SAPRFC.INI File\)](#) in this manual for detailed information of the RFC connection parameters)
- Save the RFC Destination (e.g., click toolbar button with floppy disk pictogram)



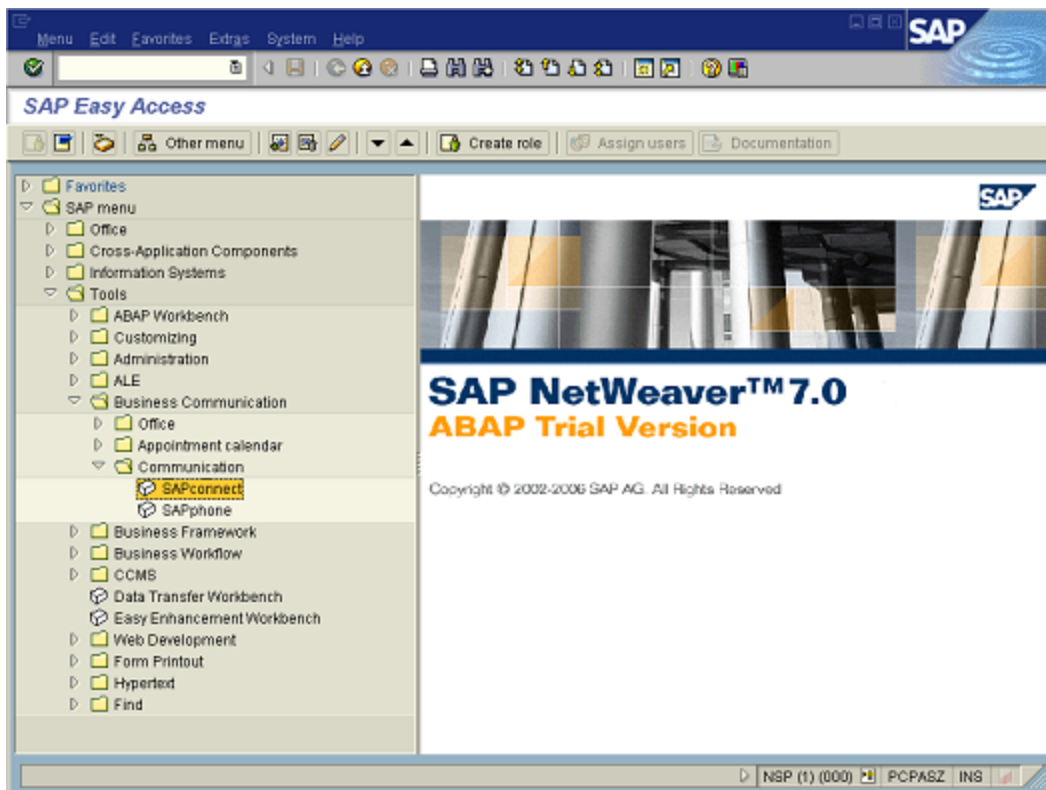
- Click the Connection Test button (see screen before)
It verifies if the RFC connection to TC/LINK-SC works. TC/LINK-SC and SAP gateway must be running for this test, of course.

- If your connection is ok, you will get a screen similar to following.



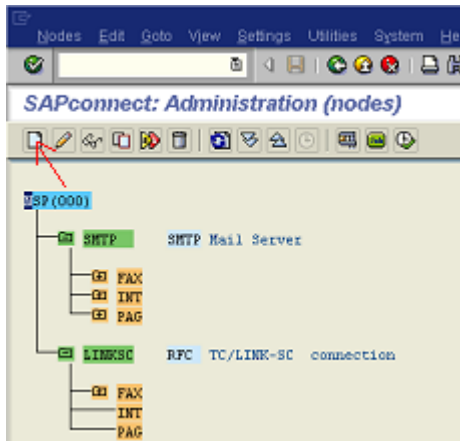
Create SAPconnect RFC Node

- Go to SAPconnect administration: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT)

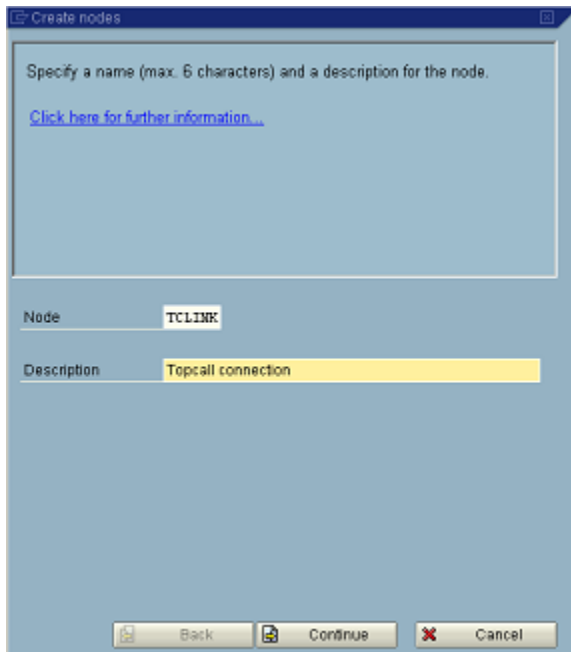


- Change to node view, if you are not already in this view (Menu **View > Node**). (Hint: SAPconnect offers several views: System status, Routing, Node, Jobs. If you enter SAPconnect, always the view you have used last time will be displayed.)

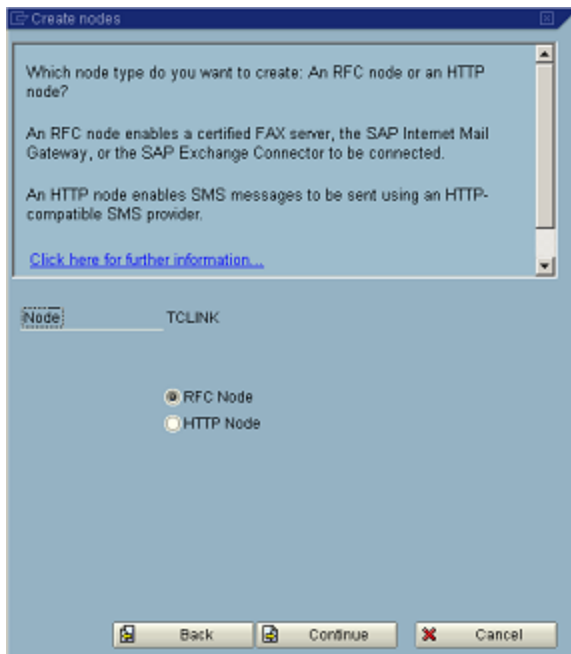
- Click the new node button (or menu **Nodes > Create**)



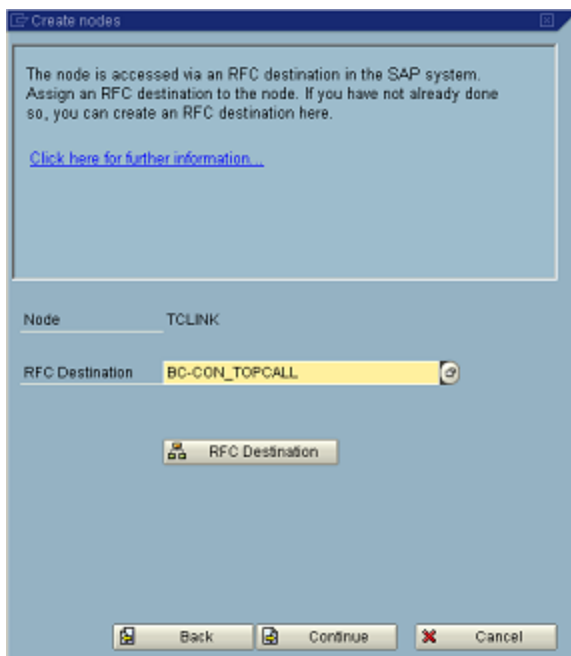
- Enter node name (max. 6 characters) and description (e.g., "TCLINK" and "TOPCALL connection", Remark: These are arbitrary texts, there is no according configuration value on TC/LINK-SC). Click Continue.



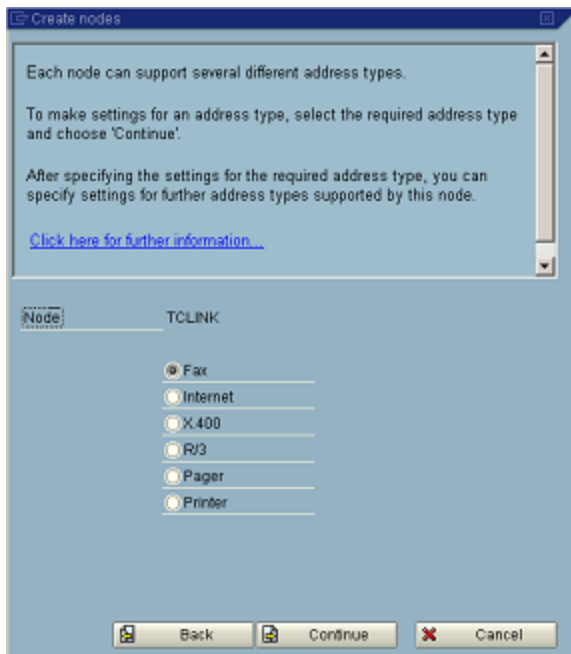
- Set node type to “RFC Node”. Click **Continue**.



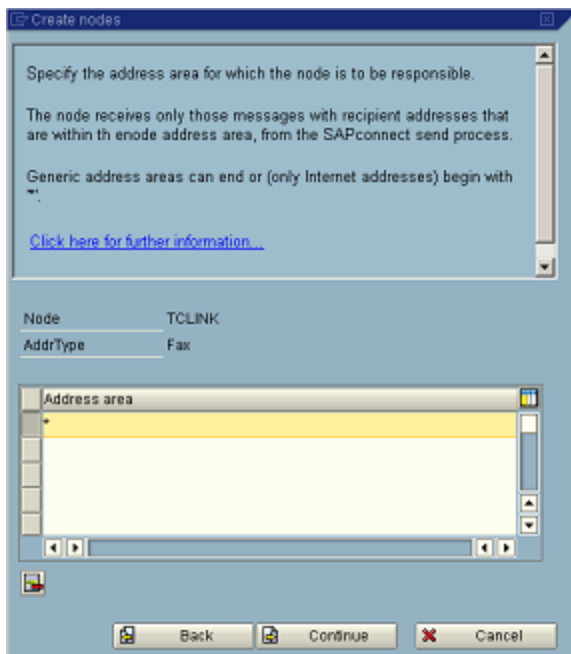
- Enter the RFC destination you have created in the previous chapter. (With this setting you have actually connected this node to the TC/LINK-SC instance indirectly, through the given RFC destination). Click **Continue**.



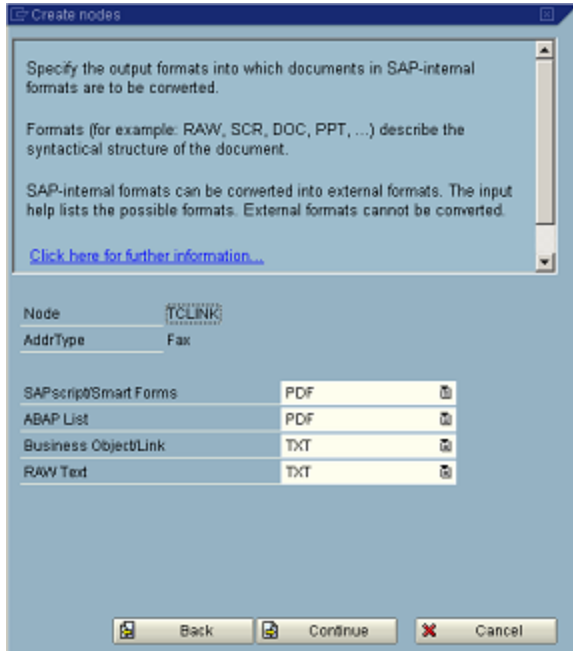
- Configure address type fax. Click **Continue**.



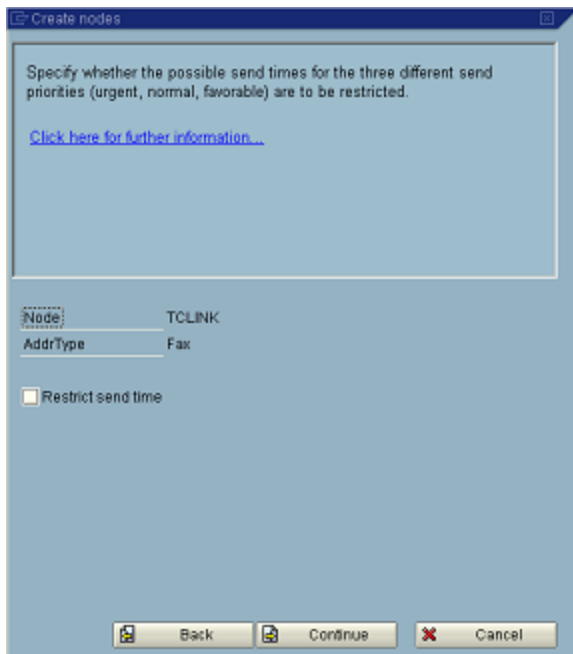
- Enter address area. It defines which SAP-outbound faxes will be routed to this RFC node. If you enter "*", then SAPconnect will send all outbound faxes to this node. As a consequence, all SAP-outbound faxes will be delivered by TC/LINK-SC connected to this node. When entering "AT*", only SAP-outbound faxes with country code AT will be routed to this node. More restrictions, e.g., AT186353* are also possible. Click **Continue**.



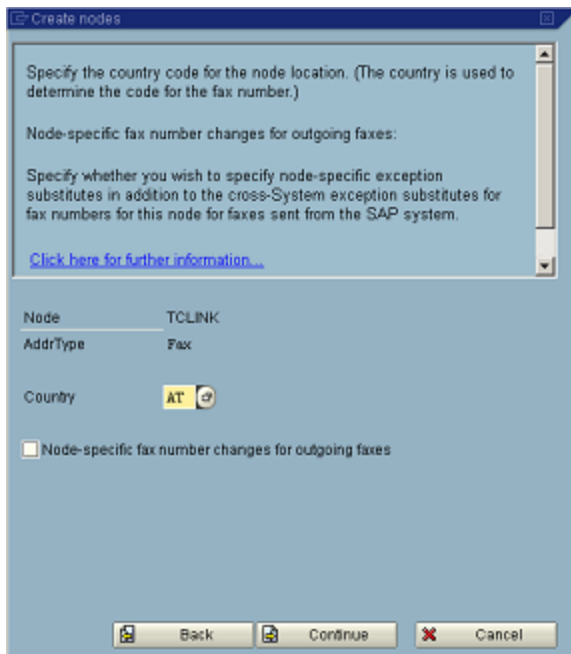
- Set output formats. Note that TC/LINK-SC must be configured to support the according format conversion. E.g., if PS (postscript) format is set here, then TC/LINK-SC must be installed with Lincoln converter/postscript option. Click **Continue**.



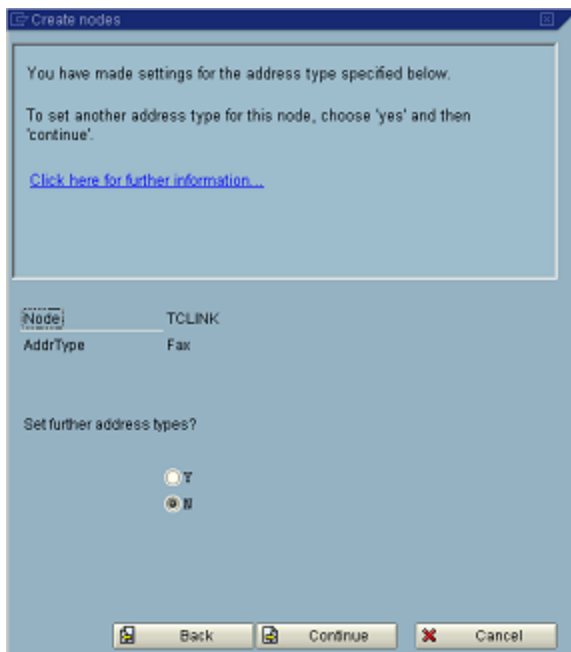
- Optional: Restrict send time. Click **Continue**.



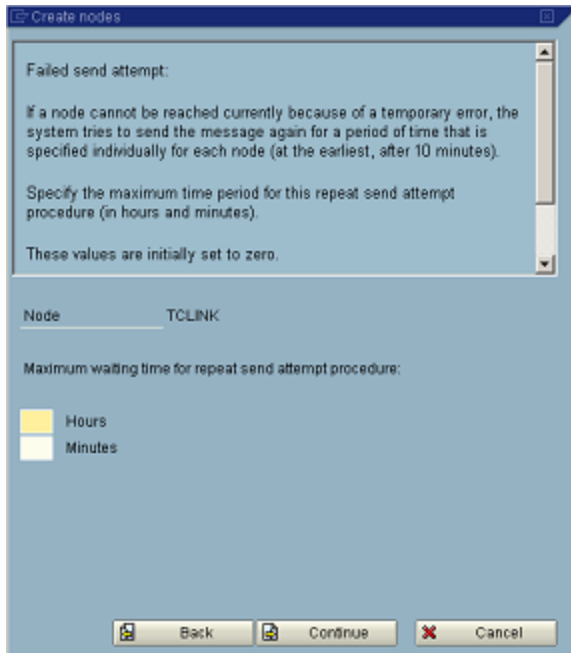
- Enter country code for the node location. Click **Continue**.



- If you want to let SAPconnect route messages also with other SAP address types to this RFC node, e.g., pager/SMS, then select 'Y', otherwise, select 'N'. (Note that TC/LINK-SC supports the following SAP address types: fax, pager/SMS, X400, internet address. Therefore, only configuring one or more of these SAP address types makes sense.) Click **Continue**.



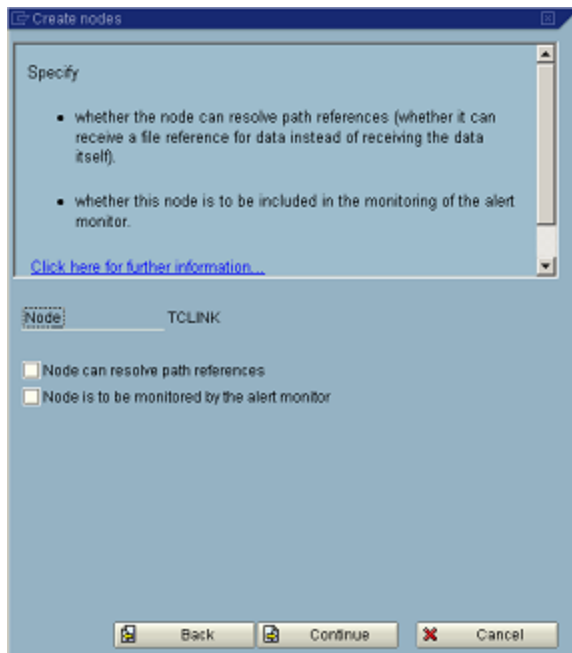
- Optional: Define for how long periodic send attempts should be made. (The next send attempt starts always after 10 minutes, this cannot be configured.) E.g., defining 2 hours here means that SAPconnect makes a send attempt in every 10 minutes, for 2 hours. Click **Continue**.



- Do not set the following options!
(If you check the “Node can resolve path references”, then the attachments are only sent as a reference. Therefore, it should not be checked. Otherwise, attachments will probably be inaccessible. If you check the “Node is to be monitored by the alert monitor” option, then the RFC destination is

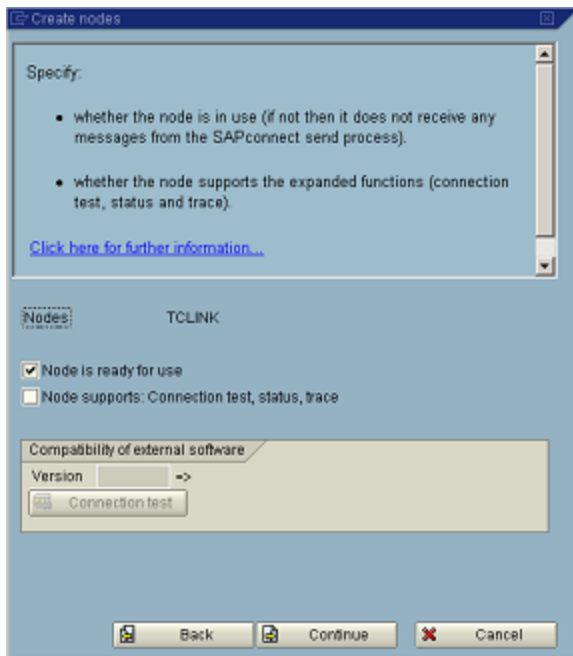
checked periodically by the Alert Monitor. This can lead to TC/LINK-SC event log entries, because it does not support these checks.)

Click **Continue**.

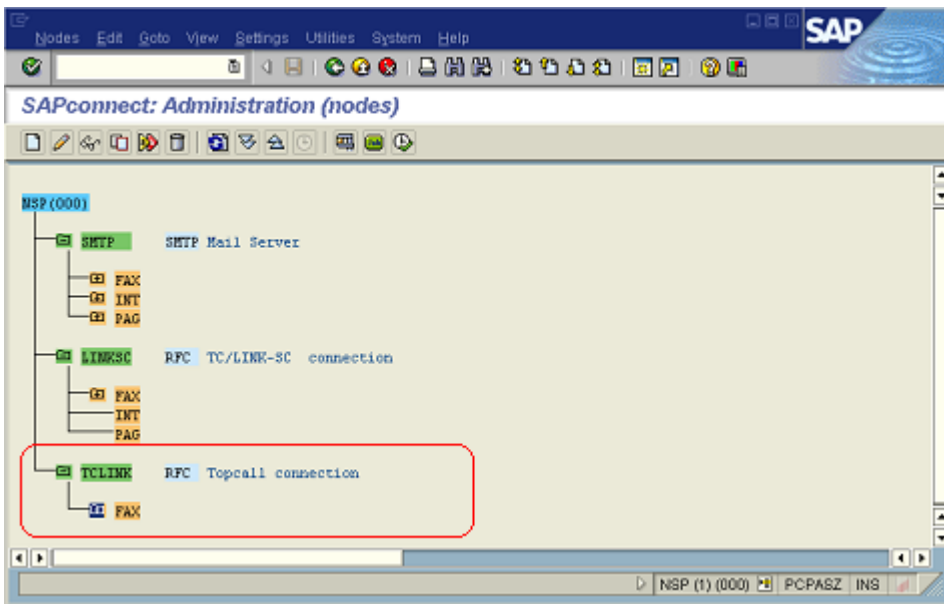


- Set "Node is ready for use" to activate the node. Note: If you check the "Node supports: Connection test, status, trace" option, then an additional software checks the connection. This is not supported by TC/LINK-SC. If you will do a connection test, you can use the RFC Connection test (SM59).

- Click **Continue** to finish the node creation.



The node is created and displayed in the SAPconnect node view:



Routing test:

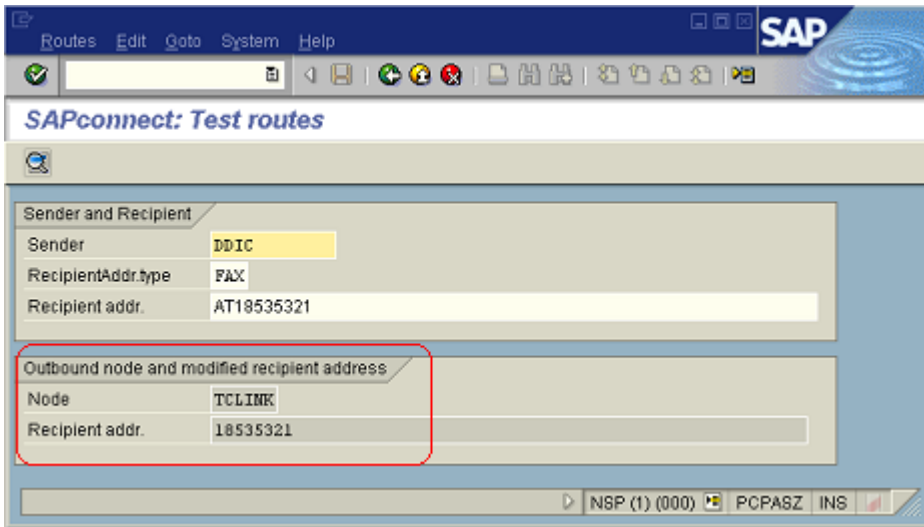
Once the is node created, it can be checked if the address areas defined on this node make the messages in fact route to this node as desired.

With the routing test you can check which node is “responsible” for a certain address. That is, to which node will be routed a message with a certain recipient address. The SAPconnect internal routing is based on the address area definitions on the nodes; however, the possible overlapping address area definitions in the different nodes can make it difficult to find the responsible node for a certain address. E.g., NODE1 has * and NODE2 has AT* as fax address area. SAPconnect routes the fax addressed to AT1111 to NODE2, even if AT1111 matches to both nodes address area, because the more specific address area has always priority.

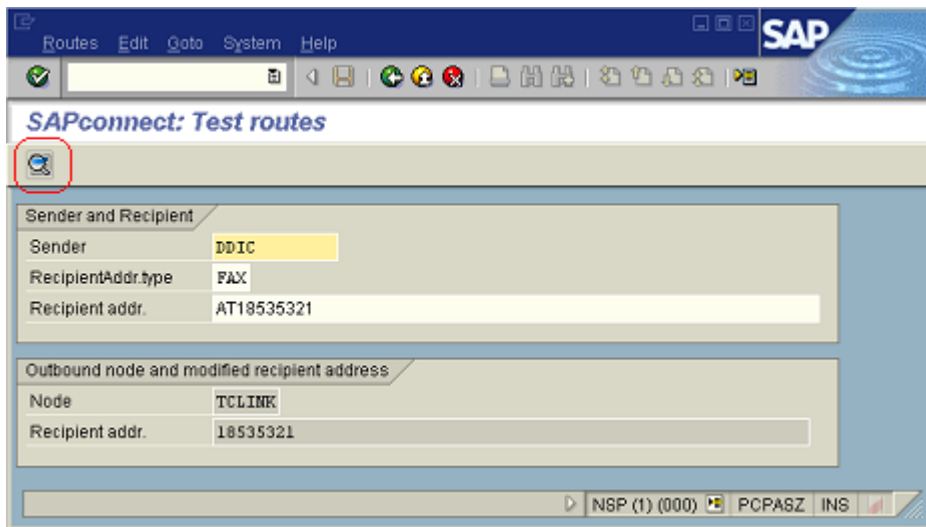
- Go to SAPconnect administration, if you are not already there. (SAP menu: **Tools > Business Communication > Communication > SAPconnect** or call transaction SCOT),
- Menu: **Utilities > Routing test**
- Enter an address of your interest
- Press Enter key on the keyboard

In the fields Node and Recipient addr. Below (“Outbound node and modified recipient address”) you will get the responsible node for the given address and the modified recipient address.

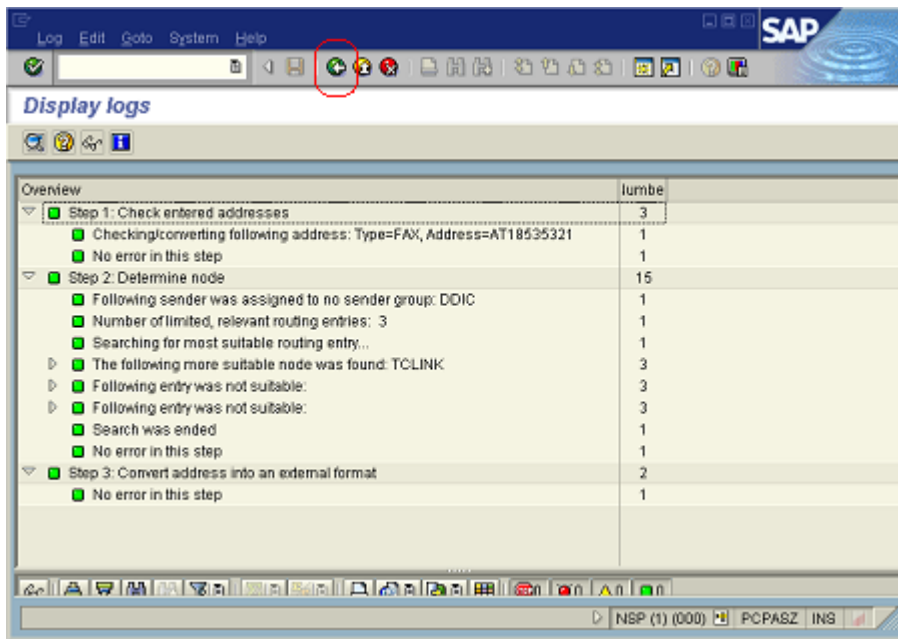
Note This test is a SAPconnect internal process, so you do not need a running TC/LINK-SC for this test.



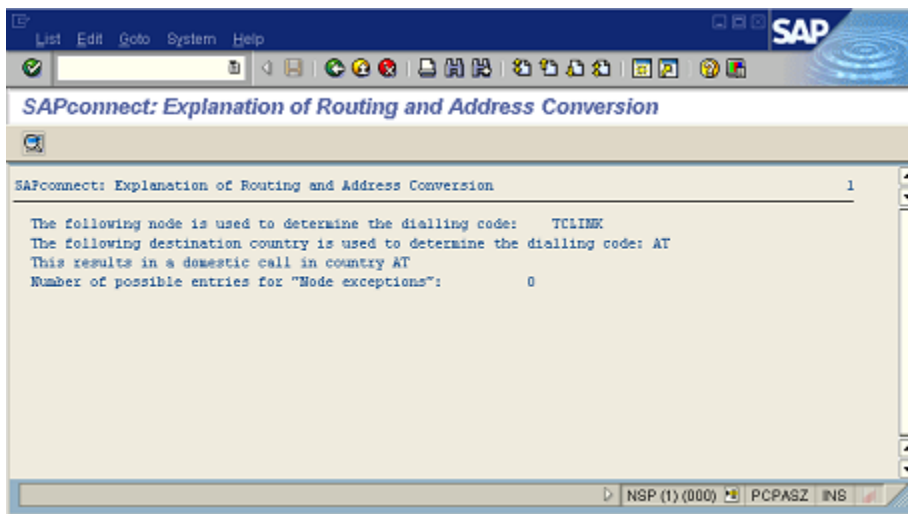
- For more detailed information, why just this node was selected as outbound node, click the toolbar button with the magnifying glass icon (or menu **Routes > Explain**)



- It will also display how the number would be adapted according to the international country codes and your exception rules (*Setting => Country code exceptions*).



- If you click the Back button on the toolbar (or press F3) you can get further explanatory information on the routing.

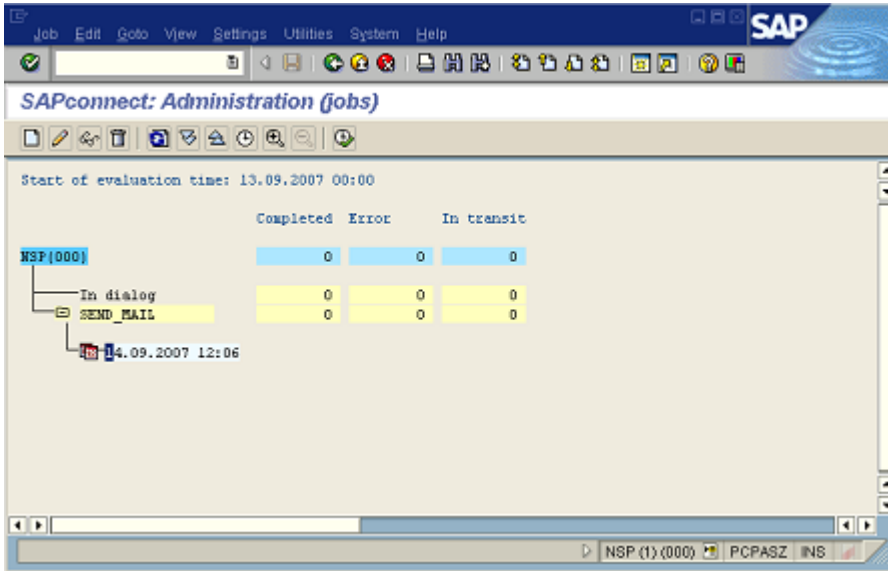


Schedule a SAPconnect Background Send Job

Go to SAPconnect administration if you are not already there: SAP menu: Tools => Business Communication => Communication => SAPconnect (or call transaction SCOT).

Change to jobs view (View => Jobs), if you are not already in this view.

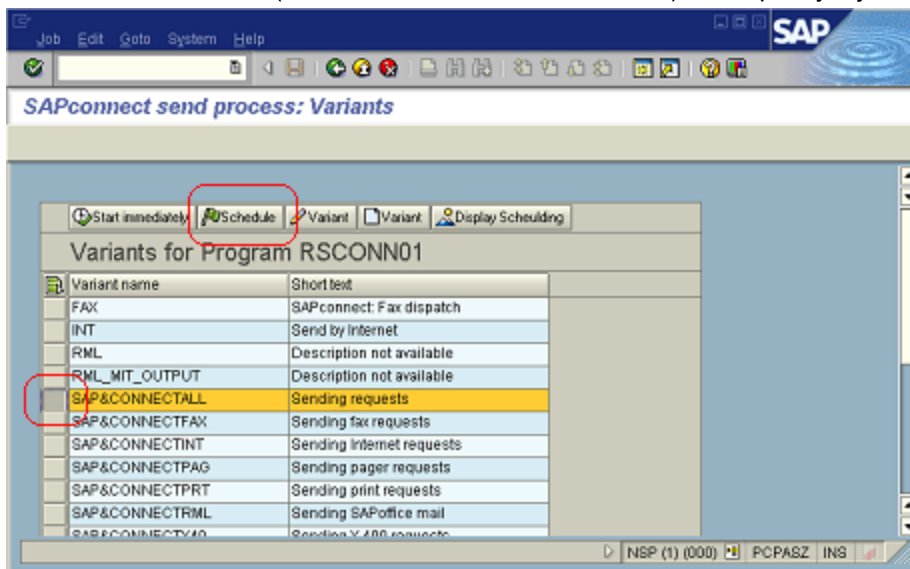
Note Existing jobs are displayed as calendar icons (see picture).



Faxes, emails, SMS that are sent from an SAP application are merely put into a queue. A periodically running background process, the SAPconnect send job, takes these messages from the queue and sends them via the configured SAPconnect nodes.

If such a job is already scheduled (quite likely), then you can skip this configuration step. (E.g., in the picture above, there is already a job called SEND_MAIL.) Otherwise, a job can be scheduled here in the SAPconnect administration as follows:

- Choose **Job > Create** (or the 'new' button on the toolbar), and specify a job name.

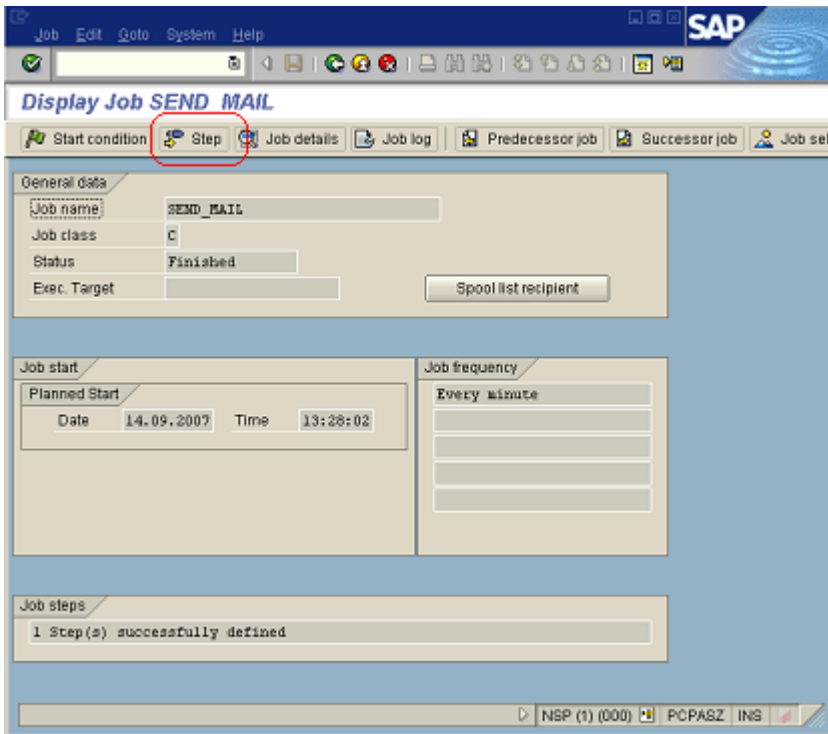


- Select the line "SAP&CONNECTALL" (by clicking the list-side-button on the left)

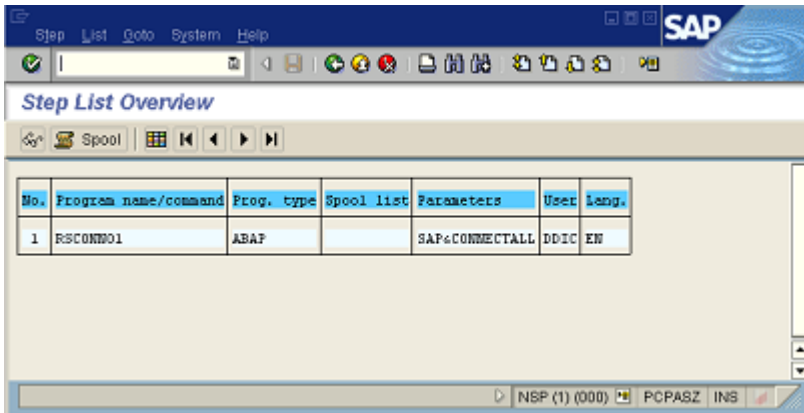
- Click Schedule button (green flag) above the list.
- Choose “Schedule periodically”.
- Specify a time interval (for example 2 minutes).
- Choose “Create”.

To check the properties of an existing job, set the cursor on the calendar icon (and not on the line with the job name!), and select **Job > Display**.

To check the steps of a scheduled job, click Step.



“SAP&CONNECTALL” procedure picks up all message types from the queue and sends to the according SAPconnect node(s). If an already existing job performs other procedure than “SAP&CONNECTALL”, then it must be checked if it really deals with the message types we want to deliver with TC/LINK-SC.

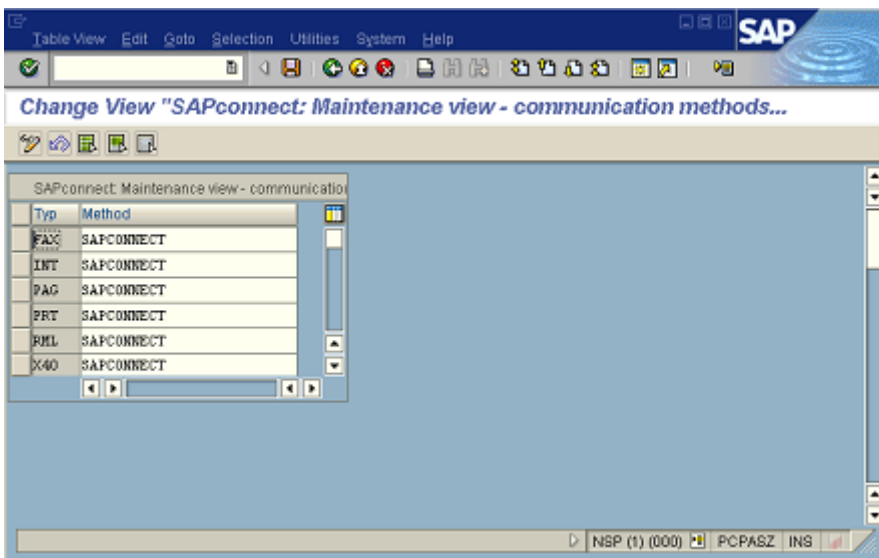


Checking the “Communication Methods” Belonging to the Different Address Types

Go to SAPconnect administration if you are not already there: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT)

Menu Settings > Communication methods

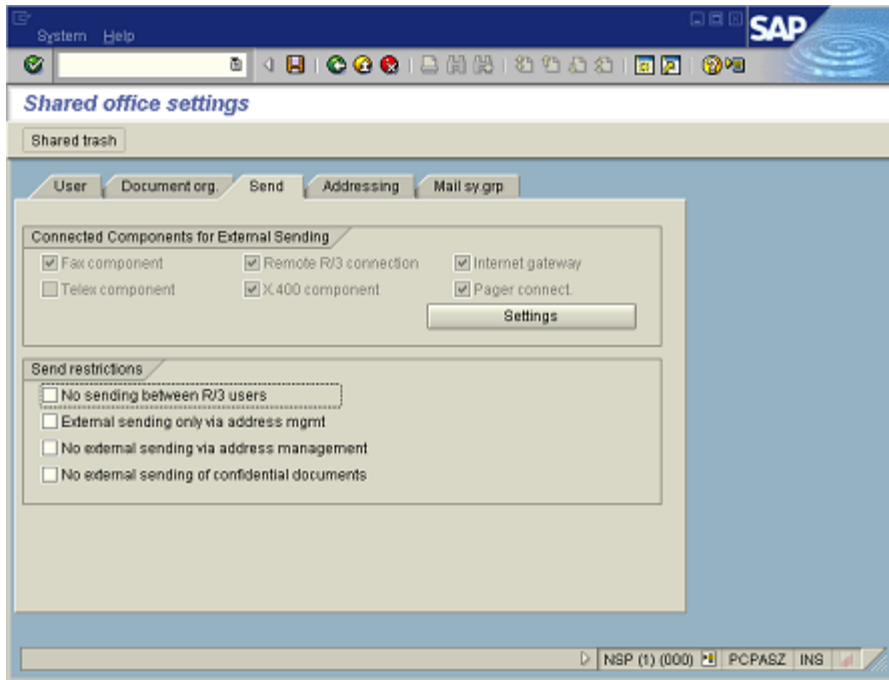
The communication method for all message types to be handled by TC/LINK-SC must be set to SAPconnect. (Presumably, it is already set so, as default.)



Checking the SAP Business Workplace (“Office”) External Sending Settings

SAP menu: **Tools > Business Communication > Office > Shared office settings** (or call transaction SO16).

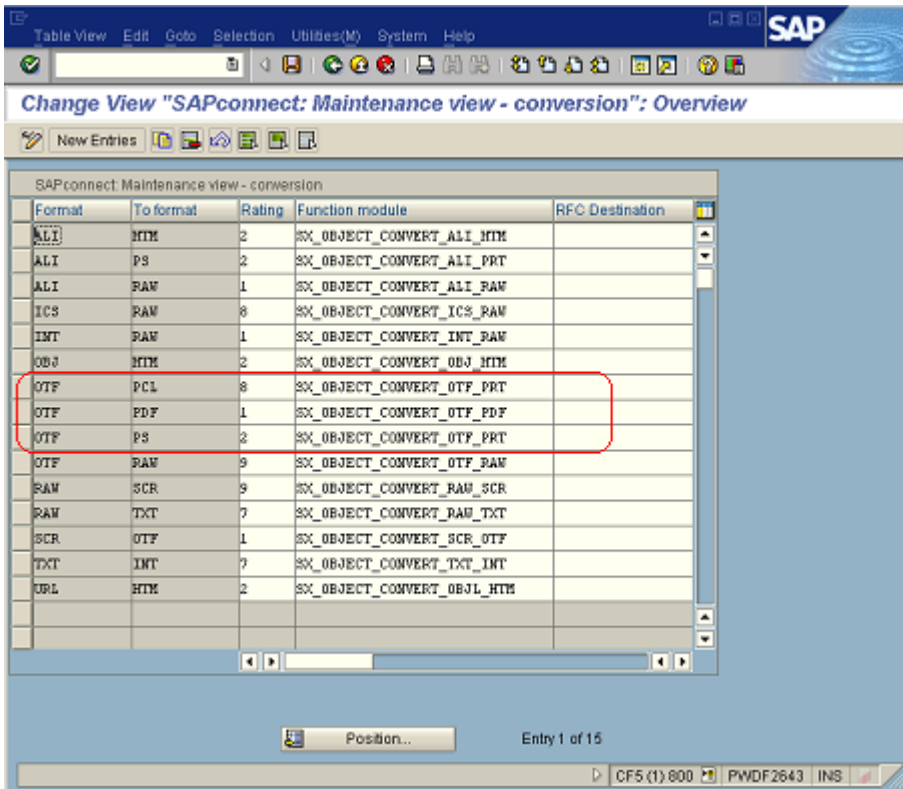
All TC/LINK-SC relevant components/connections (fax, pager ...) have to be enabled. See according check boxes on this picture. Otherwise, no according message transfer is possible from/to SAP Business Workplace.



Checking the SAPconnect Format Conversion Rules

Go to transaction **"SPRO"** > **SAP Reference IMG** > **list: SAP Customizing Implementation Guide** > **SAP NetWeaver** > **Application Server** > **Basis Services** > **Communication interfaces** > **SAPconnect Client-Wide settings** > **General Settings** > **Conversion Rules** (click the  button)

All output formats defined on the RFC node must have an according conversion method defined here. Otherwise, create an according new entry here. (It will be one of the entries marked on this picture.) E.g., if you defined on RFC node the fax address type with PDF as output format, and there is no entry for OTF->PDF conversion in this table, then create this entry as you see it in the list here.

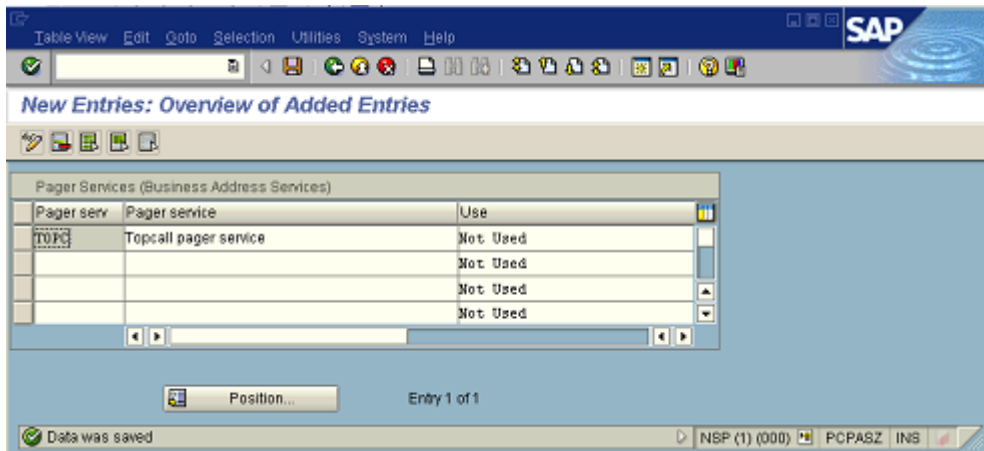


Configuring the Pager Service

Pager service must be configured only if TC/LINK-SC will be used also for SMS transmission, otherwise, you can skip this step.

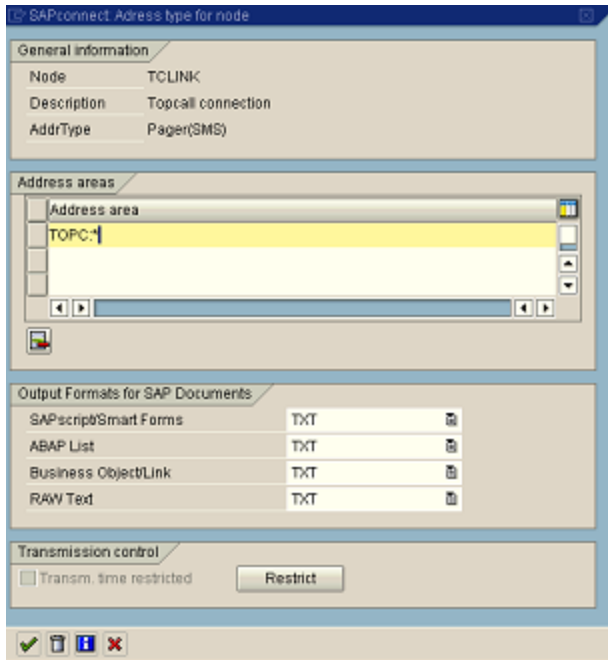
- Go to transaction SA14



Create a pager service entry as shown on the picture. E.g., service name is TOPC.



- Go to SAPconnect administration: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT)

- Go to **View > Node**
- Double-click the RFC node you configured for TC/LINK-SC. The node configuration dialog opens.
- Click the Set button next to the “Pager (SMS)” check box.
- Define the address area on the Pager (SMS) address type configuration dialog, e.g., in our example TOPC:*



- Click  button. Note that the “Pager (SMS)” check box will not be set immediately on the parent dialog. Press here also the  button. Now, the changes will be stored on the node.

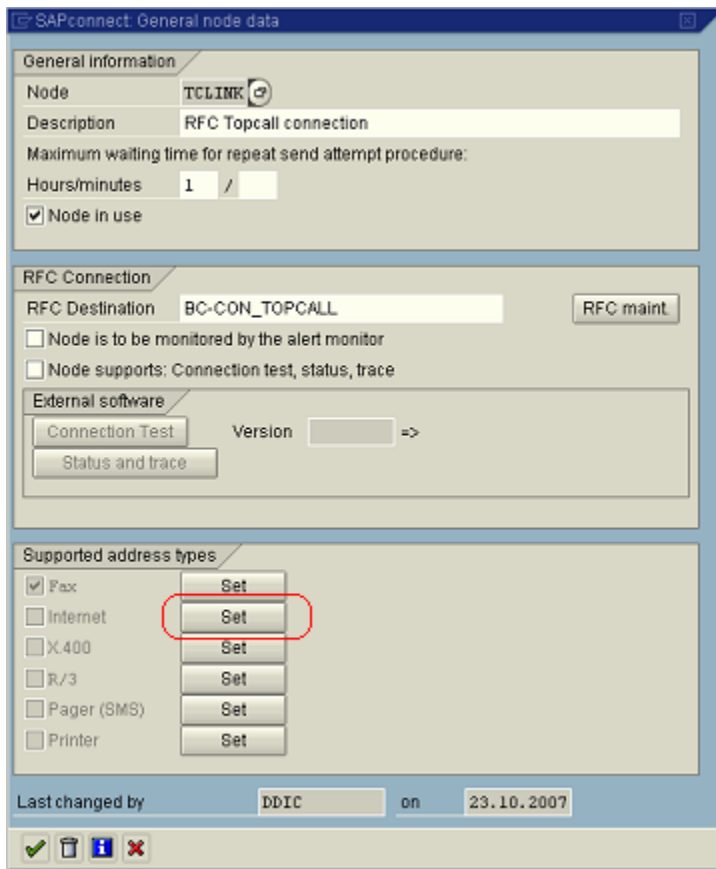
Now you can send a pager message out of SAP with following addressing syntax:

E.g., TOPC:0186353295, that is <PagerServiceName>:<PagerNumber>

Configuration for Sending Internet Emails via TC/LINK-SC

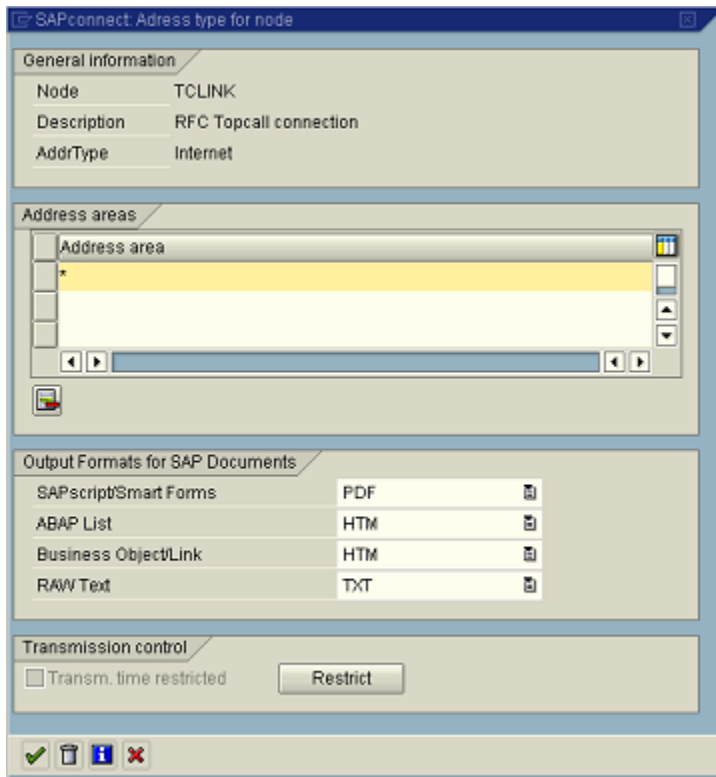
- Go to SAPconnect administration: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT)
- Go to **View > Node**
- Double-click the RFC node you configured for TC/LINK-SC. The node configuration dialog opens.



- Click the Set button next to the “Internet” check box.



- Define the address area on the 'Internet' address type configuration dialog, e.g., in our example “*”. This means that all internet mails will be routed to our RFC node and so to TC/LINK-SC. But if you e.g.

want that only internet emails with domain “dicomgroup.com” are routed to this RFC node (that is to TC/LINK-SC), then define “*@dicomgroup.com”.

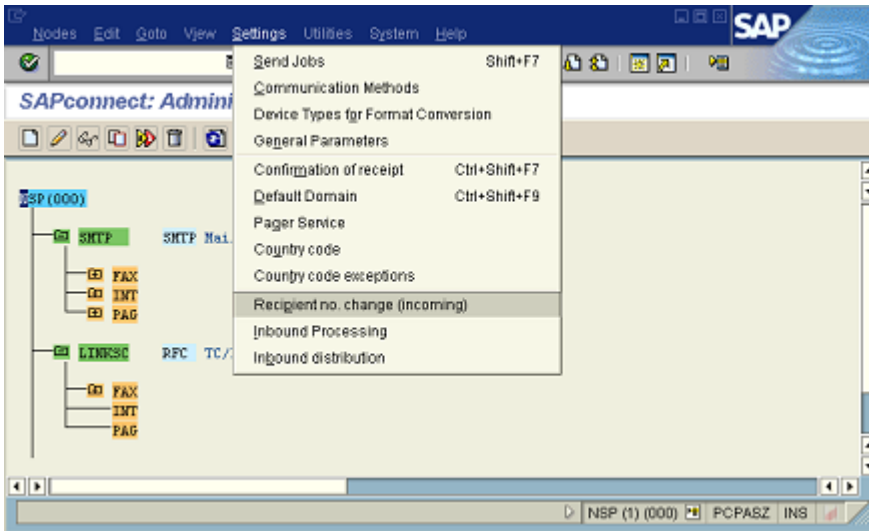


- Press  button. Note that the “Internet” check box will not be set immediately on the parent dialog. Press here also the  button. Now, the changes will be stored on the node.

Define Recipient Telephone Number Change Rules

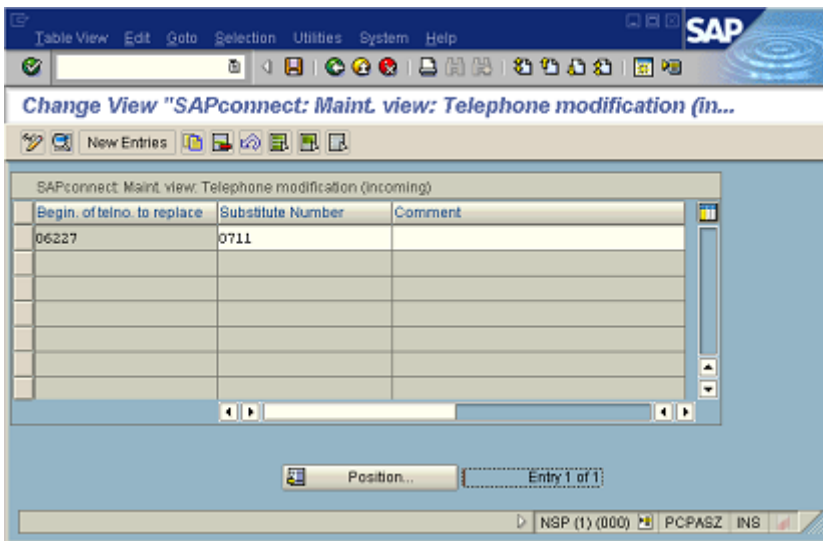
Optional configuration: You can define rules in SAPconnect to change the beginning of the recipient fax/telephone number in an SAP-inbound message. In some cases it is necessary for the proper inbound routing. Whether it is necessary, depends on the fax address definitions in the SAP user records.

Go to SAPconnect administration: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT). Menu Settings => Recipient no. change (incoming).



Example:

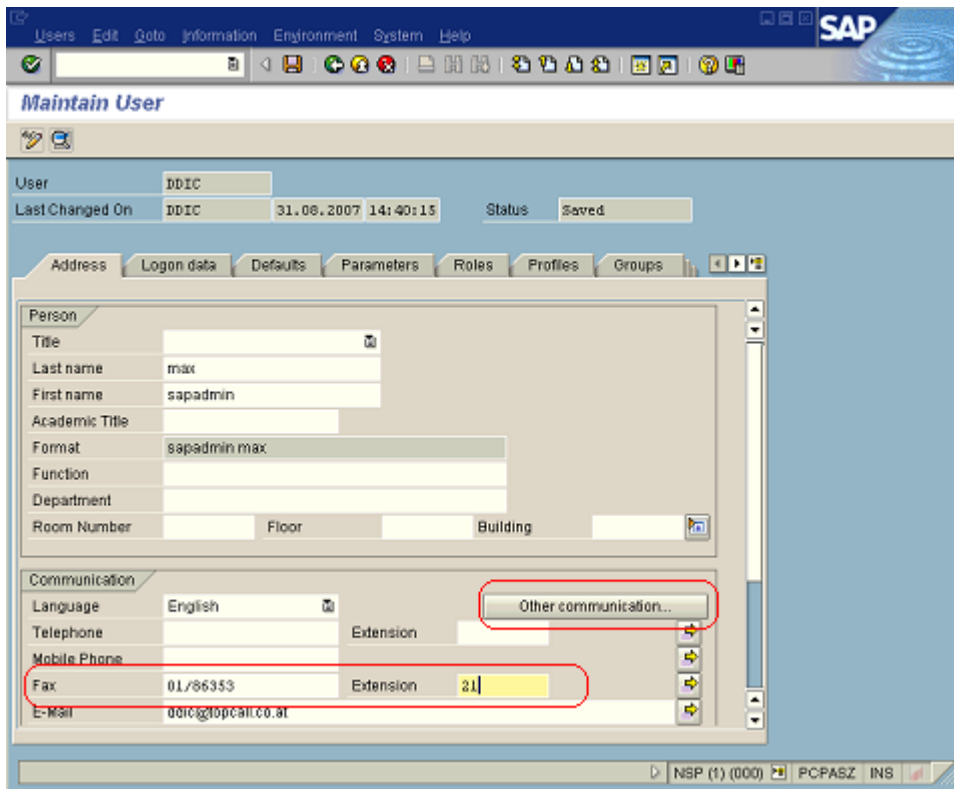
You chose 06227 as the beginning of a number to be replaced, and 0711 as the substitute number. If the system now receives the number 06227341122, it changes it to 0711341122.



Assign Fax (SMS ...) Address to Each SAP User

Each user who wants to send/receive messages from/to SAP via fax or other external communication services must have an according address of the appropriate address type.

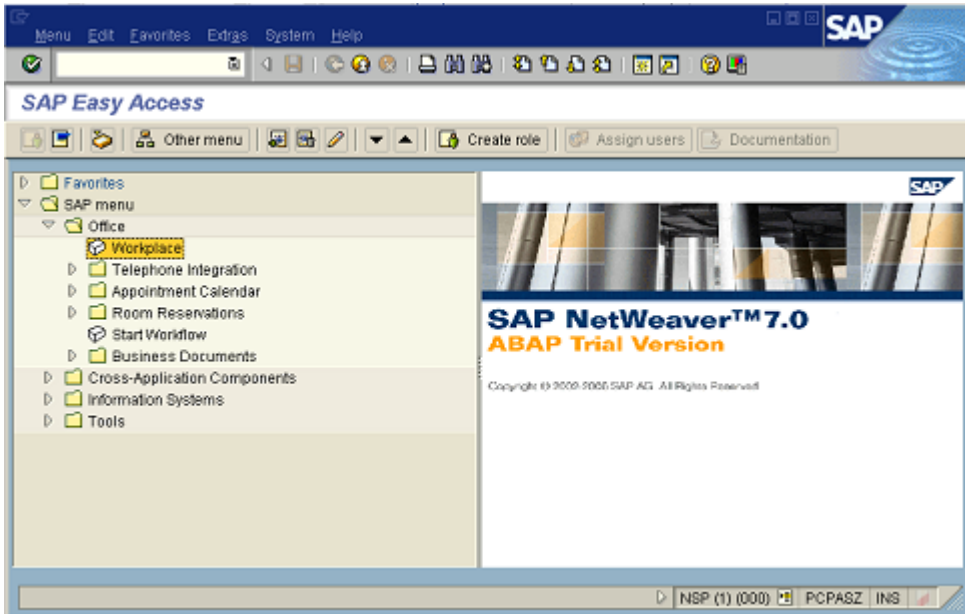
SAP menu: **Tools > Administration > User Maintenance > Users** (or call transaction SU01)



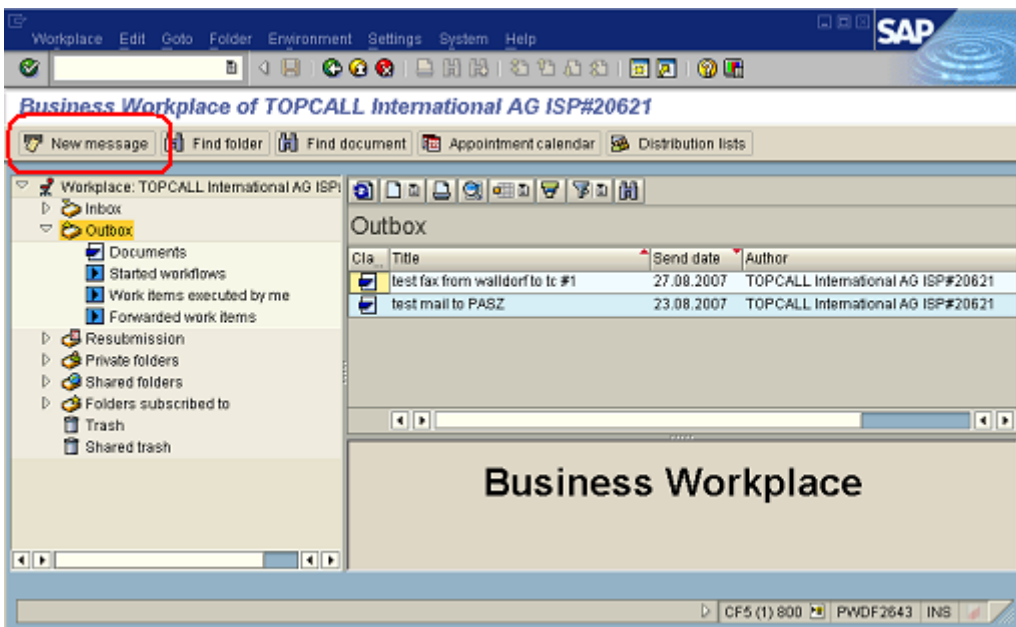
Use the Other communication... button to enter the SMS address for the user.

Testing the Configuration: Sending Fax out of SAP Business Workplace

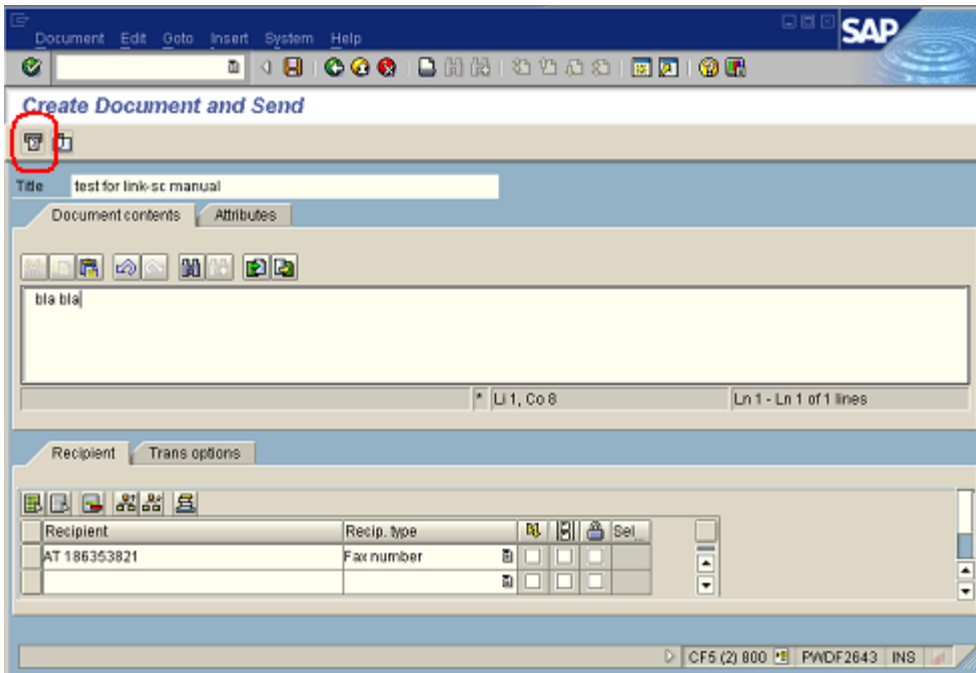
Go to SAP menu: **Office > Workplace** (Or alternatively: transaction SO02, this leads directly to the SAP Business Workplace / Outbox).



Click New Message button, or choose menu **Workspace** > **New message** or Shift+F4

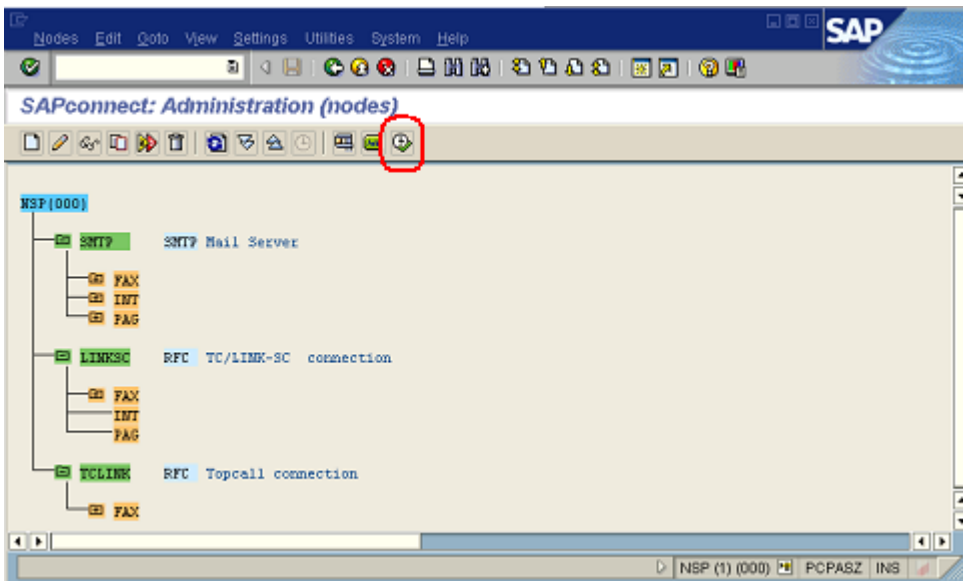


Enter some message and addressing. Click the send button, or choose menu **Document** > **Send**.

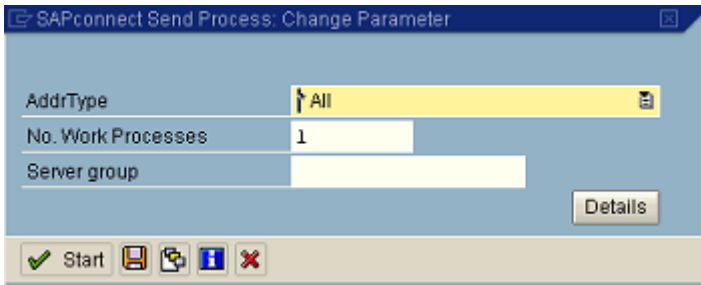


Normally, it takes some minutes till the SAPconnect scheduled send job picks up this message from the queue, according to the time interval defined for the job. (See [Schedule a SAPconnect Background Send Job.](#)) However, it is possible to start the sending process manually:

Go to **SAPconnect administration**: SAP menu: **Tools > Business Communication > Communication > SAPconnect** (or call transaction SCOT). Click the Start send process button on the toolbar or choose menu **Utilities > Start send process**.



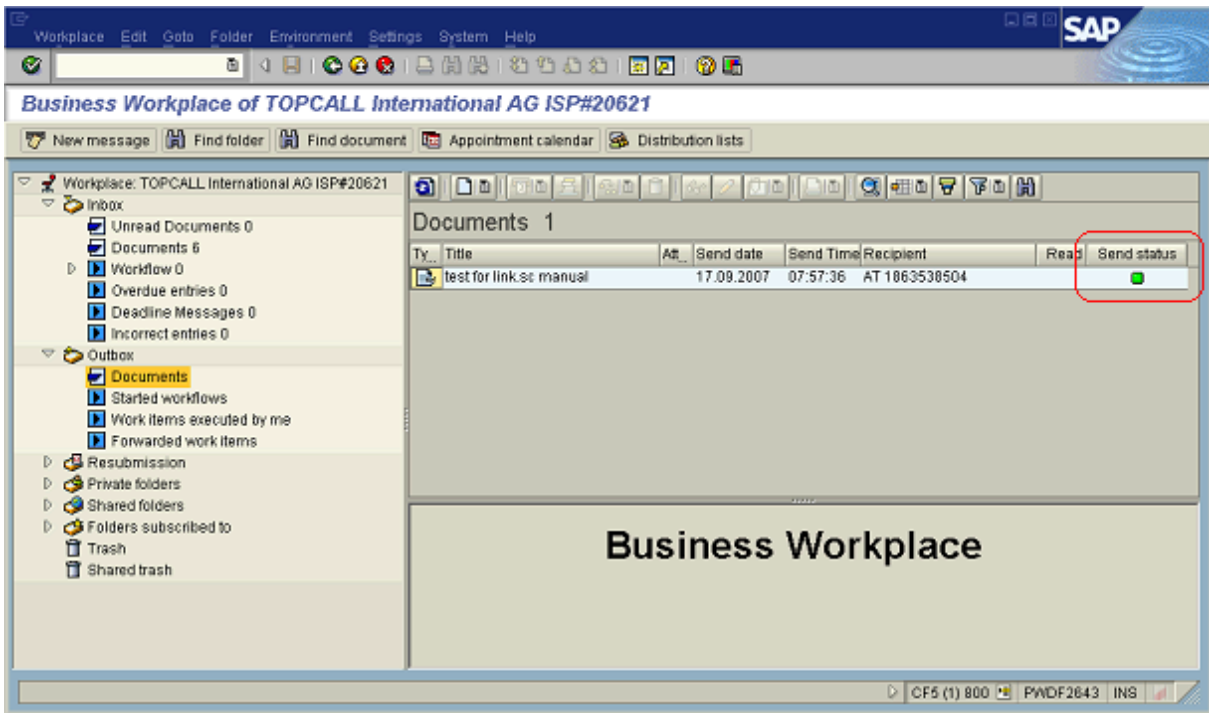
Define AddrType = “* All”, so all kind of messages will be picked up by this job run. Click **Start**.



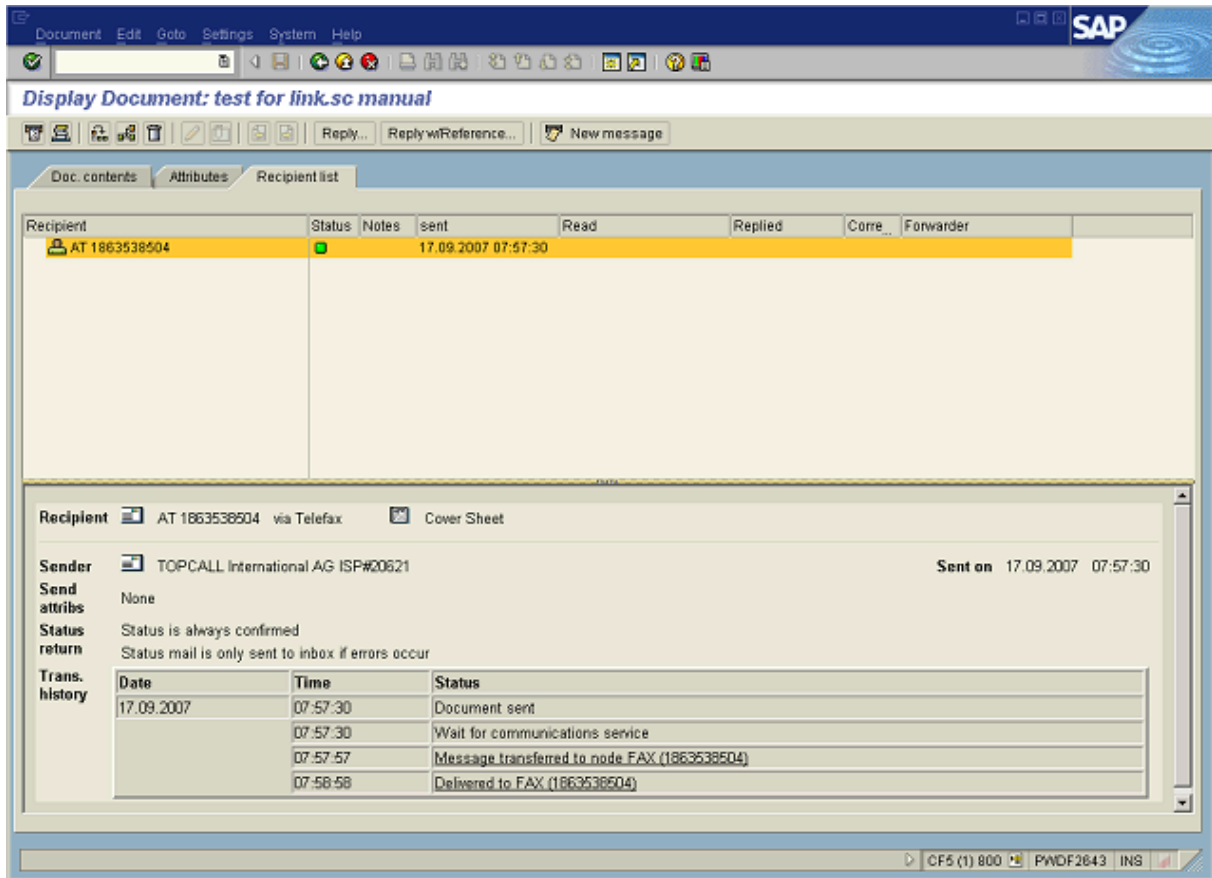
Now, the test fax is sent. To review the status of the sent message, go to **SAP Business Workplace > Outbox** (Transaction SO02)

If the message has only one recipient, then the send status is displayed in the list. (Green: sent; red: error; yellow: the send process has not picked up the message yet.)

For more detailed information double click the list entry.



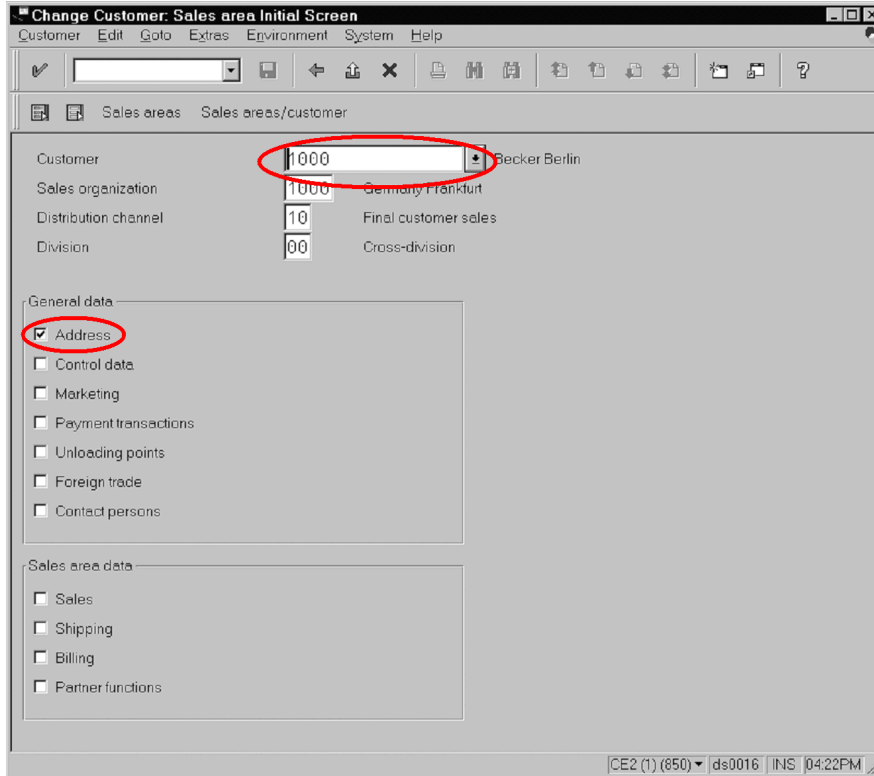
In the Recipient list tab there is a more detailed delivery history per recipient.



R/3 – Customizing: Example Faxing an Order Confirmation

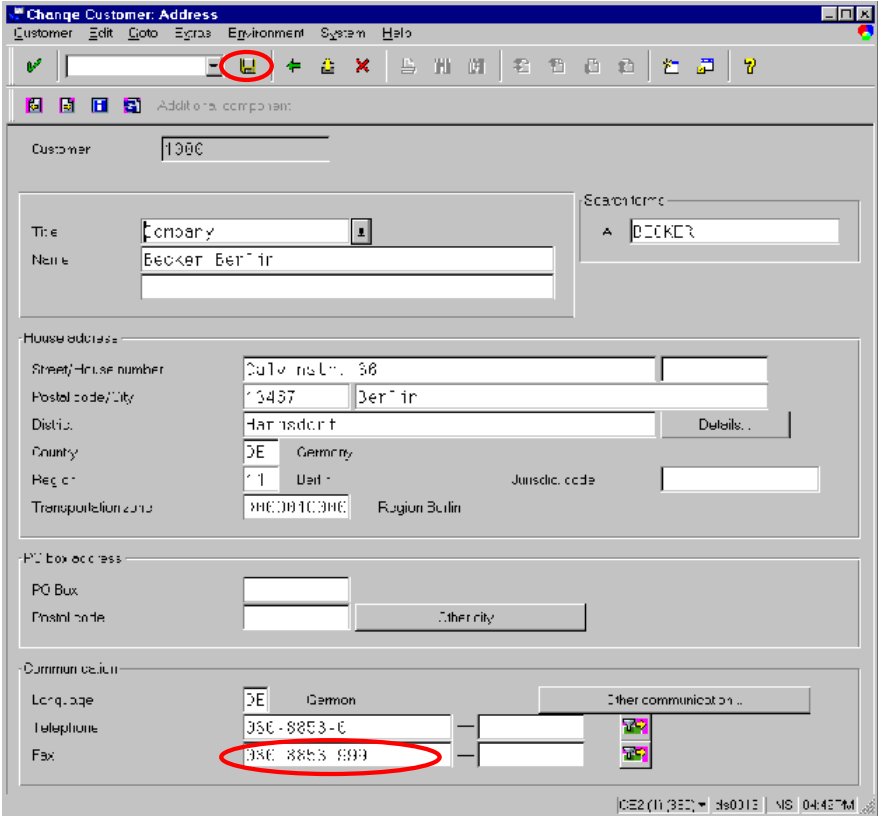
The following example is taken from the Sales and Distribution module. Although the configuration of other R/3 modules like Material Management differ from the described solution, this should give you an idea how it works.

Assigning Fax Numbers to Business Partners (1)

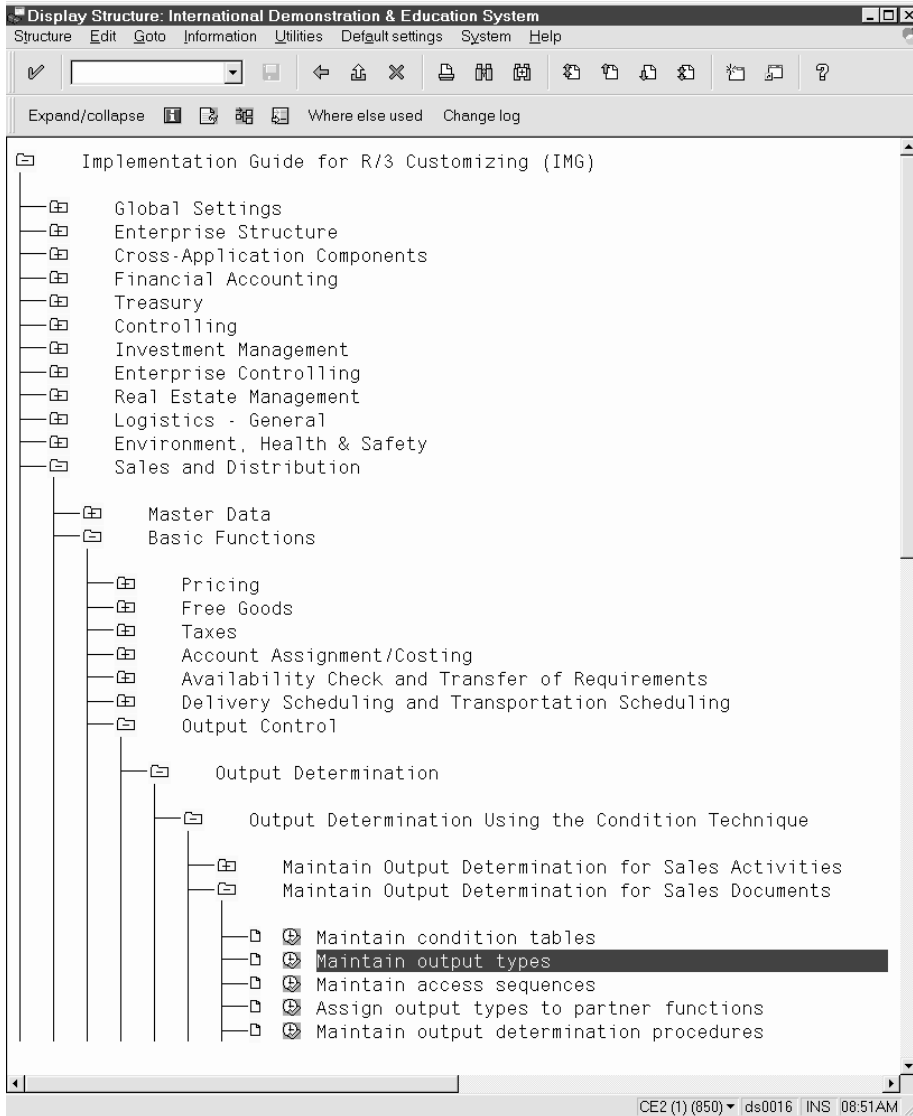


Go to: **Logistics > Sales and Distribution > Master Data, Business partners > Sold-to partyChange Change (Transaction VD02)**. Specify the Business partner you want to change and select the **Address data**.

Assigning Fax Numbers to Business Partners (2)

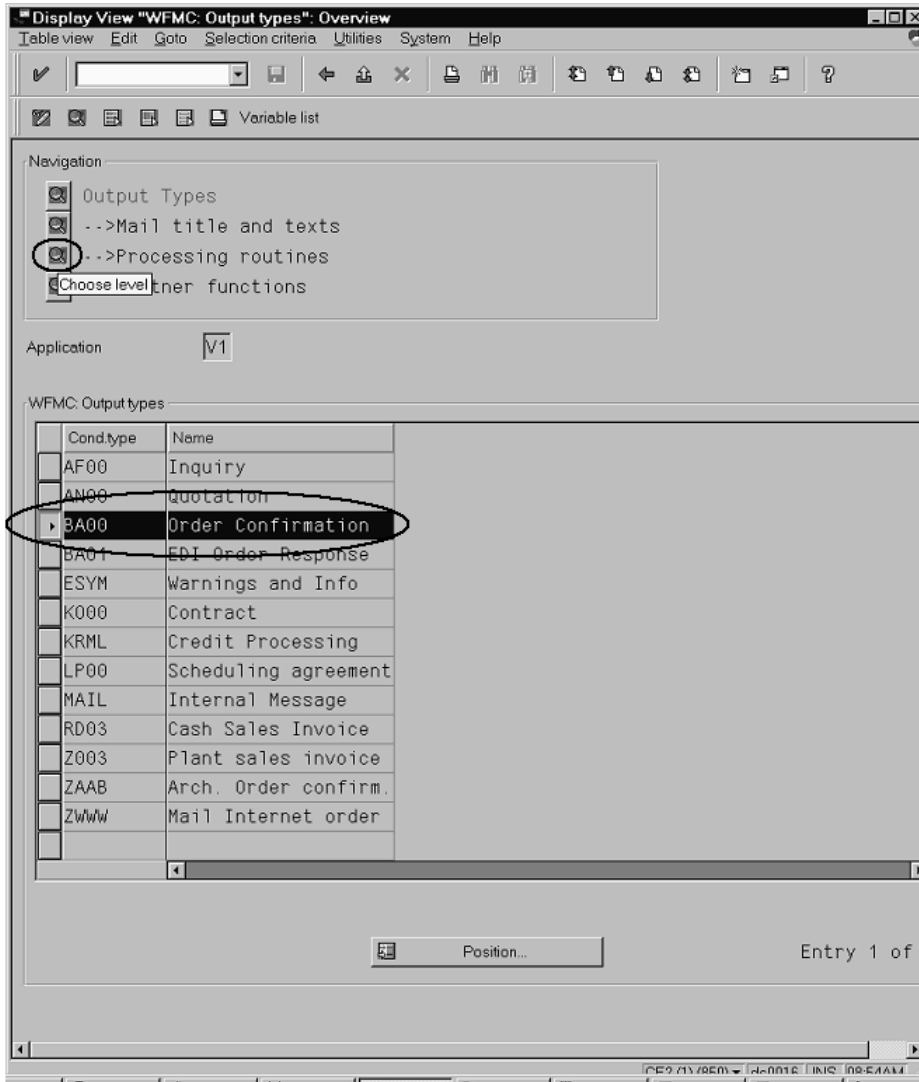


Check the Output Control Customizing (1)



- Go to R/3 Customizing: **Tools > Business Engineer > Customizing** (Transaction: SPRO)
- View the Enterprise IMG (Implementation Guide)
- Go to: Maintain Output Types (Follow the path shown in the picture above)

Check the Output Control Customizing (2)



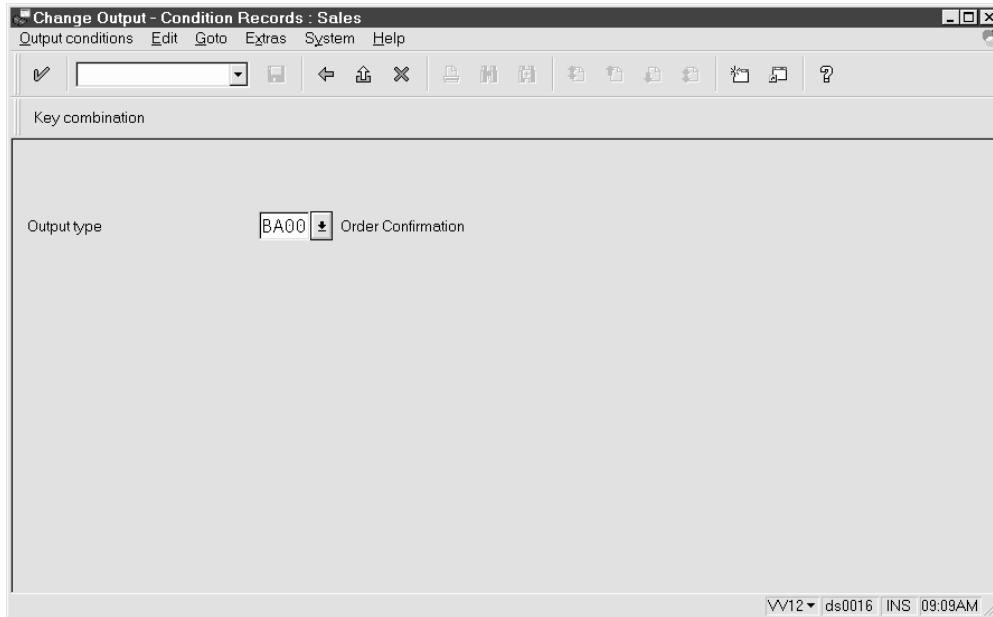
- Select the Output Type you want to check the customizing for (In our example BA00 – Order Confirmation) and go to Processing routines

Check the Output Control Customizing (3)



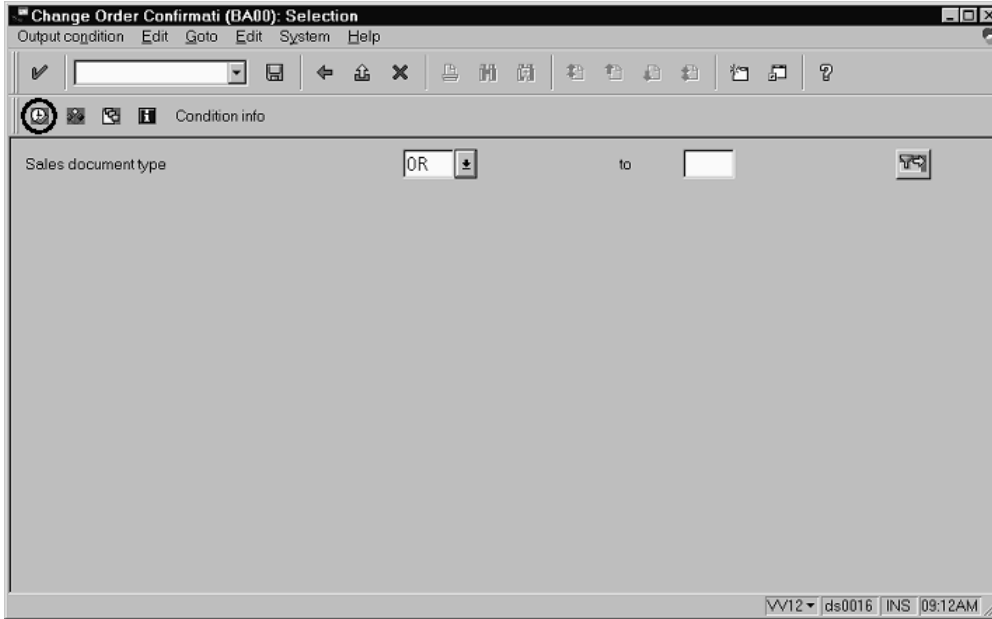
- Check if this Output Type is enabled for fax. If not, add an entry for fax.

Check Sales Master Data (1)



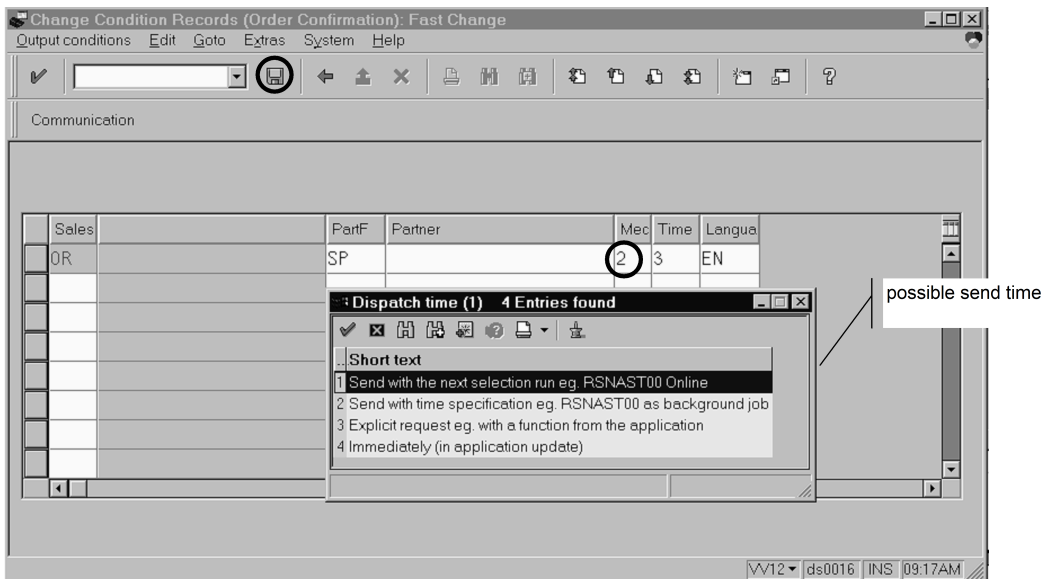
- Go to: **Logistics > Sales and Distribution > Master data; Output > Sales document > Change**
Select the respective Output Type (In this example BA00) and press Return

Check Sales Master Data (2)



- Select the respective Sales document type and press the execute button (F8)

Check Sales Master Data (3)

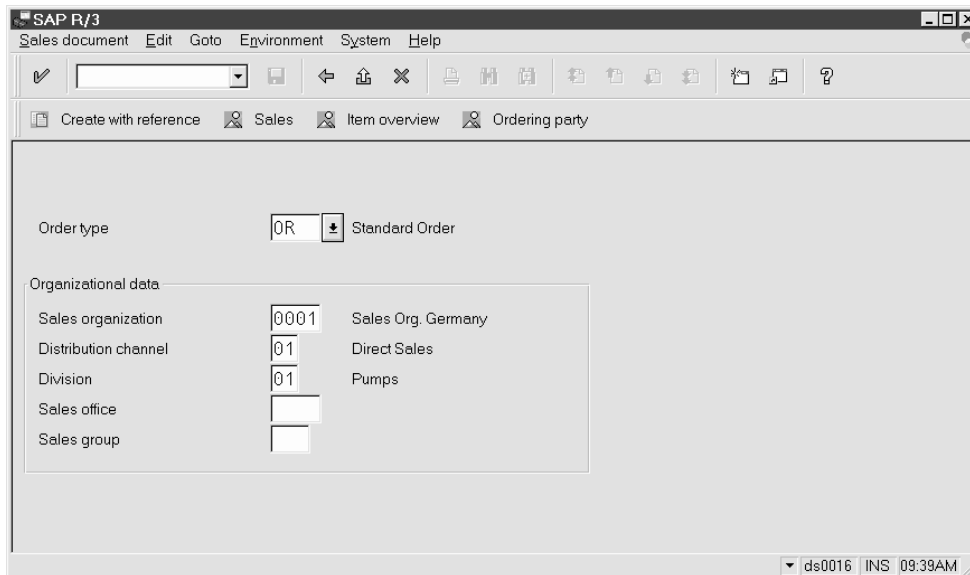


- Enter 2 (Fax) in the Medium field. Also enter the partner function, the time you want to send the faxes and the language

- Save your data

Now we have checked all the necessary settings and are ready to create a sales order.

Create a Sales Order (1)



The screenshot shows the SAP R/3 interface for creating a sales document. The window title is "SAP R/3" and the menu bar includes "Sales document", "Edit", "Goto", "Environment", "System", and "Help". The toolbar contains various icons for navigation and editing. Below the toolbar, there are four tabs: "Create with reference", "Sales", "Item overview", and "Ordering party". The main area displays the "Order type" as "0R" with a dropdown arrow and the text "Standard Order". Below this is a section titled "Organizational data" with the following fields:

Sales organization	0001	Sales Org. Germany
Distribution channel	01	Direct Sales
Division	01	Pumps
Sales office		
Sales group		

At the bottom right of the window, the status bar shows "ds0016 | INS 09:39AM".

- Go to: **Logistics > Sales and Distribution > Sales; Order > Create** (Transaction: VA01)
- Enter the respective order type; sales organization; distribution channel and division; press Enter

Create a Sales Order (2)

The screenshot shows the SAP R/3 Sales Order entry interface. The main window is titled 'Sales document' and contains several tabs: 'Sold-to party', 'Orders', 'Sales summary', 'Propose Items', and 'Reject document'. The 'Sales summary' tab is active, displaying the following data:

- Standard Order: [] Net value: 0,00 DEM
- Sold-to party: 1000 Becker Berlin / Calvinstr. 36 / D-13467 Berlin-Hermsdorf
- Ship-to party: 1000 Becker Berlin / Calvinstr. 36 / D-13467 Berlin-Hermsdorf
- PO number: TEST ORDER per FAX PO date: []

Below the main data, there are several sub-sections for order details:

- Sales** | Item Overview | Ordering party | Procurement | Shipping | Reason for rejection
- Req. deliv. date: 17.01.2000 Deliver. plant: []
- Complete delv.: Total weight: 1.000 KG
- Delivery block: Volume: 0,000
- Billing block: Pricing date: 05.01.2000
- Payment card: [] Exp. date: []
- Payt terms: ZB01 14 Days 3%, 30/2%, 45 net Incoterms: CIF Berlin
- Order reason: [] Delivery time: []
- Sales area: 1000 / 10 / 00 Germany Frankfurt. Final customer sales, Cross-division

The 'All items' table is displayed below the details:

Item	Material	Order quantity	SU	S	Description	First date	Plnt	ItCa	HgL
	10 E-1516	10	PC	<input type="checkbox"/>	Montageteile	D 17.01.2000	1300	TAN	
				<input type="checkbox"/>		D 17.01.2000			
				<input type="checkbox"/>		D 17.01.2000			
				<input type="checkbox"/>		D 17.01.2000			
				<input type="checkbox"/>		D 17.01.2000			
				<input type="checkbox"/>		D 17.01.2000			

At the bottom of the window, there are buttons for 'Availability', 'Pricing', 'Sched.lines', and 'Config.'. The taskbar at the very bottom shows various application icons, including 'Expl...', 'LINK...', 'Micr...', 'Tcd...', 'SAP...', 'SA...', 'Crea...', 'Cont...', 'Prop...', 'Mat...', and 'Micr...'.

- Enter your order data

Status Tracking – SAPoffice

Office Outbox Partner #20621 TOPCALL Internationa (Standard)

Number of entries 5

	Title	Typ	AT	SndDate	SndTime	No.	VW
<input type="checkbox"/>	RVADOR01 /20000105/143216	OTF		05.01.2000	14:32:16	1	
<input type="checkbox"/>	ggg	SCR					
<input type="checkbox"/>	DEMO	SCR		05.01.2000	10:11:26	1	
<input type="checkbox"/>	Test with binary attachment	SCR		12.08.1999	09:11:22	7	
<input type="checkbox"/>	This is a test	SCR		10.08.1999	16:37:40	8	

- The status of the document can be viewed in the outbox of the user.

Status Tracking – KCS

TOPCALL for Windows - [OUT Box / 00000258998]

Message Edit View Attach Admin Folder Window Help

Receivers: To: [] Address Book: System

To: 06030-8853-999,DE 030-8853-999,FAX:06030-8853-999

Send Options: Standard (To/Auth Priority), Standard (cc/bcc Priority), GUEST (Cost Center), Now (Send Time), All (Sending Copy), No (Registered Message)

From: SCFAX+4916613321

Sub: RVADOR01 /20000105/145140

IDES
HOLDING AG

IDES Holding AG, Postfach 1945 25, D-6070 Frankfurt

Company Becker Berlin Calvinstr. 36 13467 Berlin-Harnsdorf	Nummer/Datum 5895 /05.01.2000 Referenznummer/Datum TBEF FAX Liefertermin 17.01.2000 Kundennummer 1000
---	--

Wir liefern zu nach- und umstehenden Bedingungen: Währung DEM

Zahlungsbedingungen Innerhalb 14 Tagen 3,000 % Skonto
 Innerhalb 30 Tagen 2,000 % Skonto
 Innerhalb 45 Tagen ohne Abzug

Lieferbedingungen CIF Berlin

Gewichte (Brutto/Netto) - Volumen - Markierung
 Bruttogewicht 1,000 KG Nettogewicht 1,000 KG

Bitte beachten Sie unser beiliegendes Werbeangebot. Lieferung solange Vorrat reicht.

Pos.	Material	Menge	Bezeichnung	Preis	Preisinhalt	Wert
000010	E-1516	10 ST	Montageteile			

- Finally, the fax can be viewed in the KCS Outbox.

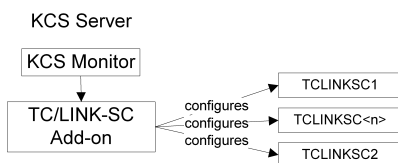
Chapter 5

KCS Monitor Add-on

This section describes the KCS Monitor Add-on.

Overview

The TC/LINK-SC Configuration Add-on enables the KCS Monitor to locally configure and duplicate TC/LINK-SC instances:



To turn on the Add-On you have to set following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\TOPCALL\TCMON\EnableConfigurationMode = 1 (REG_DWORD)
```

The TC/LINK-SC Configuration Add-on is responsible for interaction with the user and for making the changes on the local KCS Server.

The most important registry and SAPRFC.INI file entries are serviced with this tool.

The following commands are handled by the Add-on: Copy, Delete, Paste, and Properties. (see also release description of the KCS Monitor 7.12.00 (new name: KCS Monitor) for discussion about the principle concepts.)

Note

- The Add-on does not replace the setup. It needs at least one instance of the TC/LINK-SC in order to work.
- To use this add-on, when connecting to your KCS server from KCS Monitor, you must identify the server with its computer name or IP address (but not with “localhost” or “.”). If you use “.” or “localhost”, the add-on does not function and its commands are unavailable.

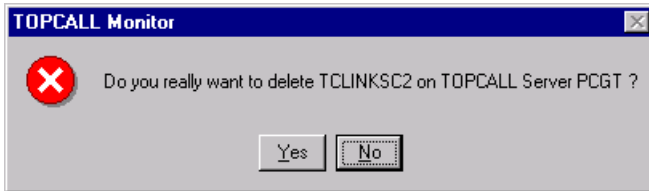
Copy Command

The copy command copies the settings of the current selected TC/LINK-SC instance to the clipboard.

Delete Command

Deletes the current selection without copy to the clipboard. The instance is irretrievably deleted.

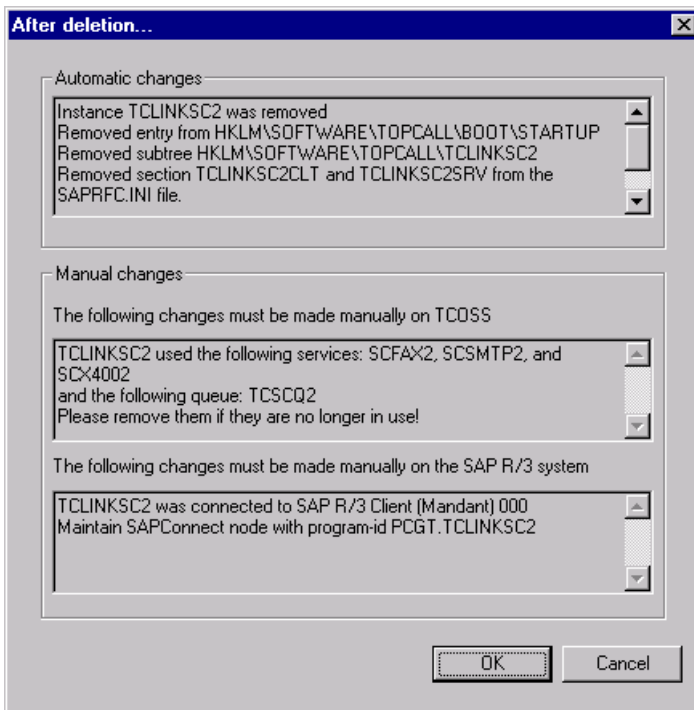
Attention: The command actually deletes the settings for the current selected instance after copying to the clipboard. Therefore the user must acknowledge this before the action is performed:



After accepting the dialog the following settings are deleted automatically:

- The entry for the instance in ..\TOPCALL\Boot\Startup is removed.
- The entries for the instance in the SAPRFC.INI are removed
- Remove the whole registry sub-tree ..\TOPCALL\<INSTANCENAME>
- The temporary directory for this instance is removed.
- The entry in the start menu is removed.

Some changes cannot be made automatically; they must be made by the administrator. Therefore, a report window shows necessary information to accomplish this:



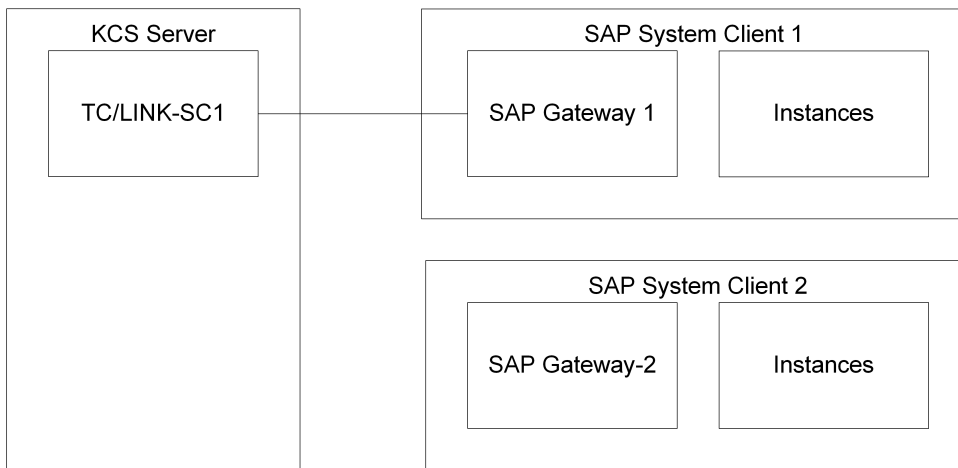
Attention: After deleting the last instance, it is not possible to create again a new instance with the Add-on.

An Event Log entry logs the deletion of the instance.

Paste Command

The paste command appends the content of the clipboard (the previously copied link instance). A wizard guides the user through the necessary changes of settings that must be different:

Situation before paste:



The first page asks about the necessary changes for the KCS settings. The values are proposed automatically generated out of the original name.

Name of instance	Used for the registry subkey name and the display name of the icon, must be unique.
------------------	---

Name of queue	KCS queue name, must be different for each instance.
Name of service	KCS Fax service name, must be different for each instance
Name of SMTP service	KCS SMTP service name, must be different for each instance
Name of X.400 service	KCS X4000 service name, must be different for each instance

The program checks if the supplied names are valid and unique.

The following pages ask the necessary information for connecting to the R/3 system.

First the logon-parameter:

Client	Client (Mandant) for R/3 system. Must be provided by the R/3 System administrator
CPI-C user	CPI-C user name for R/3 system. Must be valid for the client specified above and must be provided by the R/3 System administrator
Password	CPI-C user password. Must be provided by the R/3 System administrator

The following page asks about the necessary SAP R/3 settings for sending from KCS to the SAP R/3 system:

Create new TC/LINK-SC instance: TOPCALL->SAP R/3

Application Server:

Gateway Host:

Gateway service:

R/3 System Number:

< Back Next > Cancel

Application server	The hostname or IP-address of the application server. If the connection goes via a SAP Router a router string may be entered. The syntax is checked. Must be provided by the R/3 System administrator
Gateway Host	The hostname or IP-address of the Gateway server. If the connection goes via a SAP Router a router string may be entered. The syntax is checked. Must be provided by the R/3 System administrator
Gateway service	SAP gateway service name or TCP port number. Must be provided by the R/3 System administrator
R/3 system number	System number of the R/3 application server. Must be provided by the R/3 System administrator

Finally the settings for sending from the SAP R/3 system to KCS:

Create new TC/LINK-SC instance: SAP R/3->TOPCALL

Program ID:

Gateway Host:

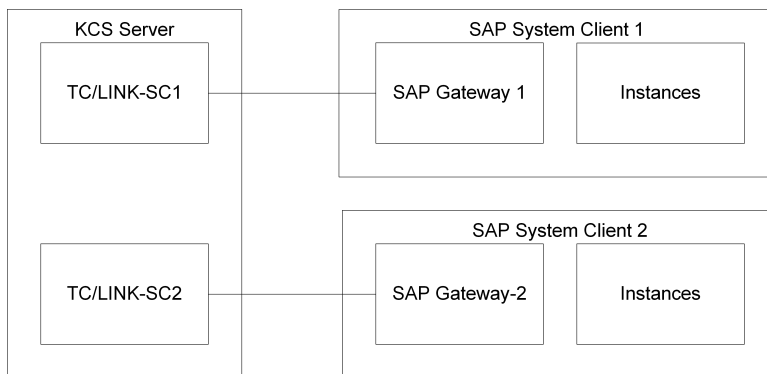
Gateway service:

< Back Finish Cancel

Program ID	With this string TC/LINK-SC registers on the configured SAP gateway. The proposed entry is local_hostname.instance_name. Attention: This string is case-sensitive.
------------	--

Gateway Host	The hostname or IP-address of the Gateway server. If the connection goes via a SAP Router a router string may be entered. The syntax is checked. Must be provided by the R/3 System administrator.
Gateway service	SAP gateway service name or TCP port number. Must be provided by the R/3 System administrator.

Only after the user finally acknowledged the settings by clicking Finish the new instance is created:



Except of the above mentioned changes all other settings are copied from the original instance.

- An entry for the new instance in ..\TOPCALL\Boot\Startup is added.
- The entries for the new instance in the SAPRFC.INI are added
- The whole registry sub-tree is copied from the original instance to the new instance
- The following parameters are changed after copying:

Parameter (Registry key)	Value
CommandLine	<Path from original instance> <instancename>
General\VirReportFile	<Path from original instance>\<instancename>.txt
TOPCALL\Queue	Taken from the wizard
Setup\CreateTCObjects	ServiceSCFax ServiceSCSMTP ServiceSCX400
Setup\CreateDependenciesTopcall	1
Setup\ServiceSCFAX\Name	Taken from the wizard
Setup\ServiceSCFAX\Prefix	<Queue name from wizard><Format character from original instance>:FAX:
Setup\ServiceSCSMTP\Name	Taken from the wizard
Setup\ServiceSCSMTP\Prefix	<Queue name from wizard><Format character from original instance>:SMTP:
Setup\ServiceSCX400\Name	Taken from the wizard

Parameter (Registry key)	Value
Setup\ServiceSCX400\Prefix	<Queue name from wizard><Format character from original instance>:X400:
SAP\RFCClient	Taken from wizard
SAP\RFCDestination	<INSTANCENAME>SRV
SAP\RFCPassword	Taken from wizard, is encrypted
SAP\RFCR3Destination	<INSTANCENAME>CLT
SAP\RFCUser	Taken from wizard
SAP\TempPath	C:\TCOSS\TCLINK\TMP\<INSTANCENAME>

- The temporary directory for this instance is created.
- The entry in the start menu is created.

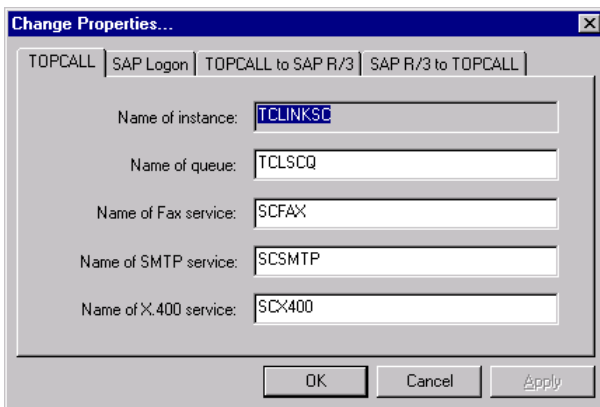
All necessary changes in the R/3 system must be made manually.

An Event Log entry logs the creation of the instance.

Properties

The TC/LINK-SC Configuration Add-on allows configuring the most important parameters with following property sheet.

Note The parameter offered are literally the same as during the paste wizard except of the instance, which cannot be changed.



Event Log Entries

The following entries ensure that all that were made with the Add-on changes are logged.

Code	Severity	Description	Parameter Description
15029	Information	The user %1 has deleted the instance %2	%1 – Windows user name %2 – Name of deleted instance
15030	Information	The user %1 has changed the RFC Client parameter of instance %2: %3	%1 Name of user %2 Name of SC-Instance %3 Changed parameter Note: All parameters which are changed are listed the following way: <Old value> -> <New value>
15031	Information	The user %1 has changed the RFC Server parameter of instance %2: %3	%1 Name of user %2 Name of SC-Instance %3 Changed parameter Note: All parameters which are changed are listed the following way <Old value> -> <New value>
15032	Information	The user %1 has changed the RFC Logon parameter of instance %2: %3	%1 Name of user %2 Name of SC-Instance %3 Changed parameter Note: All parameters which are changed are listed the following way <Old value> -> <New value> The only exception is the password for the CPI-C user. In that case it is only logged that it was changed and not the value itself
15033	Information	The user %1 has changed the TOPCALL parameter of instance %2: %3	%1 Name of user %2 Name of SC-Instance %3 Changed parameter Note: All parameters which are changed are listed the following way <Old value> -> <New value>

Chapter 6

Compatibility

Backward compatible with TC/LINK-AC. Update from TC/LINK-AC to TC/LINK-SC is possible without loss of functionality. Address formats may be different (for example Telex must be embedded with X.400 or SMTP).

Chapter 7

Performance

This section documents the performance measured with the following equipment:

KCS Server:	NT 4.0, Pentium III 600 MHz, 512 MB RAM, TCOSS 7.37.00, Model 218
Link Server:	NT 4.0, Pentium III 600 MHz, 128 MB RAM
TC/LINK-SC:	1.19.01, the only link active, no trace

Test description	Messages / hour	Pages / hour
Test 1: text msg (1 page) Mail system -> KCS	approx. 10000 (*)	
Test 2: msg with (1 page) Word attachment Mail system -> KCS	approx. 500	
Test 3: msg with 70 page Word attachment Mail system -> KCS	approx. 250	approx. 17500
Test 4: text msg (1 page) KCS -> Mail system	approx. 2200	
Test 5: fax (1 page) KCS -> Mail system	approx. 1400	

(*)The messages were sent out from SAPoffice using the Internet and Fax format. No postscript documents were generated by R/3. Other Tests have shown, that sending postscript messages to KCS, lead to a less good performance (approx. 800-1000 messages/hour). The reason for this is the conversion from postscript to a KCS readable format.

Tests 2 and 3 were made with document conversion. If it is disabled, the performance is much better. Another important point for increasing performance is the connection to the R/3 system. If it is not in the LAN, the performance will be decreased.

Parallel Links:

If it is needed, more than one TC/LINK-SC can be installed on one PC. It is recommended to do not use more than 10 links in parallel on one computer. As it is obvious more links need more CPU time, and so it slows down the overall performance, especially if the poll cycle is too low. If it is still needed to install more than 10 links, e.g., for many SAP clients, where the traffic is low, it is possible to do so.

Tests have shown that the limit is approximately 60 TC/LINK-SC on one PC. To achieve this, first you have to increase the page file size to 300-500 MB. Second you have to set in the registry key "HKLM\System\CurrentControlSet\Control\Session Manager\Subsystems\Windows" the value "SharedSection=1024,3072,512" and third you have to use TCSRVR 7.10.0.6, because previous versions were only able to start 20 processes.

Chapter 8

Restrictions

- Exact error code mapping for delivery/non-delivery notifications not supported.
- Only cover variables for message subject (\$ERef\$), recipient full name (\$Name) and originator full name (\$UName\$) are being used. The reason is that only these cover variables have their counterparts in SAPconnect interface.
- Load Balancing from R/3 to KCS only works on release 4.6x without trouble. For releases lower than 4.6 see OSS note 148471 for a workaround.
- The RFCPassword does not consist only of an even count of numbers (e.g., “2468”, “123456”).

Chapter 9

Hints

This section describes additional hints for using TC/LINK-SC.

SAP Notes (Hints)

SAP maintains an error and hints database called OSS, which provides also very useful hints for SAPconnect interface.

Some of them even describe patches for specific R/3 releases, necessary to implement to bring specific functionality to run. Every SAP R/3 customer has an access to this SAP's online database.

It is strongly recommended, that prior to the TC/LINK-SC installation the customer:

- Checks via OSS database, which hints may be applicable for the specific R/3 installation.
- Implement all necessary changes and patches to the R/3.

The table below provides the summary of SAPconnect related OSS hints available to the release date of this TC/LINK-SC manual, including note number, short description and the R/3 release range for which the specific note is applicable.

OSS Note Number	Short description	From release	Up to release
0008977	SAPoffice: External communication	30A	31I
0017194	Information about fax in R/3	040	41A
0039083	SAPoffice: X.400 send authorization value	30A	30E
0075430	SAPconnect: send in Internet is not possibly	31G	31I
0081597	Outbound SAP Forms, mail messages without effect	31G	31G
0085164	Error in fax from SAPscript via SAPconnect 3.1G/H	31G	31H
0085998	SAPoffice: Faxing WinWord documents	31G	31H
0086106	SAPconnect: Faxing from application, error XS826	31G	31H
0087784	SAPconnect: Conversion, error message	31G	31H
0089238	Incorrect trnsn. Priority fax SAPscript/SAPconnect	31G	40A
0089372	SAPconnect: Blanks in email addresses	31G	40A
0089380	SAPconnect: SAPcomm tables are checked	31G	31G
0089589	SAPoffice: external automatic forwarding	40A	40A
0089966	SAPconnect: Status mail to sender (in German)	31G	31H

OSS Note Number	Short description	From release	Up to release
0090335	Fax: No authorization for output device &	31G	31H
0090758	SAPconnect: Transmission priority is not set	31G	31G
0091485	SAPconnect: No delivery – sender is incorrect	31G	40A
0092287	SAPconnect: resending incorrect mails/faxes	310	41A
0092950	SAPoffice/SAPconnect: Fax, Internet mail, X.400	40A	40D
0096220	SAPoffice: Internet-entry – wrong recipient	31G	31H
0096252	SAPconnect, Fax: Formatting SCR/RAW documents	31G 40A	31I 40B

RFC Trace Files

During the operation of the TC/LINK-SC, the trace file “DEV_RFC” is created in the link directory and some trace outputs from SAP RFC library are being copied here. Further, some CPIC trace files may occur in the same directory. These trace outputs cannot be switched off completely with R/3 3.1G and 3.1H. It is a problem of SAP’s RFC library used by TC/LINK-SC. In all cases, the checkbox “Trace” with the RFCDestination configuration screen in the R/3 server (transaction SM59) must be deactivated (this reduces amount of traces being written but does not switch them completely off!).

This problem should be solved with R/3 3.1I.

Faxing from R/3 Applications via TC/LINK-SC

This section describes additional information about faxing from R/3 application via TC/LINK-SC.

SAP Hint 85164

With R/3 3.1H it is not possible to send faxes via SAPconnect interface and TC/LINK-SC due to the bug in the R/3 3.1H. But there is the SAP hint NR. 85164 available, that solves this problem.

This problem should be solved with R/3 3.1I.

Problems with Blanks Within SMTP and X.400 Addresses

With R/3 3.1H blanks within X.400 and SMTP addresses are suppressed. Thus it is not possible for example to embed MS Exchange or Lotus Notes addresses containing blanks into X.400 or SMTP address if sending via TC/LINK-SC.

Please refer to the SAP hint NR. 89372.

TC/LINK-SC Restart Behavior

If the connection to SAP System is broken (RFC Server loses its connection), e.g., SAP Router is stopped, TC/LINK-SC retries first immediately.

Then after 10 seconds, after 1 minute, after 3 minutes and finally 6 times each 10 minutes. Afterwards the link is stopped assuming that there are severe connection troubles.

It is only possible to send a message from SAP R/3 after successful re-logout (In SAP terms after TC/LINK-SC has registered itself).

So if the connection to SAP is re-established, the RFC Client can send successfully to SAP but the RFC Server has to wait for its re-registration.

SAP Job RSCONN01 Hangs

To avoid the problem described in error-13066 and error-13571 (“SAP job RSCONN01 hangs when sending a large number of outbound FAX messages via TC/LINK-SC in a KCS tandem environment”) set the following registry key to 1.

...TCLINKSC\SAP\RFCNewCallingMethod (DWORD) =

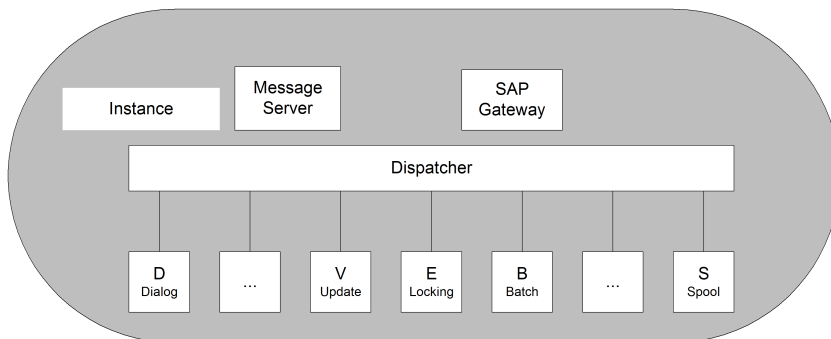
0 – original RFC calling method (default)

1 – modified RFC calling method

R/3 Concepts

The following sections explain some the main concepts of the SAP R/3 system.

R/3 Instance (Central System)



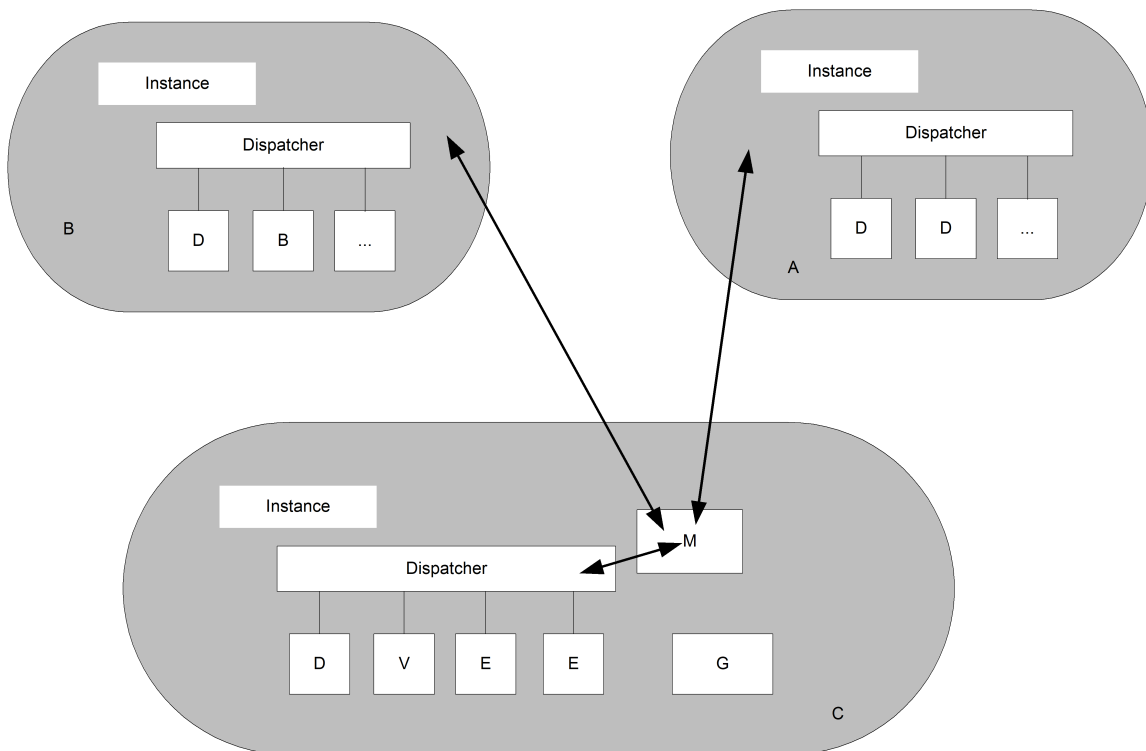
An instance is an administrative unit combining components of the R/3 system that offers one or more services. The services offered by an instance are started or stopped together. All components of an instance share a common instance profile.

A central R/3 system consists of one single instance offering all necessary SAP services

A complete R/3 system offers the following application services:

-Dialog processing	(D)
-Update	(V)
-Lock management (Enqueue/Dequeue)	(E)
-Background processing (Batch)	(B)
-Message	(M)
-CPI-C Gateway	(G)
-Spool	(S)

Possible Distribution of the Application Level



A central system can easily be expanded to a distributed system by adding more instances that supply certain services.

The example shows the installation of an additional dialog server (A), a background processing server (B) and a gateway server (C). These instances, which offer specific services normally run on their own computers, can also run on the same computer, as the example of the gateway server shows.

The message server provides a central message service to the other R/3 application services for internal communication.

Presentation machines (where the SAP GUI runs) are logged on to an application server by the message server. The performance database can be used for automatic load distribution.

Each application server logs on at the message server with a unique name. Each application server knows the names of the servers on which update, enqueue, background processing, and spool services run, and activates these by supplying the address to the message server. Application servers can exchange short internal messages via the message server (such as initiating an update, requesting or releasing a lock, executing requests)

The gateway service is used for communication with external systems. The TC/LINK-SC is such an external system and is thus connected via the gateway service to the SAP R/3 system.

The SAP Client Concept (“mandant”)

The client concept allows to operate a SAP system for multiple, independent enterprises. This allows for example to have three different SAP clients on one actual SAP Server.

One would be used for development, one for testing and one for the production. Each of them works independently, so that changes which are made in the development department do not interfere with the production system. In fact this is the situation in most companies.

Route Strings

A route string describes a connection required between two hosts using one or more SAProuters. Each of these SAProuters then checks its Route Permission Table to see whether the connection between its predecessor and successor is allowed, and if it is, sets it up.

A route string contains a substring for each SAProuter and for the target server.

Each substring contains the information required by SAProuter to set up a connection in the route: the host name, the port name, and the password, if one was given.

Syntax for Release <4.0A

A route string has the syntax:

```
(/H/host/S/service/P/pass) *
```

It consists of any number of substrings in the form

```
/H/host/S/service/P/pass
```

Attention: H, S, and P must be uppercase!

- /H/ indicates the host name or IP address
- /S/ is used for specifying the service (port); it is an optional entry, the default value is 3299

- */P/* indicates the password for the connection between the predecessor and the successor; it is an optional entry, the default value is ""

Syntax for Release 4.0A or Higher

A route string has the syntax:

```
(/H/host/S/service/W/pass) *
```

It consists of any number of substrings in the form

```
/H/host/S/service/W/pass.
```

Attention: H, S, and W must be uppercase!

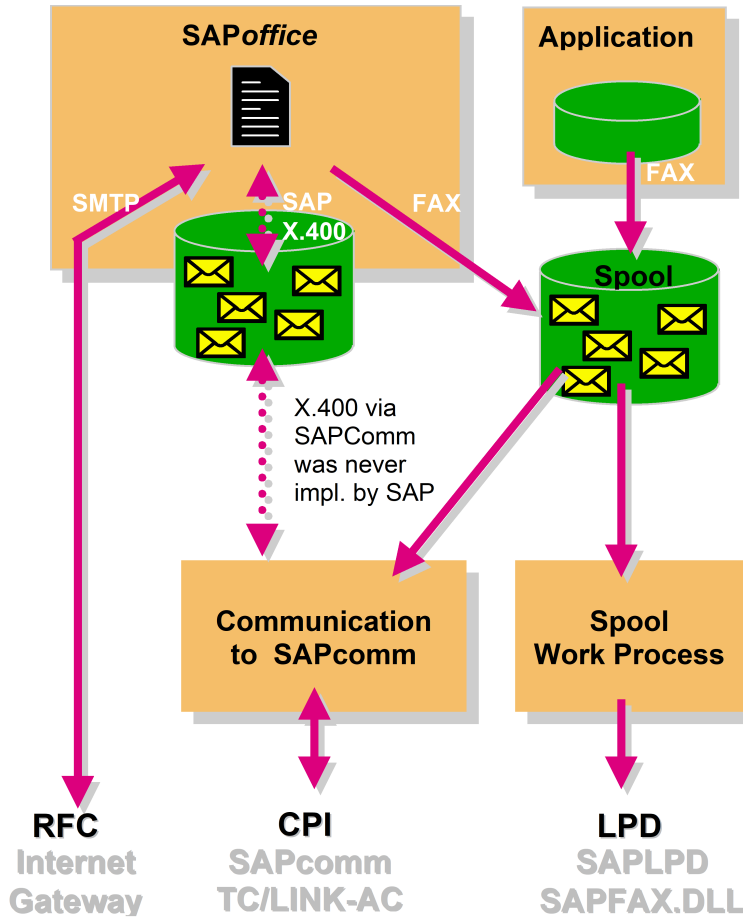
- */H/* indicates the host name or IP address
- */S/* is used for specifying the service (port); it is an optional entry, the default value is 3299
- */W/* indicates the password for the connection between the predecessor and successor on the route and is also optional (default is "", no password). In earlier Releases (<4.0A), the password entry was made one substring later and with the letter */P/*.

Due to downward compatibility, the older syntax is still possible.

SAP Interfaces

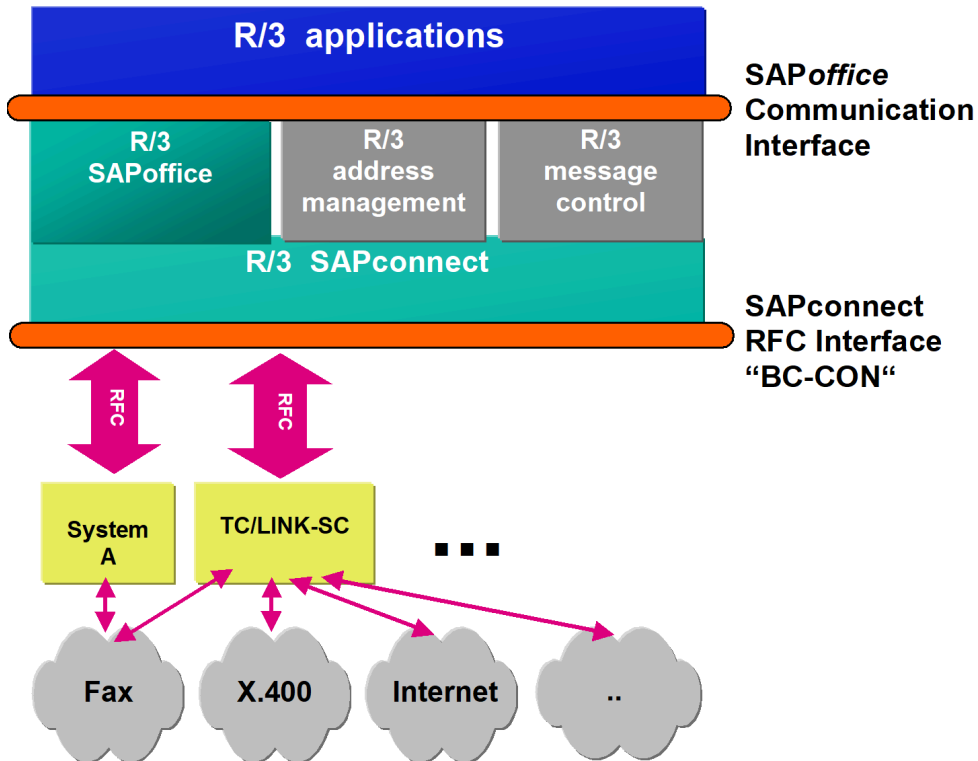
The following definitions of interesting SAP Interfaces are partly taken from the "SAP Interface Adviser"-CD, which is available from SAP free of charge.

SAPComm – The “Old” Solution for Messaging



As explained in the diagram above, SAPComm is connected to the SAP Spool system and therefore all status information can be seen there.

SAPconnect – The “New” Solution for Messaging



The **SAPoffice Communication Interface** allows R/3 applications to create and send messages. It also makes it possible for SAP Applications to lookup the current transmission status of these messages at any time.

Furthermore the SAP Application can be enabled to receive messages and handle them in an appropriate way.

SAP R/3 applications can generate and submit messages to the SAPoffice Communication Interface in several ways:

- Applications can call SAPscript, specifying a recipient's communication address instead of the usual act of specifying a printer's name. In that case SAPscript will feed the SAPoffice Communication Interface instead of printing the document to the spool. This method is supported for compatibility reasons, there are restrictions in the support of new features of this interface (compound documents, multiple recipients, etc.)
- Applications can use SAPscript for document formatting purposes only, and afterwards call the SAPoffice Communication Interface by itself. In that case the application has full control to all new features of this interface. This is the recommended method if the document content is automatically created by the application.
- Applications may directly pass documents to the SAPoffice Communication Interface. This is the appropriate method if the document content has been formatted by the application itself, or has a non-R/3 specific format (e.g., MS Word, etc.).

The **SAPconnect RFC Interface** is designed to plug-in external systems to the SAP R/3 Business Communication module.

SAPscript Raw Data Interface (RDI)

Using the SAPscript Raw Data Interface (RDI), you can connect external text management systems to control individual requests, for example, optimizing postage expense. The interface contains all form data from the R/3 System, but no layout information such as font or page size. The external system alone is responsible for the layout and administration of the document data. The RDI is of special importance for mail processing. The external system sorts the document data from the interface and forwards the documents accordingly.

The Raw Data Interface is a certifiable interface and allows easy connection to external systems. However, you pay the price for this extra function, as you lose tight integration with the R/3 System. For example, you cannot find out from within an R/3 application whether the external system successfully printed and sent the documents. In addition, extra expense is incurred each time you adapt a standard form, since the system has to adapt both an internal and external form. The external tool is not an integral part of the ABAP Development Workbench, so that field information (field type, output length and so on) from the ABAP Dictionary is not available.

Note This interface is not used by KCS.

Output Management System – (BC-XOM)

The OMS interface is an open, generic interface to the R/3 spool system for external output management systems (OMSs). The OMS interface allows an efficient and well-integrated coupling of the R/3 spool system with an external output management system (OMS).

This interface provides a reliable feedback channel. The OMS can return detailed job status information back to the R/3 system that can be viewed by the R/3 end user using transaction SP01. The kind and amount of status information is not specified by the interface. What information is available at the R/3 level depends of the features of the output management system using this interface. At least (specified by the interface description) job completion information has to be returned telling the R/3 system whether the job has been successfully printed or not.

There are two flavors for the feedback channel:

- The polling interface can be used as an easy way to return status information to the R/3 system. This flavor acts like access method 'L' and the 'lpstat' command, but the output format of the polling command is specified by SAP and allows to return detailed job and device specific status information. As with access method 'L' the polling is still done by the spool work process.
- The callback interface can be used as an sophisticated way to return status information in time when it happens without requiring polling done by the spool work process. The information is actively sent to the R/3 system using an RFC interface.

Note This interface is not used by KCS

Archive / Imaging Software (SAP ArchiveLink)

SAP ArchiveLink is a component of the R/3 System to link optical archives and document management systems with SAP's R/3 System.

It is a general, cross-application interface providing R/3 business applications with archive functionality. The interface is based technically on SAP's RFC (Remote Function Call) and supports the following functions:

- Archiving and displaying of scanned documents
- Forward-looking Workflow Management
- Archiving, display and retrieval of SAP print lists, outgoing documents and archiving data

Additional components can be connected at the front-end via OLE, AppleScript and command line calls, depending on the document class concerned. As a reference to the respective archive object, the partner's archive system transfers a unique document ID to the SAP R/3 System. It is maintained with all the other attributes in R/3. SAP ArchiveLink manages the entire communication with the archive system; there is no need for costly custom programming.

Note This interface is not used by KCS.

Chapter 10

Troubleshooting

If any problems encounter during TC/LINK-SC operation, TC/LINK-SC writes corresponding events into Windows event log, including information about possible reasons and actions to cure the problem without the need to activate system traces to locate the problem.

There are three categories of event log entries: information, warning and error (for details please refer to the TC/LINK manual).

For TC/LINK-SC troubleshooting it is recommended:

- Always check Windows event log if any problem occurred, if corresponding entry found try to solve the problem according to proposed actions.
- Activate the RFC traces on the R/3 side (transaction SCOA) for additional information.

In the following the summary of typical problems is listed, that may occur during TC/LINK-SC operation.

1. TC/LINK-SC starts and terminates immediately

TC/LINK-SC cannot connect to KCS server, or cannot register at SAP gateway. The reason for this problem can be found in the event log entry. In the case of R/3 (RFC) problem, check the RFC error string in the event log, especially its LOCATION and ERROR parts. It should provide enough information for SAP System Administrator to find out the problem. Check again the connection parameters in the file SAPRFC.INI in the link directory (for detailed description of SAPRFC.INI, see [RFC Connection Parameters \(SAPRFC.INI File\)](#)).

RFC error string example

```
KEY=RFC_IO5 STATUS=CODE=CM_PRODUCT_SPECIFIC_ERROR STATUS=??? DATA=??? ID=???
MESSAGE=LOCATION SapRouter on sapgate1 ERROR connection to partner
broken TIME
Mon Feb 2 14:33:09 1998 RELEASE 40A COMPONENT NI (network interface) VERSION
23 RC -95 MODULE niuxi.c LINE 857 DETAIL NiPRead SYST
INTSTAT=IO
HANDLE=2 DRV=EXT LINE=316 CODE=5
```

2. RFC Communication Test from R/3 (transaction SM59) fails

TC/LINK-SC does not run, runs but has registered at the wrong/another SAP gateway or has registered with wrong/another Program Id (case sensitive!). Verify the RFC connection parameters in the file SAPRFC.INI (especially lines GWHOST=, GWSERV=, and PROGID=) and within R/3 (transaction SM59).

3. Sending a message from SAPoffice breaks with “Transmission failed”

No connection with TC/LINK-SC – perform the RFC Communication test, R/3 transaction SM59 (see step 2)

4. Message sent from SAPoffice remains at “Sent” status.

The message has not been sent to TC/LINK-SC yet. Check if the send process for corresponding address type (FAX, INT or X400) is running (R/3 transaction SCOA). If not, start it manually or schedule for background operation.

5. Message sent from SAPoffice remains at “Transferred to node” status

Message has already been transferred to TC/LINK-SC, but the notification from KCS has not arrived yet.

Check the message on KCS server with TCfW Communication Server Client.

If the send order is still on the “waiting” status, it was probably sent with “send at night” send class from R/3 (check its send time and date). If so re-send the message with send class “send immediately”.

If KCS has already done some send retries and there are still some open retries, probably the recipient is wrong and KCS will send the delivery/non-delivery notification later.

If the send order is already completed (ok or inactive, problems), check the status of notification send order to TC/LINK-SC, especially its “Response” field.

If there is “SYSTEM_FAILURE”, the R/3 CPIC user used for TC/LINK-SC is wrong. Check this user with R/3 transaction SU01, and also corresponding TC/LINK-SC registry settings: SAP\RFCClient, TCLINKSC\SAP\RFCUser and TCLINKSC\SAP\RFCPassword.

If there was no notification send order at all, KCS has not sent any notification to R/3 originator. Check if registry key TCLINKSC\SAP\TCDelNotifAlways is set to 1 (for details see [Notifications](#)).

If the notification was sent to (any) KCS user instead of to TC/LINK-SC, you either defined KCS shadow user without proper delivery/non-delivery in-actions, or TC/LINK-SC accidentally recognized this KCS user as shadow user by its address mapping facility. Check KCS UserId and proxy addresses of this user and refer to [Addressing from KCS to SAPoffice](#).

6. Sending a message from KCS to R/3 breaks with an error code

Check the “Response” field of the send order. Refer to section [Summary of Error Conditions](#) for all possible error conditions that may occur on sending a message from KCS to R/3.

The most typical one will be “Recipient not found” – R/3 recipient’s FAX, SMTP or X.400 address was wrong/not exist within R/3. Assign proper addresses to R/3 users with R/3 transaction SO12. If the response was “SYSTEM_FAILURE”, the R/3 CPIC user used for TC/LINK-SC is wrong. Check this user with R/3 transaction SU01, and also corresponding TC/LINK-SC registry settings: TCLINKSC\SAP\RFCClient, TCLINKSC\SAP\RFCUser and TCLINKSC\SAP\RFCPassword.

7. With multi-instance TC/LINK-SC operation, one message sent from SAP R/3 is being sent (e.g., faxed) by KCS for several times

Several TC/LINK-SC instances running on the same link server and serving different R/3 clients and/or R/3 instances, share the same temporary directory. Please check registry key TCLINKSC\SAP\TempPath for all TC/LINK-SC instances – they must be different!

8. SAP RFC timeout causes double (multiple) sending from TC > SAP

The registry setting <link>\SAP\RFCTimeout must be set properly. If this value is too small, then timeout can occur before SAP returns the (synchronous) response to a TC -> SAP message transfer. This causes TC/LINK-SC to resend the message to SAP, because the result of the previous message transfer is not known on the TC/LINK-SC side. If the result of the previous message transfer was actually OK, then this resending will result in multiple transfer of the same message.

Chapter 11

Setup Checklist

KCS Server CPU number 1)	
Link Server CPU number	
KCS version	
Link Server license or TC/LINK-XX license 1)	Key: Expire Date: Registrations:
Postscript license 1) (optional)	Key: Expire Date: Registrations:
PCL5 license key (optional)	Key: Expire Date: Registrations:
GIF license key (optional)	Key: Expire Date: Registrations:
KCS Server Name	
Link Type to TOPCAL Server, transport type PRC or Native	
Secondary KCS Server Name (for tandem servers only)	
Link Type to secondary KCS Server (for tandem servers only)	
KCS Link User Name	
KCS Link User Password	
Win TCDCEXE User Name (foreground TCDC only)	
Win TCDCEXE User Password (foreground TCDC only)	
Win TCDCEXE User Domain (foreground TCDC only)	
Program Id for registration at SAP gateway	
Route String to SAP gateway	
SAP gateway's TCP port or service	
Route String to R/3 application server	
R/3 system number	
R/3 CPI-C user : Client (in German "Mandant")	
R/3 CPI-C user : User	

KCS Server CPU number 1)	
R/3 CPI-C user: Password	

1) For TCOSS < 7.08 in combination with TCOSS tandem servers these licenses have to be entered for both CPU numbers of the primary and the secondary TCOSS server.

Setup Checklist Example

KCS Server CPU number 1)	
Link Server CPU number	
KCS version	
Link Server license or TC/LINK-XX license 1)	Key: Expire Date: Registrations:
Postscript license 1) (optional)	Key: Expire Date: Registrations:
PCL5 license key (optional)	Key: Expire Date: Registrations:
GIF license key (optional)	Key: Expire Date: Registrations:
KCS Server Name	
Link Type to KCS Server, transport type PRC or Native	
Secondary KCS Server Name (for tandem servers only)	
Link Type to secondary KCS Server (for tandem servers only)	
KCS Link User Name	From TCOSS 7.22 on this user is automatically created during initial KCS installation with password "TCLINK". Please refer to TC/LINK manual for detailed information
KCS Link User Password	
Win TCDCEXE User Name (foreground TCDC only)	
Win TCDCEXE User Password (foreground TCDC only)	
Win TCDCEXE User Domain (foreground TCDC only)	
Program Id for registration at SAP gateway	E.g., SAPGW.TCLINKSC Example see Easy Installation
Route String to SAP gateway	Must be provided by SAP System Administrator. Example see SAProuter and Route String ,RFC Connection Parameters (SAPRFC.INI File) , SAPconnect: Parameters Summary for TC-LINK-SC

KCS Server CPU number 1)	
SAP gateway's TCP port or service	Must be provided by SAP System Administrator. E.g., sapgw00 Example see Easy Installation
Route String to R/3 application server	Must be provided by SAP System Administrator. Example see SAProuter and Route String ,RFC Connection Parameters (SAPRFC.INI File), SAPconnect: Parameters Summary for TC-LINK-SC
R/3 system number	Must be provided by SAP System Administrator. E.g., 00 Example see Easy Installation
R/3 CPI-C user : Client (in German "Mandant")	Must be provided by SAP System Administrator. E.g., 850 Example see Easy Installation
R/3 CPI-C user : User	Must be provided by SAP System Administrator. Example see Easy Installation
R/3 CPI-C user: Password	Must be provided by SAP System Administrator. Example see Easy Installation

1) For TCOSS < 7.08 in combination with TCOSS tandem servers these licenses have to be entered for both CPU numbers of the primary and the secondary TCOSS server.