Functions in Detail

FLM Release 260

Table of Contents

Setting Up Authorisation Checks For FLM Forms

This section describes the authorization checking functionality within FLM, and describes how to set up this functionality.

1.1 Overview
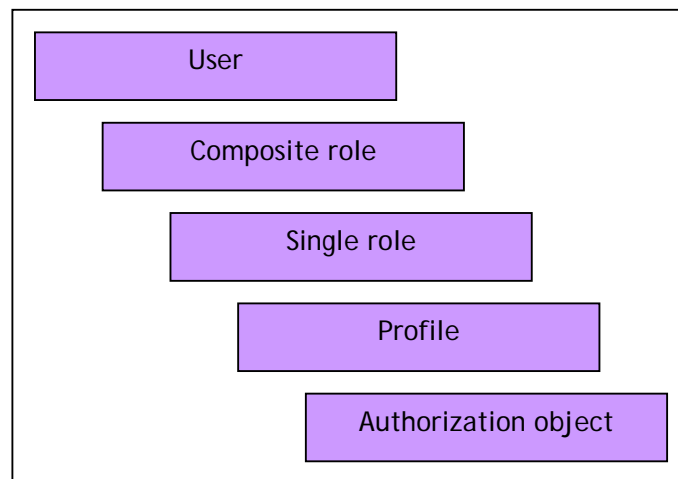
In SAP, each user's authorization can be defined with reference to a composite role, single roles, and profiles. The object to be checked is an 'authorization object', and is made up of authorization fields that the system will need to use in the check. FLM is delivered with authorization checking code and the authorization fields, but the set-up of the users, roles, profiles and objects will be different in each implementation.

1.2 Authorization Fields

Three authorization fields are delivered as part of FLM:
- o /FLM/CUST   *Customer*
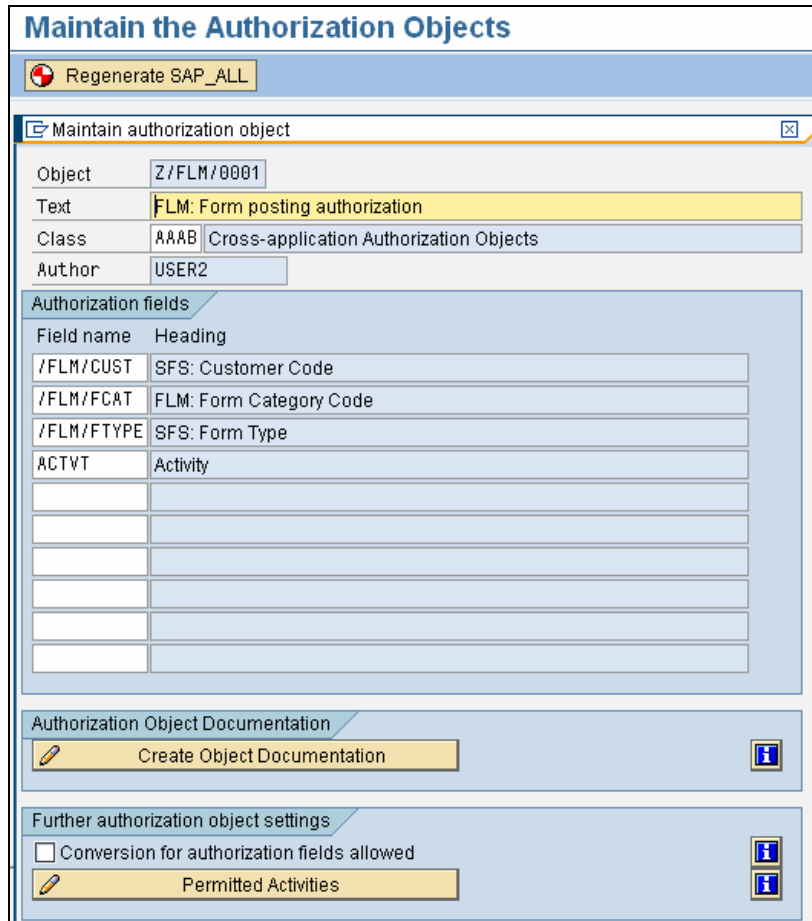- o /FLM/FTYPE   *Form type*
- o /FLM/FCAT   *Form category*

These three authorization fields, along with the standard field ACTVT, must be included in the authorization object.

1.3 Authorization Object

FLM is not shipped with an authorization object. Part of the installation process involves the creation of authorization object 'z/flm/0001'.

1.3.1 Creating an Authorization Object

- o Transaction RSU21_NEW or menu path 'Tools->ABAP Workbench->Development->Other tools->Authorization objects->Objects'
- o Choose the pushbutton for create authorization object.
- o Enter the following:
  - Object: 'z/flm/0001'
  - Text: 'FLM: Form posting authorization'
  - Class: 'AAAB'
  - Field name: /FLM/CUST
  - Field name: /FLM/CAT
  - Field name: /FLM/FTYPE
  - Field name: ACTVT

Maintain the Authorization Objects

Field name	Heading
/FLM/CUST	SFS: Customer Code
/FLM/FCAT	FLM: Form Category Code
/FLM/FTYPE	SFS: Form Type
ACTVT	Activity

Object: Z/FLM/0001
Text: FLM: Form posting authorization
Class: AAAB Cross-application Authorization Objects
Author: USER2
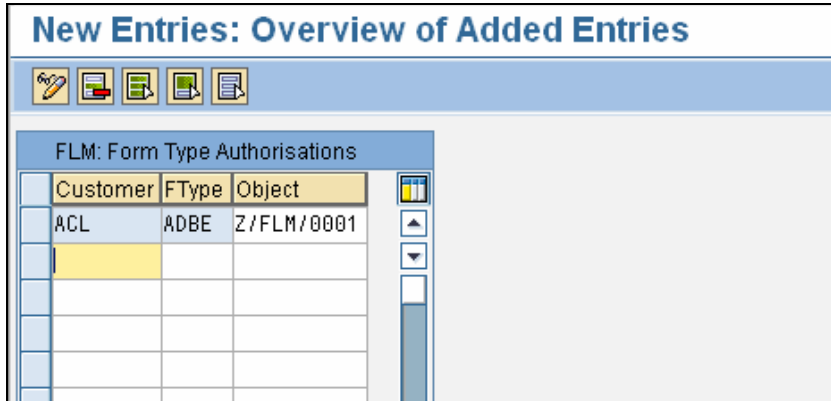
- o Select pushbutton to maintain the permitted activities.
- o Select options '01', '02', '03' and '10' only. Save,
- o Select pushbutton to create documentation, then save
- o Save the authorization object.
- o Finally we need to regenerate the SAP_ALL profile in order to include the new object. Use the pushbutton 'Re-generate SAP_ALL' on the top of the front screen for transaction RSU21_NEW.

1.3.2 Linking the Authorization Object to FLM forms

Table /FLM/FTYPE_A stores the authorization object for each form. Typically just one authorization object will be sufficient for all the forms, so the same object will appear for all forms. This table is available through the IMG or through transaction SM30.
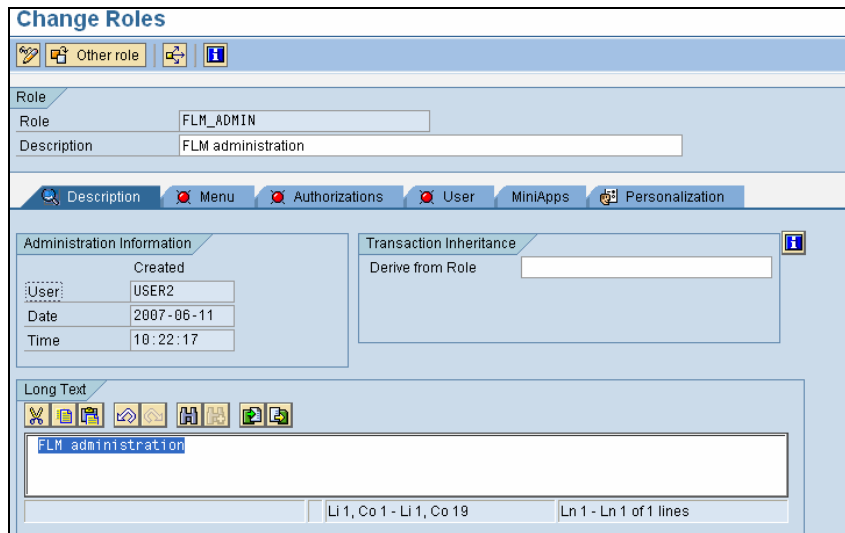
1.4 Roles

There are various ways of linking the authorization object to user ids using roles and profiles. In this section we describe one method, using a 'single role' and a 'generated profile'.
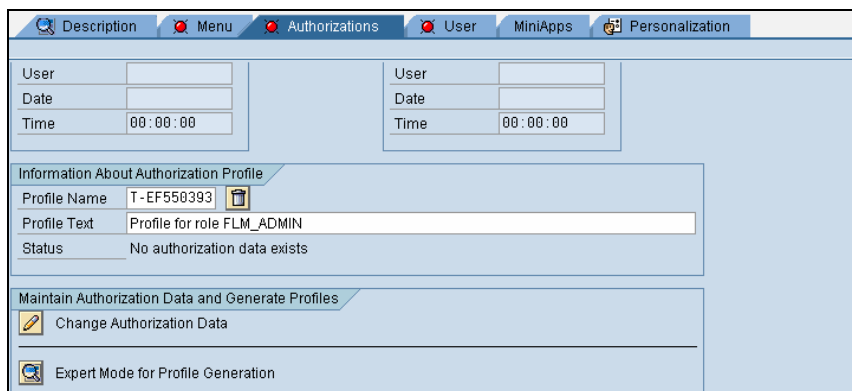
1.4.1 Creating an FLM Admin Role

We need one role for FLM administration
  o Select the menu path 'Tools->Administration->User Maintenance->Role Administration->Roles.'
  o Enter role name 'FLM_ADMIN' and choose the 'Single Role' pushbutton.
  o Enter the role description then Save

o Select the Authorizations tab
o Select the 'Propose Profile Names' pushbutton, and a profile name is generated automatically. Save.

o Select the Change Authorization Data pushbutton. A pop-up window is displayed. Select the 'Do not select templates' pushbutton.
o Now select the 'Manually' pushbutton, and enter the authorization object 'Z/FLM/0001'.
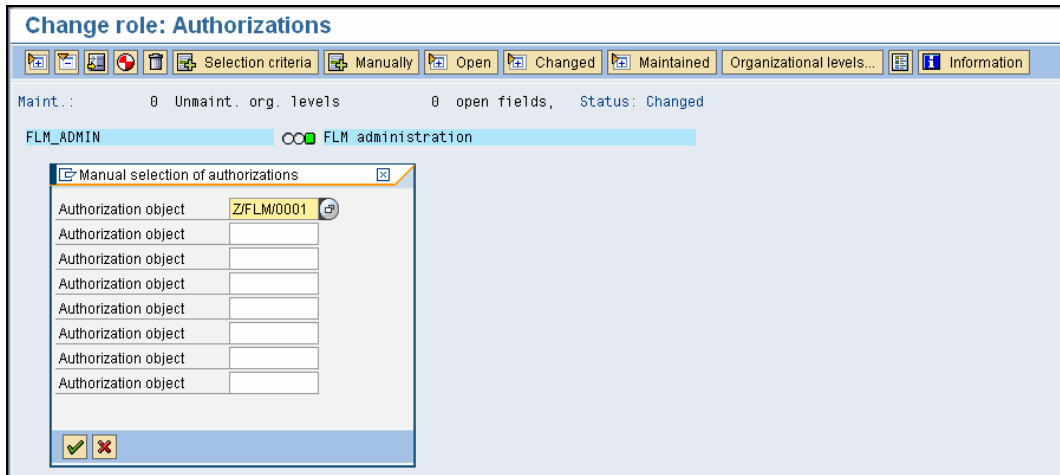
- o Expand the hierarchy and then enter values for each field: select the '*' symbol in order for this role to include all form types, categories and activities.
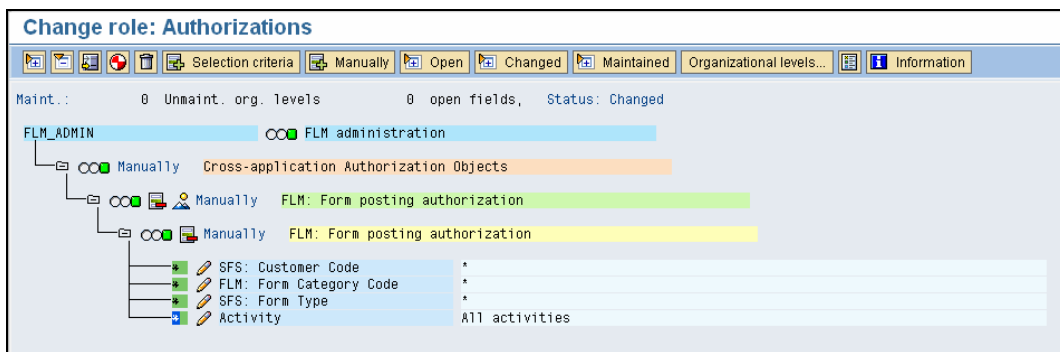
- o Generate.
- o Role FLM_ADMIN is now ready to be linked to user records.

1.4.2 Creating Form User Roles

Follow the same steps as for setting up the FLM_ADMIN role, but in the final step, limit the role by form category or form type. If the user only submits forms but cannot change submitted forms then select activity 01 but not 02.
If the user can post forms in FPE and display them, but not submit or approve forms, then choose activities 03 and 10 but not 01 or 02, etc.
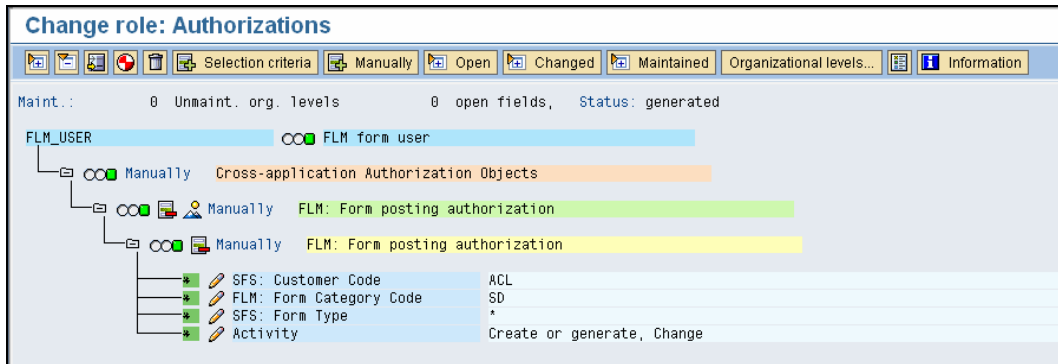
1.4.3 FLM Portal Role

Each user who is to be able to access Adobe forms via the FLM Portal *must* be assigned the role FLM_PORTAL_USER. This role doesn't not have to contain any particular authorisations, but must be generated and assigned to the user.

1.5 User Masters

1.5.1 Roles

Once the roles and profiles have been created, it is necessary to link the roles to the user master records as normal.
This can be achieved on a user-by-user basis, or by adding the FLM roles to existing composite roles.
Users are maintained in transaction SU01.
The role is added as shown in the 'Roles' tab.

When the role is added to the user, the profile appears in the 'Profiles' tab.

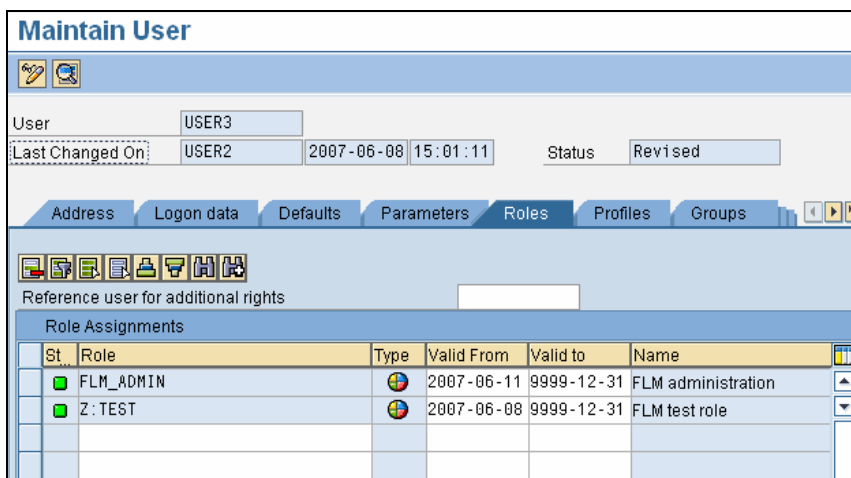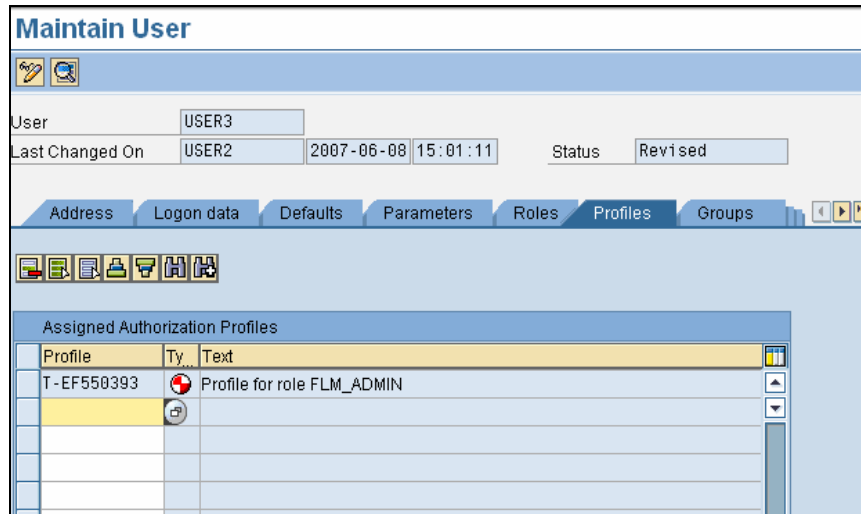## 1.5.2 Parameters

The FLM framework needs to know for every FLM user which 3-digit FLM Customer Code that user should be associated with. This is achieved in the user master record, by adding the parameter /FLM/CCODE to the user master record in the 'Parameters' tab, as shown below:
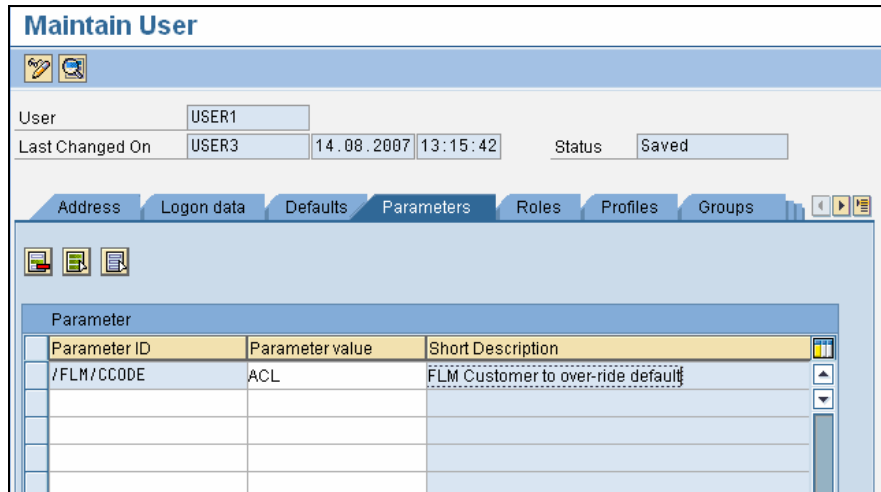
Any user that does not have this parameter maintained will take the default customer code set up in the FLM system;   hence any FLM customer only maintaining one customer code is not required to maintain this parameter.

1.6 Offline User

The FLM system requires one SAP user as the so-called 'Offline User'. The FLM framework uses this user for processing offline forms [ie form sent to user not via the FLM Portal], since at this time no SAP dialog user is available for authorisation checking.

It is recommended that an SAP user is given open authorisations to the FLM system as follows:

```
/FLM/CUST          *
 /FLM/CAT           *
 /FLM/FTYPE         *
ACTVT              *
```

This user master record is entered into the FLM configuration under the 'Set Customer Code' IMG activity against the 'Offline User' field.

2   Setting Up Email Handling in FLM

FLM processing relies on e-mails in the following scenarios:

o   On-line forms: outbound notification e-mails
o   On-line forms: outbound reminder e-mails
o   Off-line forms: outbound e-mail with PDF attachment
o   Off-line forms: inbound e-mail with attachment processing
o   SAP Output: e-mail with PDF attachment

This document describes the SAP set-up for handling the outbound and inbound e-mails for these scenarios.

Also refer to SAP note 455140 for further reading.

2.1 Outbound Emails

2.1.1 Transaction SCOT: SAP Connect

Change the SMTP node to point this at the external SMTP server.

SMTP node set-up

SAPconnect: Administration (system status)

Start of evaluation time: 2007-06-10 00:00

| | Completed | Error | In transit | Waiting | Duration In transit ∅ hh:mm | Duration Waiting ∅ hh:mm |

E5F (800)

- FAX Telefax
  - SXC1
- INT Internet
  - IMGW
  - SMTP
- X40 X.400
  - SXC1
- RML R/Mail or
  - MAIL
- PAG
  - PSSFAX
- PRT

SAPconnect: General node data

General information

| Node | SMTP |
| Description | Mail Server |

Maximum waiting time for repeat send attempt procedure:

Hours/minutes [ ] / [30]

☑ Node in use

SMTP Connection

Mail Host	pickwick.w4.local
Mail Port	25
Code Page	4110 Unicode UTF-8

Supported address types

☐ Fax — Set
☑ Internet — Set
☐ Pager (SMS) — Set

| Last changed by | USER1 | on | 2007-05-30 |

Set up the Internet address types as follows:
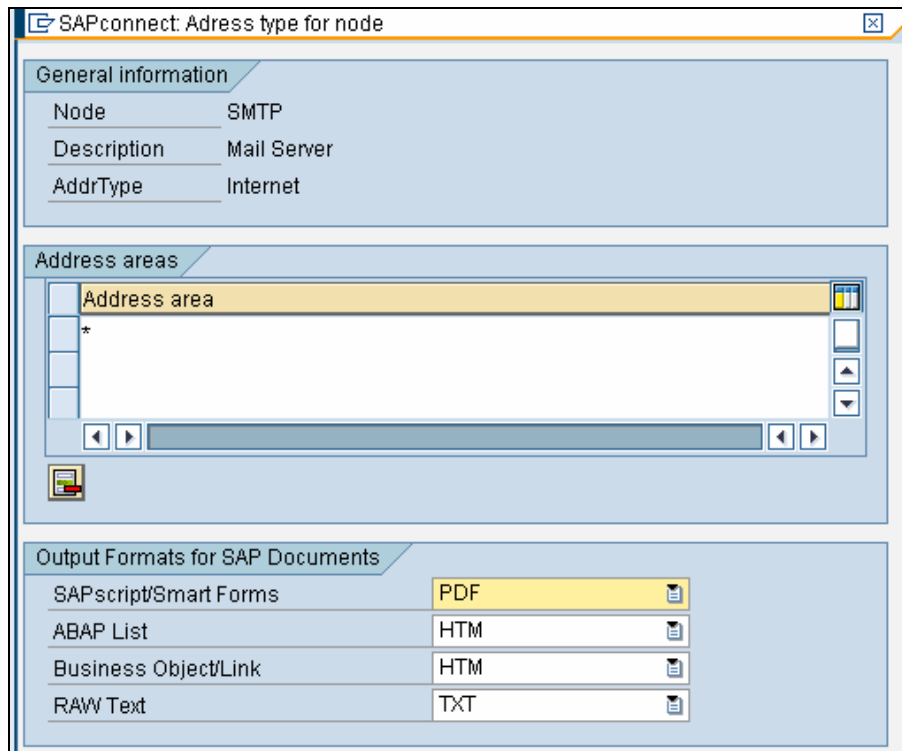
Turn off confirmation of receipt
Use the menu path *Settings->Confirmation of receipt.*
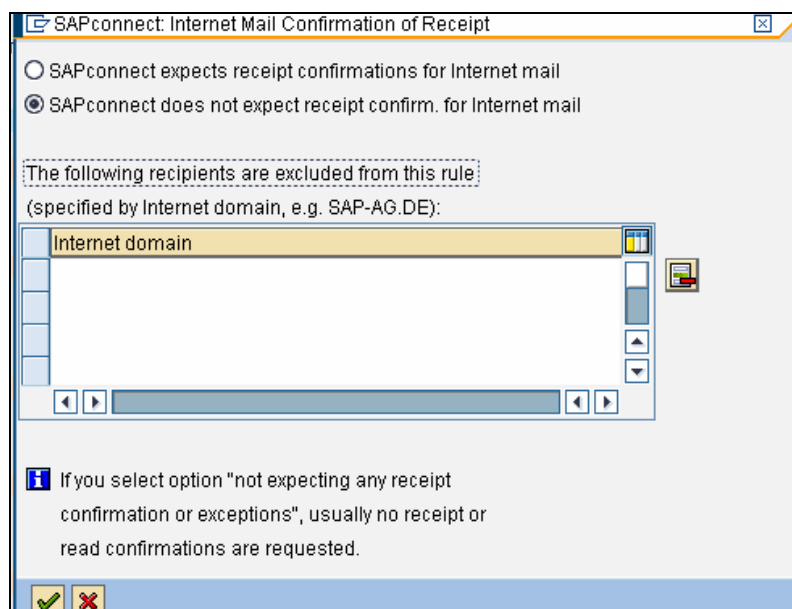
Set default domain
Use the menu path *Settings->Default domain.* This is the location of the SAP application server.

Paragraph

2.1.2 Transaction SICF: Service for SAP Connect

Execute hierarchy type 'SERVICE' and change the 'SAPconnect' service.
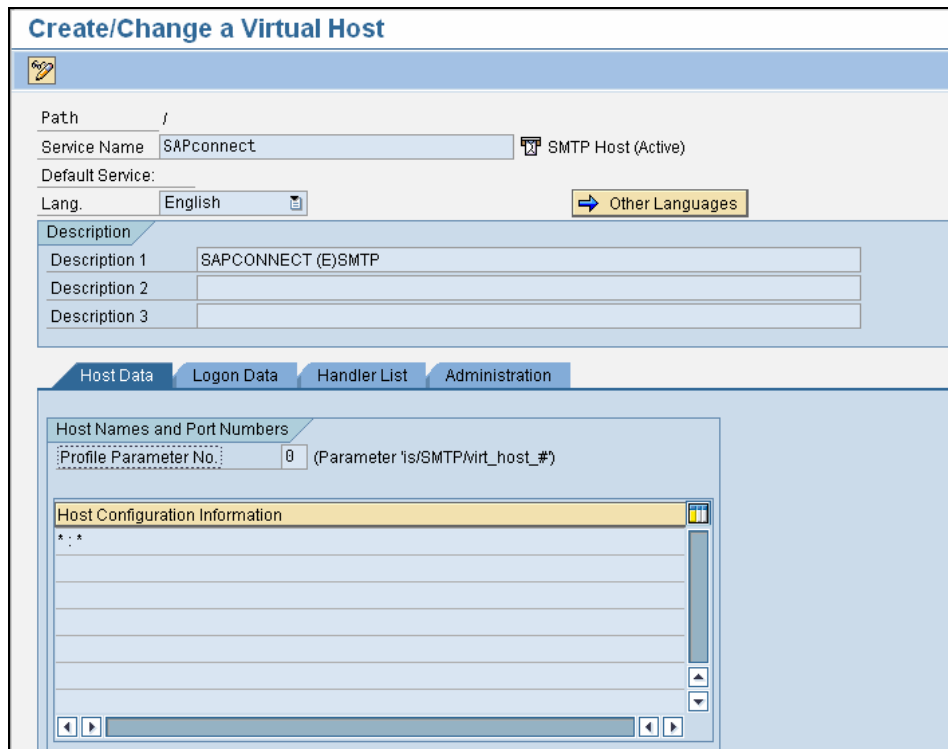
Enter a user id to logon to SAPconnect.
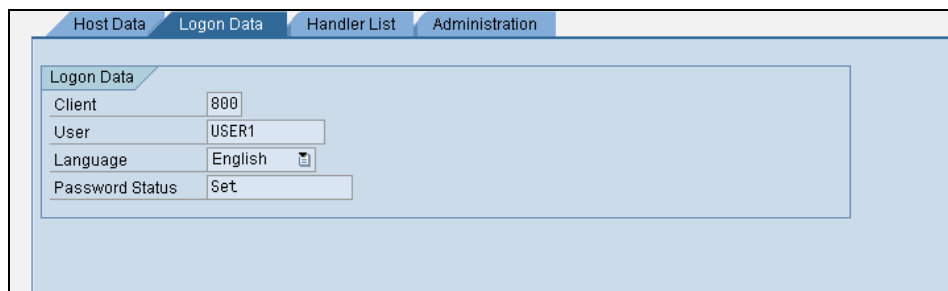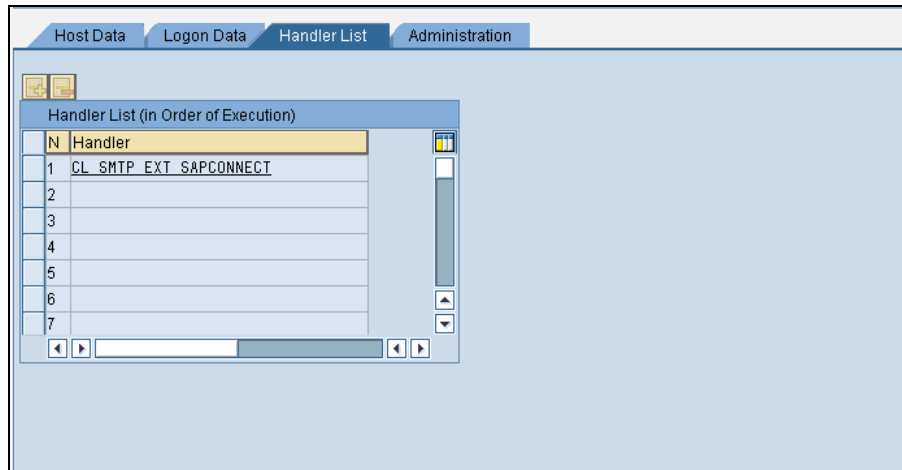
2.1.3 User Defaults

Ensure that the user selected for the SAPconnect logon has an e-mail address, and has a personal time zone that matches the required locale. (Transaction SU01).

2.1.4 SPAM filter on Exchange Server.
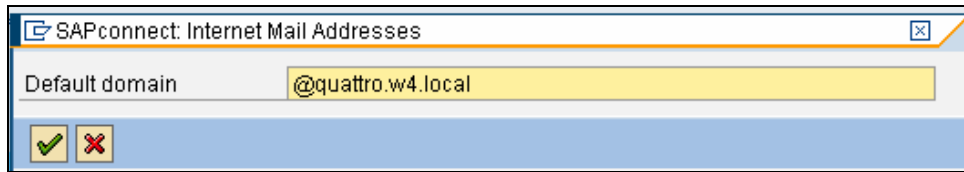
Set the Intelligent Message Filter on the Exchange Server in order to enable e-mails from the SAP server. [We needed to set this to '8' in order for the e-mails to be permitted.]

2.1.5 SOST for tracking test e-mails.

Use the 'Send status' tab with the 'Further' settings in order to track outbound e-mails.
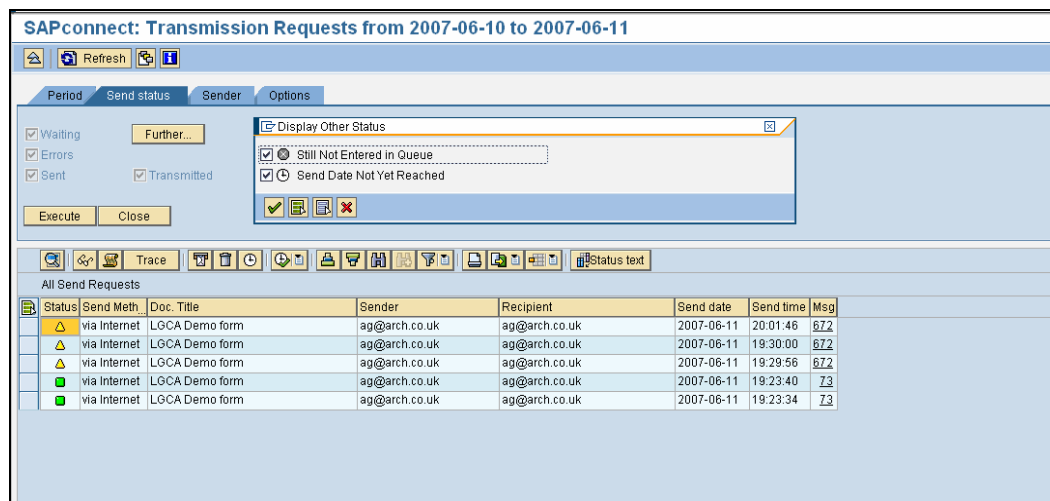
2.2 Inbound E-mails

2.2.1 SCOT: SAP Connect Settings

Use the menu path *Settings->Inbound processing*.
Insert an entry for the address to which off-line forms are to be returned.
Choose the exit '/FLM/EMAIL_HANDLER' to process all inbound e-mails.

Exit Rules for Inbound Processing (Maintenance Mode)

	Communication T...	Recipient Address	Docu...	Exit Name	Call...
	Internet Mail	flm@quattro.w4.local	*	/FLM/EMAIL_HANDLER	1
	Internet Mail	*	ICS	CL_APPOINTMENT_REPLY	2
	Internet Mail	survey@800.id3.r3.sap-ag.de	*	CL_UWS_FORM_RUNTIME_MAI	3

2.2.2 System Profile Parameters

Run program RSPARAM in SE38 to display the profile parameters.

Navigate to parameter icm/server_port_1, and set the port to 25.

Display Profile Parameter

Parameter Name	User-Defined Value		System Default Value
Display Profile Parameter		⊠	

Parameter

Parameter Name	icm/server_port_1
Short Description	

Value

1.1 C kernel	PROT=SMTP,PORT=0	
2.1 Default Profile	PROT=SMTP,PORT=0	FILE=dev_icm_sec,MAXSIZEKB=500
E:\usr\sap\E5F\SYS\profile\DEFAULT.PFL		T=HTTP,PORT=0
3.1 Instance Profile	PROT=SMTP,PORT=25	T=SMTP,PORT=0
E:\usr\sap\E5F\SYS\profile\E5F_DVEBMGS01_quattro		
3.2 program parameters	PROT=SMTP,PORT=25	
3.3 Replace $$ and $(..)	PROT=SMTP,PORT=25	
3.4 Generate file name	PROT=SMTP,PORT=25	
4.4 Current Value	PROT=SMTP,PORT=25	

The FLM Routing Server is a service program that runs as a background job, and performs actions on forms based on their system status. The set-up required for the routing server depends on the business process to be mapped. This document describes the set-up for four types of functionality:

- Using the Routing Tables for Form Submission.
- FLM Routing Server for triggering Off-line forms.
- FLM Routing Server for Form Escalation.
- FLM Routing Server for Reminder E-mails.

3.1 *Using the Routing Tables for Form Submission.*

When a form is submitted back to SAP, either for an on-line scenario or for an off-line scenario, the form is returned with its original status plus the 'action' selected by the submitting user. The system follows the routing server logic to determine a new status, new user etc. for the submitted form during the update to SAP.

3.1.1 Table /FLM/WF_STAT: Form Status Derivation

The form derivation table is keyed on customer, form type, form status and action. The following information is derived from this table:

- o New form status
- o *For example an initial form with an action 'submit' may derive the new status 'submitted'*
- o New form version
- o *We can define several versions of the same form which can be used at different points during the form lifecycle, such that the basic form data can be represented with a different form template throughout the form's journey.*
- o New form mode
- o *This can be set to 'on-line' or 'off-line'. See section 1.2*
- o E-mail notification settings
- o *There is an e-mail notification flag, plus standard texts for the e-mail subject and e-mail body.*

Within the form status derivation table we need to map every possible status of the form, and every possible action that can be performed for each status, such that a business process is mapped; it is this table that defines the form's lifecycle.

Example of a simple off-line form routing without approval:

Form type	Status IN	Action	Status OUT	Version OUT	Mode	E-mail Notification
AB01	Initial	Submit	Submitted			

Note that as there are no approval steps, the final form status is 'Submitted'.

Example of a simple on-line form routing with approval:

Form type	Status IN	Action	Status OUT	Version OUT	Mode	E-mail Notification
AB01	Initial	Submit	Submitted		On-line	X
AB01	Submitted	Approve	Approved		On-line	
AB01	Submitted	Reject	Rejected		On-line	X
AB01	Rejected	Submit	Submitted		On-line	X

This example represents an on-line form, with an approval step. When the form is submitted or rejected, an e-mail notification will be triggered to the next person in the business process.

Example of an on-line form with off-line approval:

Form type	Status IN	Action	Status OUT	Version OUT	Mode	E-mail Notification
AB01	Initial	Submit	Submitted	001	Off-line	
AB01	Submitted	Approve	Approved		On-line	
AB01	Submitted	Reject	Rejected	000	On-line	X
AB01	Rejected	Submit	Submitted	001	Off-line	

Note that an e-mail notification is not sent to an off-line user, since they will already be receiving an e-mail with the PDF form. Note that in this example there is a different form version for the off-line form – it is not necessary to use separate form versions for on-line and off-line processing, but may prove useful.

3.1.2 Table /FLM/WF_USER: Form owner Derivation

The user derivation table is keyed on form type, status, current owner and action. This table is used to derive the new form owner only.

This table can be used in scenarios where the number of users is very low, or when there is no other source of organizational data available to determine who should approve a form. Its main use might be for workshopping or prototyping a business process without the need to develop code to determine the user.

3.1.3 User-exits

In practice the new form owner is likely to be derived from an existing data source such as the SAP HR Organisational structure.

A user-exit will be available to determine the next form owner, based upon any SAP data including the form posting table (FLM/FPE) and form history table (FLM/FPE_H) such that previous form owners can be determined. *(This is of particular importance when deriving the new owner in the case of form rejection.)*

3.1.4 Variable substitution in e-mail standard texts

Variable substitution is available in all three e-mail scenarios (*offline* e-mail, *notification* e-mail and *reminder* e-mail).
Three types of variable can be substituted: FLM fields, system fields and form fields.

FLM fields
FLM fields can be included in each standard text using the format:
'&<field name>&'
In FLM version 2.4, the following fields are available:
- &FID&   Unique Form ID
- &FORMTYPE&   'Long' description of form type
- &URL&   URL link to the form

System fields
System fields can be included in each standard text using the menu path: Include->Symbols->System->ABAP System Symbols
In FLM version 2.4, the following fields are supported:
- &SYST-DATUM&   System date
- &SYST-UZEIT&   System time
- &SYST-UNAME&   System user

Form fields
In the scenarios when form data exists, any non-repeating data can be included in the standard texts; the data field must not exist within a repeating subform. So root/header/footer fields can all be included, whereas item fields cannot.
Again the format required is:
'&<field name>&'

Note that if any form field was given the same name as an FLM field then the substitution would work for the FLM field, not the form field.
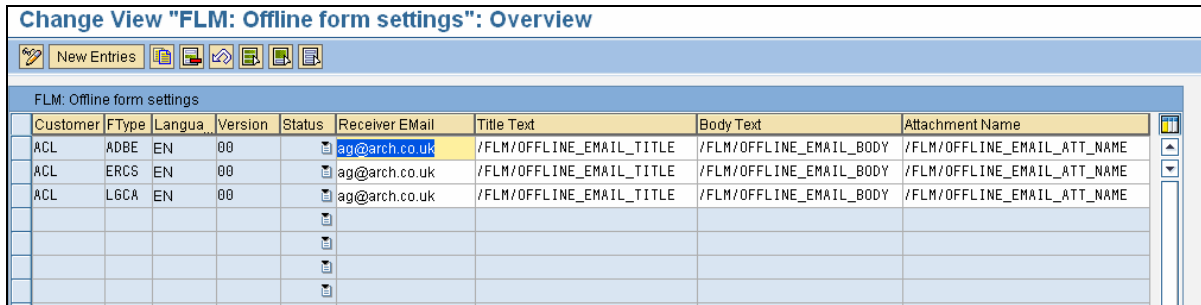
3.2 FLM Routing Server for triggering Off-line forms.

During a status change as defined within table /FLM/WF_STAT, if the mode flag is set to 'off-line' then this will trigger the render and distribution of an off line form. The settings for the off-line form e-mail are stored in table /FLM/EMAIL.

3.2.1 Table /FLM/EMAIL: Off-line form e-mail settings

This table stores the standard texts for the subject, body and attachment name, plus the recipient e-mail address for a form. The full key includes the status and version of the form, so that different versions of the form at different statuses would be sent to different recipients.
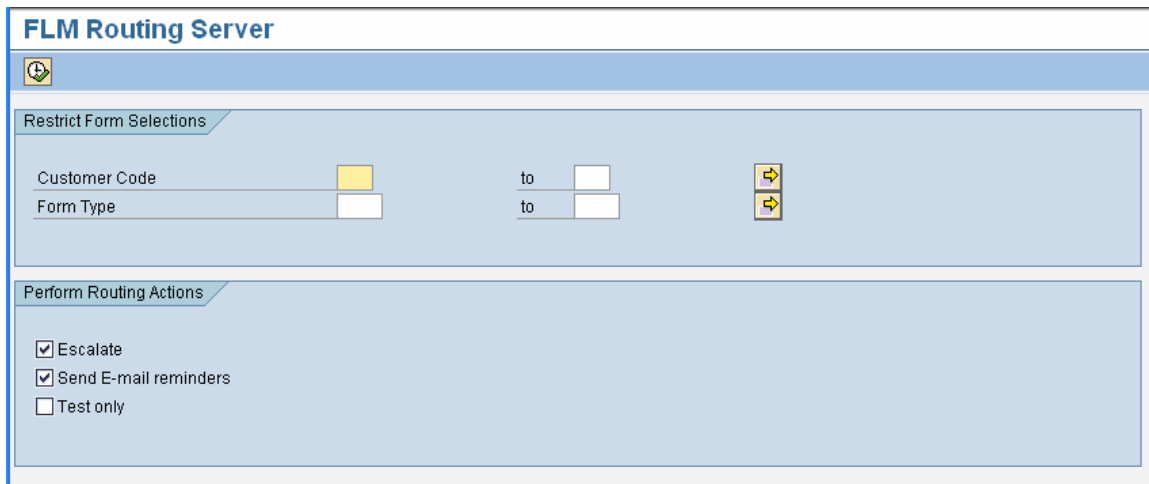
3.3 FLM Routing Server for Form Escalation.

The FLM Routing Server program /flm/wf_engine should be scheduled as a background job and performs two functions: (a) Escalate forms, (b) Send e-mail reminders.

The form escalation job should be run at least once per day. For form escalation the routing server checks on all forms to check whether they need to be escalated to another user. The form escalation settings are stored in table /FLM/WF_ESCA.

3.3.1 Table /FLM/WF_ESCA: Form Escalation settings

The form escalation table is keyed on customer, form type and status. For any form at any particular status an escalation window (in days) can be set, plus an escalation action, which will be taken for any form that exists in the status for the escalation window.

The escalation action pushes the form one step along its route, for example, a submitted form could be automatically rejected [or approved] if no approval was granted within 5 days.

The effect of the action is to trigger five potential updates:
- o Change the form owner
- o Change the form status
- o Change the form version
- o Trigger an offline form
- o Trigger an e-mail notification

These actions are configurable using tables /flm/wf_stat, /flm/wf_user and /flm/email as described in sections 1.1 and 1.2.

3.4 FLM Routing Server for Reminder E-mails.

The second task the routing server provides is to send out reminder e-mails to users who have not processed a form. Normally this would be used in an approval scenario; if the form has been neither approved or rejected then a reminder is sent out. The functionality is similar to the escalation functionality, since a 'window' of days is defined after which a reminder e-mail will be sent out.
If both an escalation window and a reminder window are defined for the same form and same status, then the reminder window will be set to be less than the escalation window. For example, a submitted for that is waiting approval might trigger a reminder after 2 days, and then be escalated after 4 days.

3.4.1 Table /FLM/WF_REMI: Form Reminder settings

The e-mail reminder window is defined by form status on table /FLM/WF_REMI.
Standard texts for the e-mail subject and e-mail body are also derived from this table, and variable substitution is possible as described in section 1.1.4.
There is also a 'Resend' flag, which controls whether several e-mail reminders will be sent out for the same form/status.

FLM Routing Server must only be run once per day for any form type, as running this multiple times on a single day would generate multiple reminders on the same day regardless of the 'Resend flag'.

The logic behind the selection of the form for a reminder e-mail is as follows:
[1] Is today the last day of the reminder window?
[2] Has the reminder window passed AND is the Resend flag set?
If the answer to either of these is yes then a reminder e-mail is generated.

For example, if the reminder window was set to be 2 days and the resend flag was not set then the owner would receive a reminder on day 2 only. However, if the reminder window was set to be 2 days and the resend flag was set, then the owner would receive a reminder on day 2 and on each subsequent day until he/she processed the form, or the form was escalated by FLM Routing Server.