

SM/QC Integration Training Overview

<http://enhanced1.sharepoint.hp.com/teams/aztec/Lists/Integrations/Standard.aspx> lists BTO integrations.



this doc describes hands-on how to install all required software (on a clean pc) and perform simple synchronizations for the Service Manager <-> Quality Center integration (shown in diagram above).

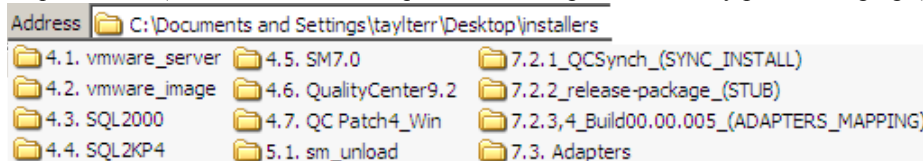
a training on 2008 june 5 will demo what is described in this doc. training/doc author terry taylor, ttaylor@hp.com (with extensive help from Lei Li and the rest of the SM/QC integration team).

if you want to try to install and run qc/sm integration on your pc, note the following:

- time requirements: approximate time required.

hours	chapter
--	(skip chapters 1-3).
2	4 VM/SQL/SM/QC Install (TRAINING ONLY).
1	5 Service Manager Customization
1	6 Quality Center Customization
2	7 Quality Center Synchronizer Installation/Configuration
2	8 Link Configuration

- pc requirements: this doc describes how to install/config in windows server 2000 OS in a virtual machine. this will require 2GB+ of ram.
- Required files (i have collected all required files and put them on my personal laptop (taylterr))



HP Defects and Requirements Exchange with HP Service Manager and HP Quality Center

for the Windows Operating System

Software Version: 00.02.003 (Release 00, Sprint 02, Build 003)

Installation and Administration Guide

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1 About this document

This chapter describes this document:

- *1.1. Document Purpose*
- *1.2. Document Chapters*
- *1.3. References*

1.1. Document Purpose

This document describes how to configure and deploy the integration components

- Service Manager (SM)
- Quality Center (QC)
- Quality Center Synchronizer (QCS)

This document then describes how to configure and test synchronization links between Quality Center and Service Manager.

NOTE: This document contains a lot of examples that use the SM and QC default installation configuration and databases. Your particular configuration may differ significantly. The example synchronization configuration may also differ significantly from your requirements.

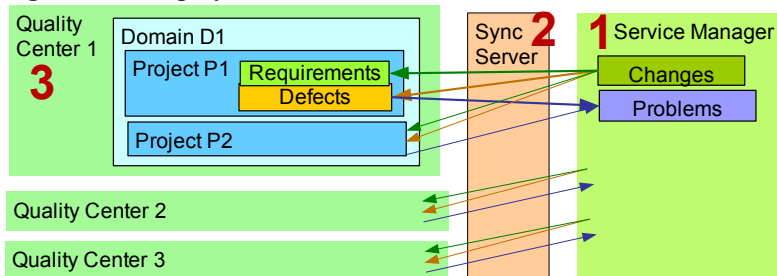
The target readers include HP Consultants and/or Application Administrator who must set up and maintain the Quality Center Synchronizer, ensuring that the Quality Center Synchronizer meets all user organization procedural requirements. This document assumes that the reader is an experienced user of either (but not both) SM or QC, and therefore describes the basics of both SM and QC.

1.2. Document Chapters

This document contains the following chapters:

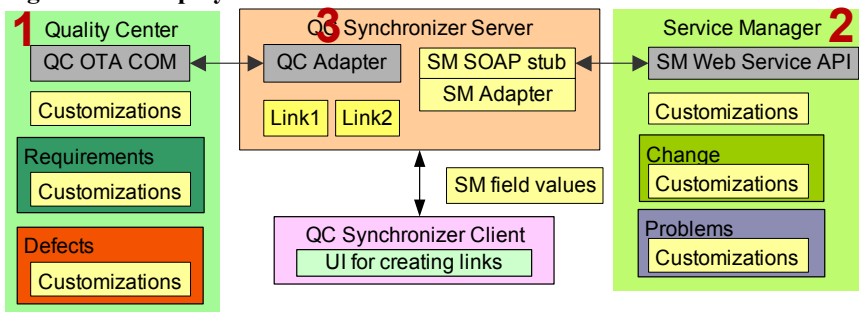
- *Chapter 1, About this document* (this chapter)
- *Chapter 2, Integration Concepts* introduces basic integration concepts.
- *Chapter 3, Deployment Planning* describes the
 - Support matrix
 - Deployment scenarios. In general a single SM server (1) can have links through a single Synchronizer (2) to multiple QC servers (3).

Figure 1 Deployment scenarios



- Deployment tasks
 - (1) Quality Center (customizations)
 - (2) Service Manager (customizations)
 - (3) Quality Center Synchronizer (installation / configuration)

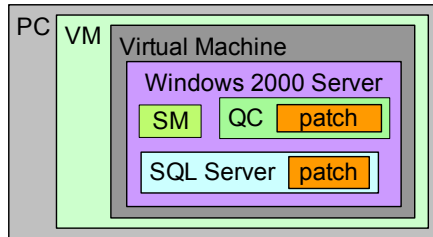
Figure 2 Deployment tasks



- Release package (directories and files)

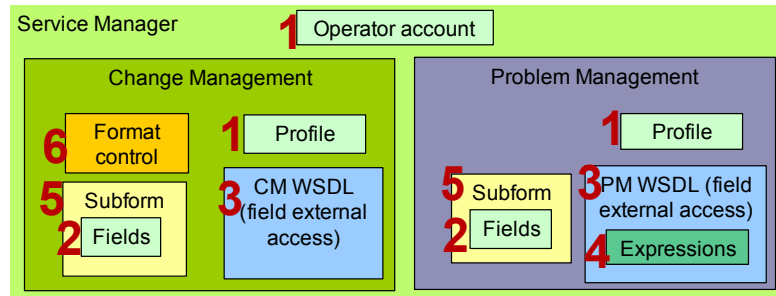
- *Chapter 4, VM/SQL/SM/QC Install (TRAINING ONLY)*. describes how to setup for training:
 - VM + Windows 2000 Server
 - SM
 - QC + patch
 - SQL server + patch

Figure 3 VM/SQL/SM/QC Install



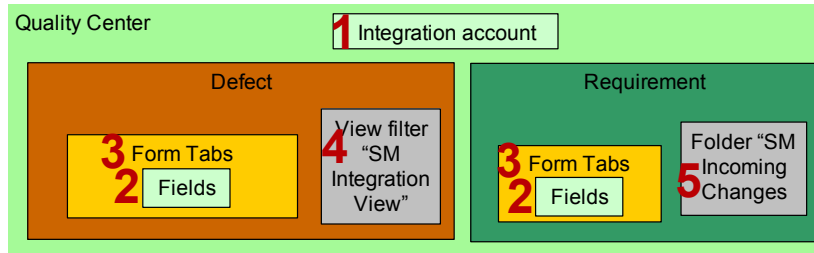
- *Chapter 5, Service Manager Customization* describes how to customize SM:
 - (1) Create operator account / profiles
 - (2) Create fields
 - (3) Allow external access to fields
 - (4) Create expressions (problem management)
 - (5) Create subforms
 - (6) Modify format control (change management)

Figure 4 SM Customization



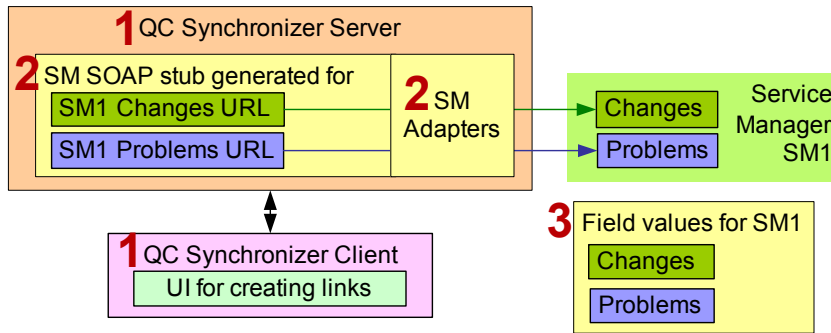
- Chapter 6, *Quality Center Customization* describes how to customize QC:
 - (1) Create integration account
 - (2) Create fields
 - (3) Create tabs
 - (4) Create defect view filter “SM Integration View”
 - (5) Create requirement folder “SM Incoming Changes”

Figure 5 QC Customization



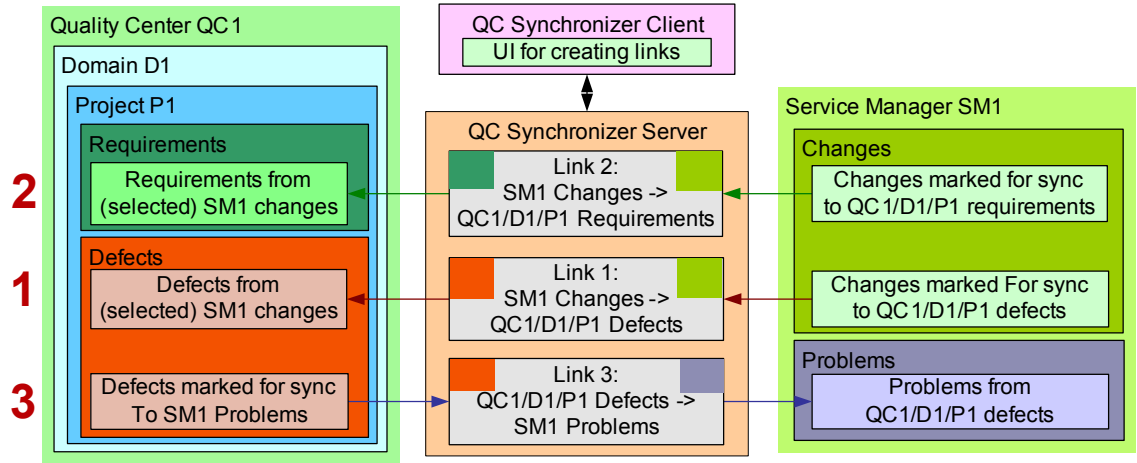
- Chapter 7, *Quality Center Synchronizer Installation/Configuration* describes how to
 - (1) Install Synchronizer Server / Client
 - (2) Generate/deploy stub/adapters
 - (3) Create SM field values file

Figure 6 QC Synchronizer Installation/Configuration



- Chapter 8, *Link Configuration* describes link configuration/testing for
 - (1) Change -> Defect
 - (2) Change -> Requirement
 - (3) Defect -> Problem

Figure 7 Link Configuration



- Appendix A, *Trouble-shooting*
- Appendix B, *Known Issues*

1.3. References

- 1 HP Quality Center Synchronizer User Guide

2 Integration Concepts

This section introduces basic QC/SM integration concepts.

- *2.1. Why integrate SM/QC?*. SM and QC are designed for different end users, but at times these users need to both share data and work together.
- *2.2. What is QC/SM integration?*
- *2.3. Synchronize what?* describes the most important data (endpoint entities) that are synchronized in the current integration.
- *2.4. Create/synchronize entities when?* describes when during the workflow could create new items and synchronize data changes.
- *2.5. Synchronized workflows* describes how sync could support integrated workflows.
- *2.6. Integration implementation* describes synchronization is implemented (with a modified version of the existing QC Synchronizer between a customized QC and customized SM).

2.1. Why integrate SM/QC?

SM and QC are used to manage entities. Examples of entities

- QC defect for a product (software bug)
- SM RFC (request for change), generated in response to a customer request to change a product (fix software bug)

The above entities show how QC and SM functionality can overlap. One solution would be to combine SM and QC. But this is not practical because

- 1 SM and QC are designed for different needs:
 - SM has process phases. Phases guide the customer response team during customer interaction.
 - QC projects have status that changes as the project progresses. This is a flexible design for a product development team (not customer interaction).
- 2 Cost of combining QC/SM would be prohibitive (both in software development costs and in retraining of a large user base).

Therefore, the practical solution is to integrate the SM and QC.

2.2. What is QC/SM integration?

QC and SM integration means

- 1 If a new entity is created on one side (QC or SM), then at the appropriate time the corresponding entity is created on the other side.
- 2 Data is synchronized (changes are duplicated) in one or both directions (to/from QC, to/from SM) as specified in the link.

For example, the following diagram shows how a QC defect is created from and synchronized with an SM change (RFC).

Figure 8 SM Change -> QC Defect synchronization

Request For Change

RFC No. C40 Initial Impact Assessment: 2 - Site/Dept
Phase Building Urgency: 4 - Low
Reason for Change: Incident/Problem Resolution Priority: 3 - Average

1 - Critical
2 - High
3 - Average
4 - Low

Forward to QC: 2 - Forward as Defect
server/domain/project localhost/DEFAULT/Test44
Defect ID 15

Description of Change
There is a defect in the CI (configuration item; see "Associated CIs" tab; in this example its Exchange

SM

1. Specify to forward and save RFC to create QC defect

2. Synchronizer syncs data changes

New Defect

Defect: 15 * Summary: There is a defect in the CI (configuration item; see "Associated CIs" tab; in this example its Exchange)

Details SM Integration (New)

* Severity: 1 - Low * Detected By: qcadmin

1 - Low
2 - Medium
3 - High
4 - Very High
5 - Urgent

QC

2.3. Synchronize what?

This integration the following 3 types of entity links

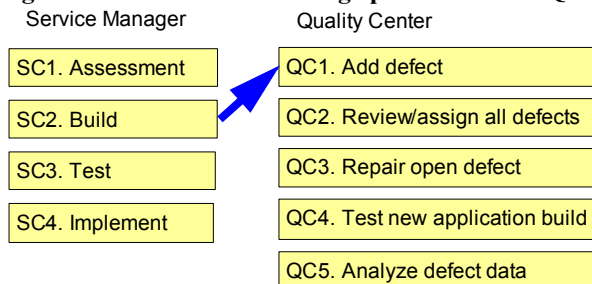
- SM change -> QC defect
- SM change -> QC requirement
- QC defect -> SM problem

2.4. Create/synchronize entities when?

The point at which an entity is created and synchronization of data starts depends on the details of the workflows.

- Creation of an entity.** The following diagram shows the SM change and QC defect workflows. The arrow shows the point at which a QC defect is created from an SM change. In the SM build phase a proposed change to correct a product defect has been assessed and approved (phase changed to build). The option in SM to forward the change to QC as a defect is selected, the SM change is saved, and the QC synchronizer creates the QC defect.
- Synchronization of entity changes.** Selected SM change and QC defect data fields are synchronized as specified in the link.

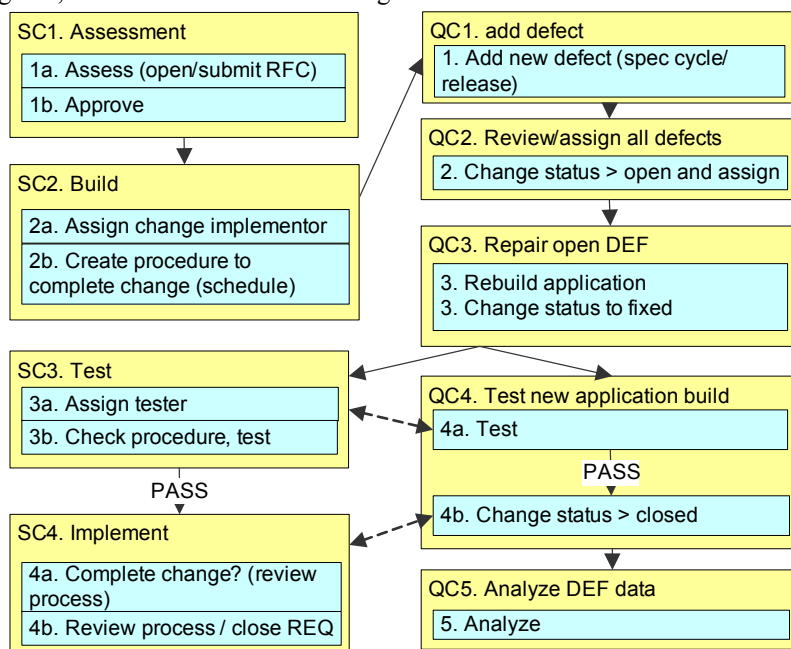
Figure 9 In what SM change phase to create QC defect



Note: QC/SM customization and link configuration are very flexible, so an actual system may be configured quite differently

2.5. Synchronized workflows

This change->defect integration would allow integration of SM change / QC defect workflows. An example is shown in following diagram. Such workflow integration is not covered in the installation/configuration guide, but will be in a future user's guide.



2.6. Integration implementation

This integration uses a modified version of the QC synchronizer that basically emulates human interaction with QC/SM. The section describes how to

- 2.6.1. *Customize SM/QC*
- 2.6.2. *Install / Configure QC Synchronizer*
- 2.6.3. *Create endpoint links*
- 2.6.4. *Synchronization process* on page 25 describes how the end-user would do a sync.

2.6.1. Customize SM/QC

For SM/QC modify

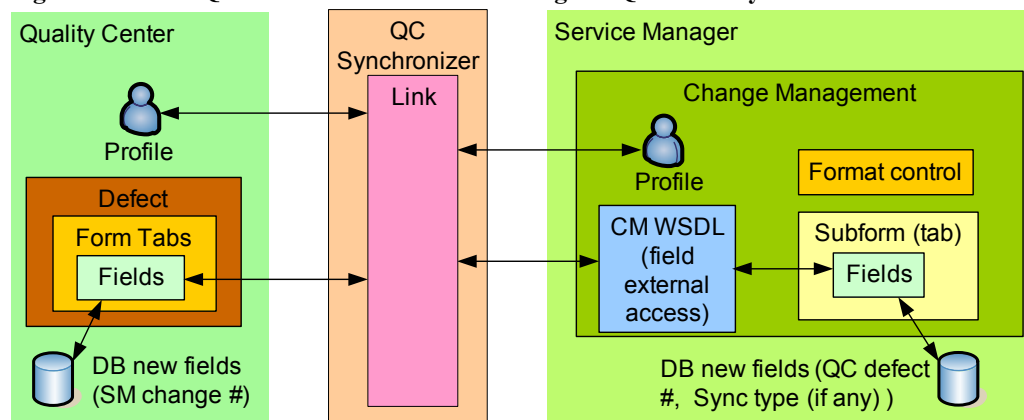
- DB fields. Modifications include adding the ID of the linked entity (showing the QC defect # in the SM change form).
- UI and UI control. The UI needs to display the new DB fields and display the fields for creating the new entity at the proper time during the workflow (for example, showing the field to create a QC defect during the SM change build phase).
- External access of SM data via WSDL (QC synchronizer was designed to work with QC).
- User profile (for SM/QC access).

The above is described in detail in the install/config guide in chapters

- 5 *Service Manager Customization* on page 47
- 6 *Quality Center Customization* on page 61

The following diagram shows QC/SM customization for QC change -> SM defect synchronization (the other 2 link types are similar).

Figure 10 SM/QC customization for SM change -> QC defect synchronization



2.6.2. Install / Configure QC Synchronizer

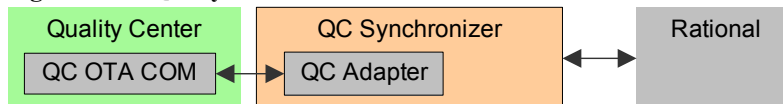
This integration is based on a version of QC Synchronizer modified for use with SM. This section describes

- 2.6.2.1. Install QC standard synchronizer
- 2.6.2.2. Install Synchronizer adapters for SM
- 2.6.2.3. Create a Synchronizer SM SOAP stub
- 2.6.2.4. SM field values file

2.6.2.1. Install QC standard synchronizer

The QC Synchronizer is a tool that synchronizes between QC and Rational ClearQuest/RequisitePro. Section 7.1. *Install Quality Center Synchronizer* on page 74 describes how to install the standard synchronizer.

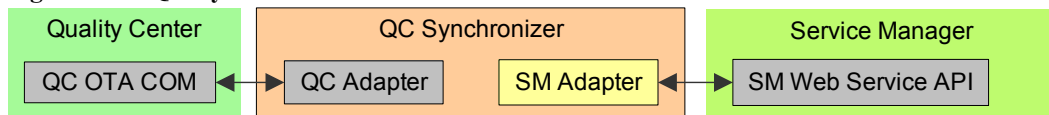
Figure 11 QC Synchronizer for Rational



2.6.2.2. Install Synchronizer adapters for SM

The Synchronizer SM adapter allows QCS to communication with SM via the SM web service API (see 7.2.2. *Deploy Adapters* on page 79 for details).

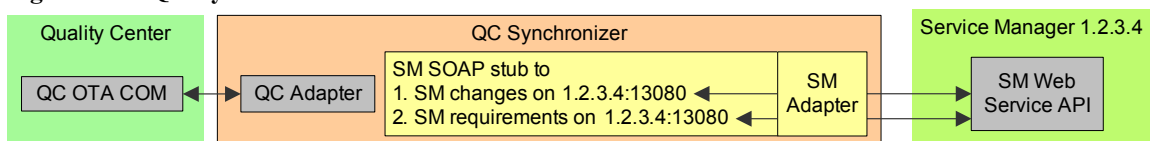
Figure 12 QC Synchronizer modified for SM



2.6.2.3. Create a Synchronizer SM SOAP stub

The SM stub specifies the web service for change or requirements on a particular SM server (such as `sm.change.wsdl=http://1.2.3.4:13080/sc62server/PWS/QCIntChangeService.wsdl`). Section 7.2.1. *Generate/Deploy Stub* on page 78 show how to create the stub.

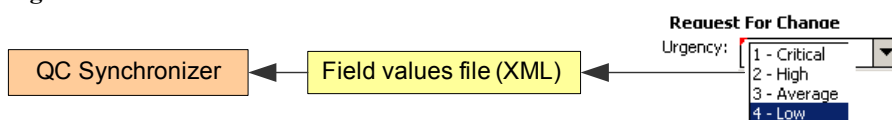
Figure 13 QC Synchronizer SM SOAP stub



2.6.2.4. SM field values file

The SM field values file specifies the values in SM drop-down lists (QCS does not have access to the field value list via WSDL). See 7.3. *Create SM Field Values File* on page 80 for details.

Figure 14 SM field values file



2.6.3. Create endpoint links

Links are created with the QCS client that specify

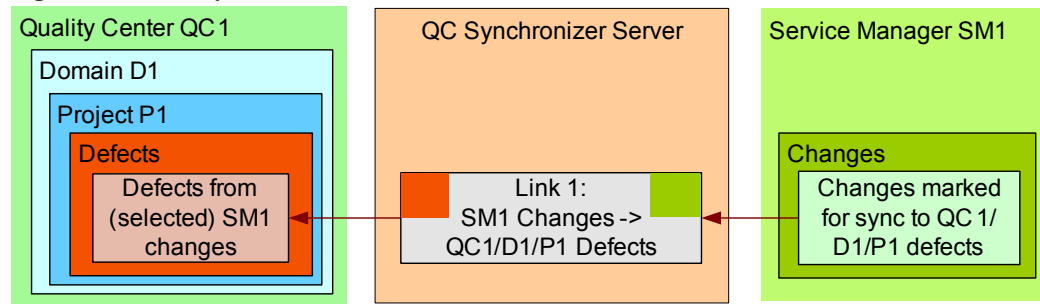
- 2.6.3.1. Entities
- 2.6.3.2. Field/value mapping
- 2.6.3.3. Schedule
- 2.6.3.4. Events

See chapter 8 *Link Configuration* on page 83 for details.

2.6.3.1. Entities

The following diagram shows 3 links between 4 entities (QC1 defects, QC1 requirements, SM1 changes, and SM1 problems). The arrows define which direction new entities are created.

Figure 15 QC Synchronizer link entities



2.6.3.2. Field/value mapping

Each link has its own field mapping which defines

- What fields are synchronized
- Direction of updates

Figure 16 Field/value mapping

Mapped Fields				Mapping properties	Value mapping	Field properties
Type	Endpoint 1 Field	Direction	Endpoint 2 Field	Endpoint 1 value	Direction	Endpoint 2 value
	Change id	<--->	ChangeID	5-Urgent	<--->	1 - Critical
	Defect ID	--->	QCEntityID	4-Very High	<--->	2 - High
	Severity	<--->	Urgency	3-High	<--->	3 - Average

2.6.3.3. Schedule

The schedule specifies when to run synchronization.

2.6.3.4. Events

The events specify what to do in case of certain events (create, update, delete).

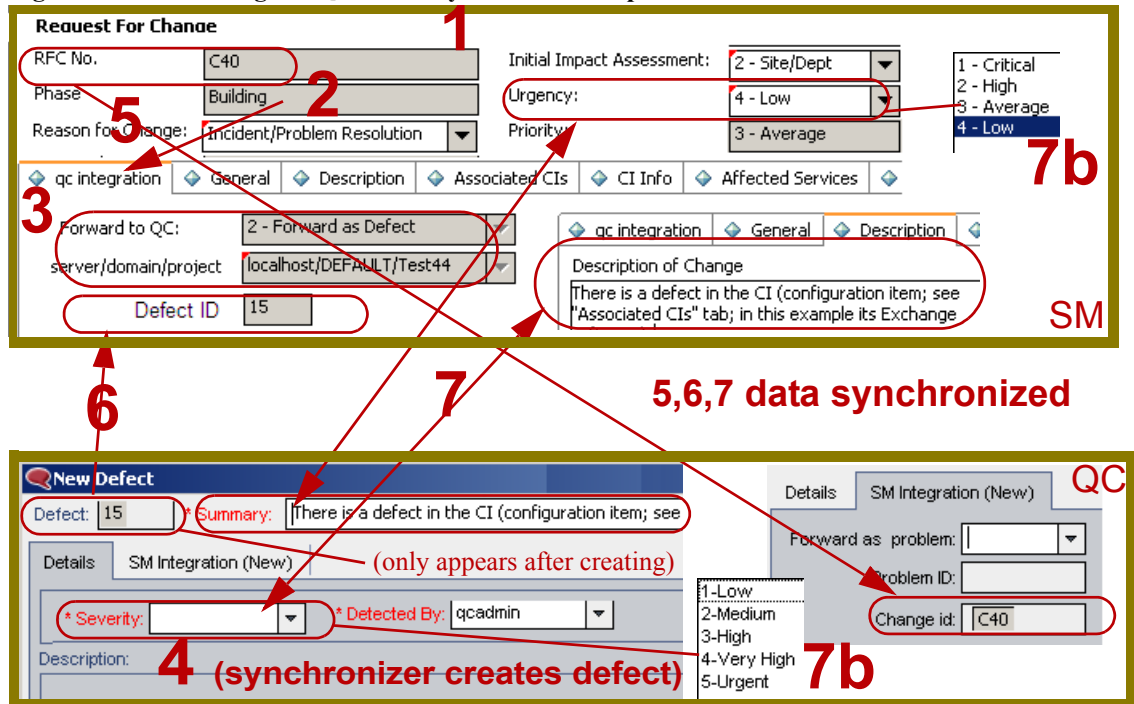
2.6.4. Synchronization process

Note: SM, QC, and links are customized, so your configuration may vary greatly from this example.

The following diagram shows an example of the basic SM change -> QC defect synchronization process (see 8.2. *Service Manager Change to Quality Center Defect* 8.2.5. *Test* on page 91 for a more detailed example).

- 1 Create a change.
- 2 Change phase to build. The QC integration tab appears.
- 3 Select to forward to QC server X / domain Y / project Z as a defect.
- 4 Synchronizer creates a QC defect.
- 5 SM change # to is sent to the QC defect.
- 6 QC defect # is sent to SM change.
- 7 Mapped fields and values (b) are synchronized.
- 8 Fields are continually synchronized by event or schedule.

Figure 17 SM change -> QC defect synchronization process



3 Deployment Planning

This chapter describes basic deployment planning

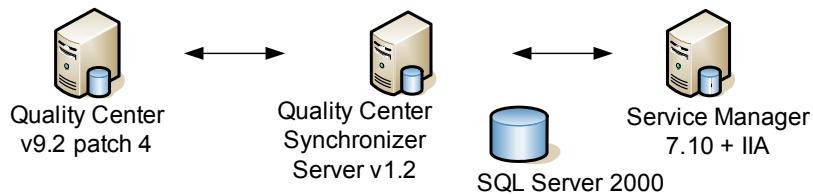
- 3.1. *Support matrix* on page 27
- 3.2. *Deployment scenarios* on page 28
- 3.3. *Deployment tasks* on page 28
- 3.4. *Release package* on page 29

3.1. Support matrix

The supported platforms are

- Quality Center Synchronizer 1.2 and above
- Quality Center 9.2 with patch 4
- Service Manager 7.10 + IIA
- SQL Server 2000

Figure 18 Supported platforms



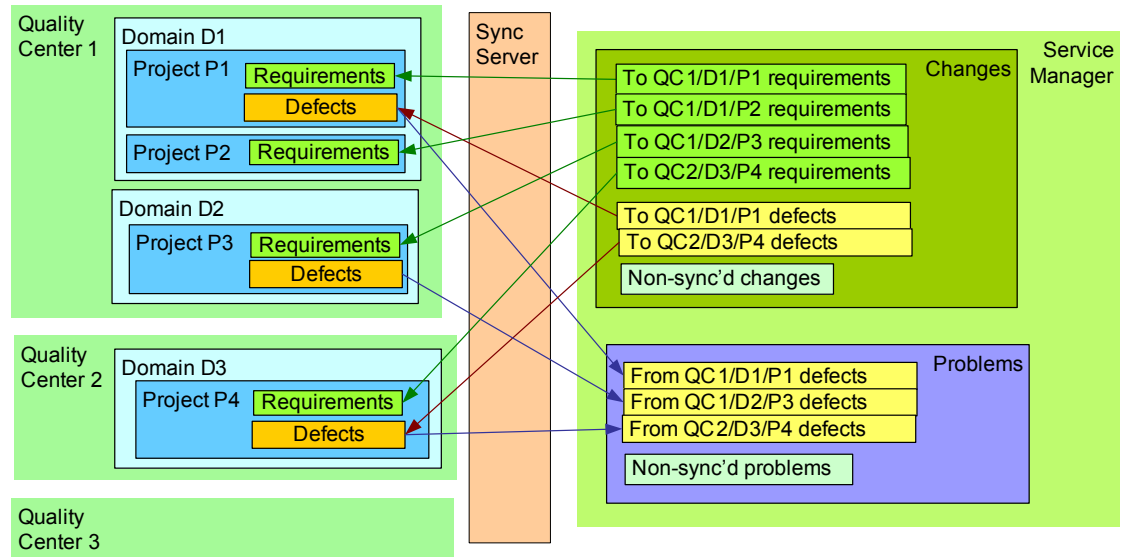
3.2. Deployment scenarios

When planning deployment, keep the following in mind (see the diagram below):

- A Service Manager has a dedicated synchronizer.
- A single Service Manager can connect to multiple Quality Centers.

Each arrow in the diagram below is a link. Link configuration is described in *Chapter 8, Link Configuration*.

Figure 19 Link configuration

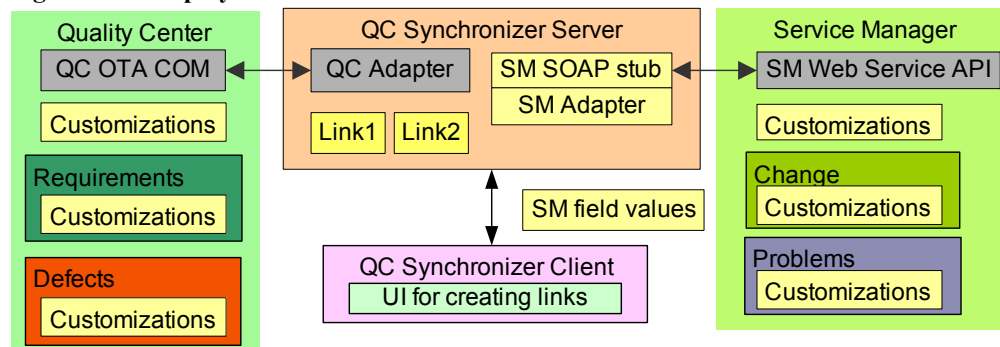


3.3. Deployment tasks

Deployment involves the following tasks:

- **Service Manager** customization as described in *Chapter 5, Service Manager Customization*.
- **Quality Center** customization as described in *Chapter 6, Quality Center Customization*.
- **Quality Center Synchronizer Server** installation/configurations as described in *Chapter 7, Quality Center Synchronizer Installation/Configuration*.
- **Link configuration** as described in *Chapter 8, Link Configuration*

Figure 20 Deployment tasks



3.4. Release package

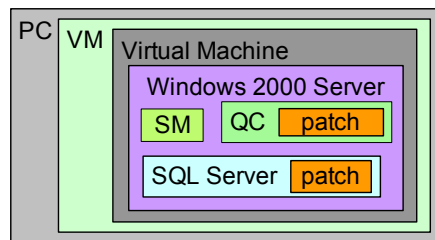
The release package is packed by an executable self-extract package installer. Run the installer by double clicking the file "SMQC_Integration_01.00.exe". The unzipped contents are:

- sm-adapter
 - adapter: contains the adapter all its dependencies except stub
 - ant: the build lib
 - bin: contains the script to generate the stub
 - doc: contains documents about the release (**including this document**)
 - jdk5: the Sun's JDK 1.5
 - lib: all binary libs required to generate the stub
 - sample: samples of WSDL, adapter configuration, etc.
 - tmp: holds temporary files for stub generation

4 VM/SQL/SM/QC Install (TRAINING ONLY)

This chapter describes how to install all required componets in a virtual machine.

- 4.1. *VMWare Server* on page 31
- 4.2. *Virtual Machine* on page 32
- 4.3. *SQL2000* on page 34
- 4.4. *SQL2000 service pack 4* on page 36
- 4.5. *Service Manager* on page 40
- 4.6. *Quality Center* on page 43
- 4.7. *QC patch* on page 45



4.1. VMWare Server

install vmware server:

\\cuttle\software\vmware\

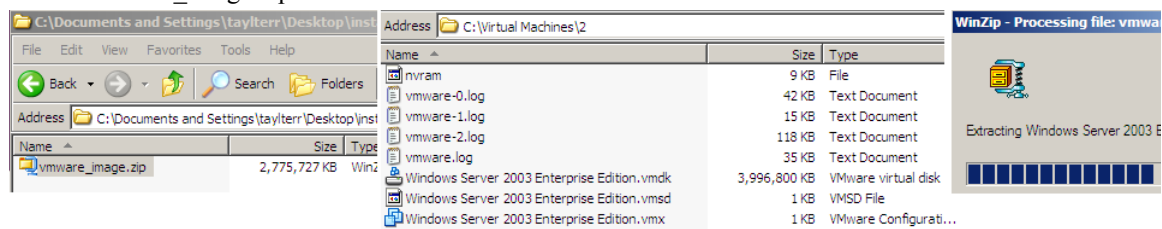
iis configuration????

start

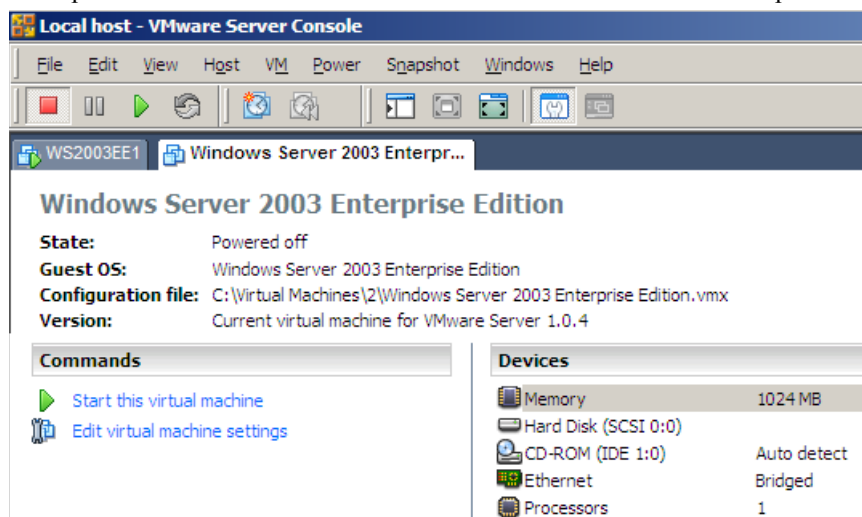
localhost

4.2. Virtual Machine

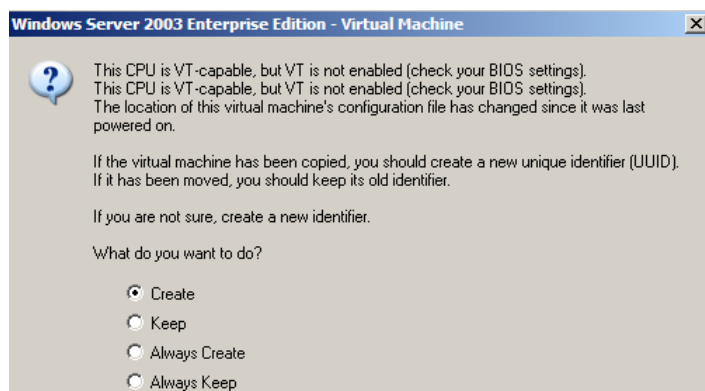
extract vmware_image.zip to v..... takes about 10 minutes!



file/ open / browse to c:\virtual machines\2\Windows Server 2003 Enterprise Edition.vmx!



start the virtual machine. !



ok (create). vm starts up. message appears about duplicate name.

LOGIN???? Administrator/slmcp (username/passwrod)

ok. old virus definition file warning appears.

ok.

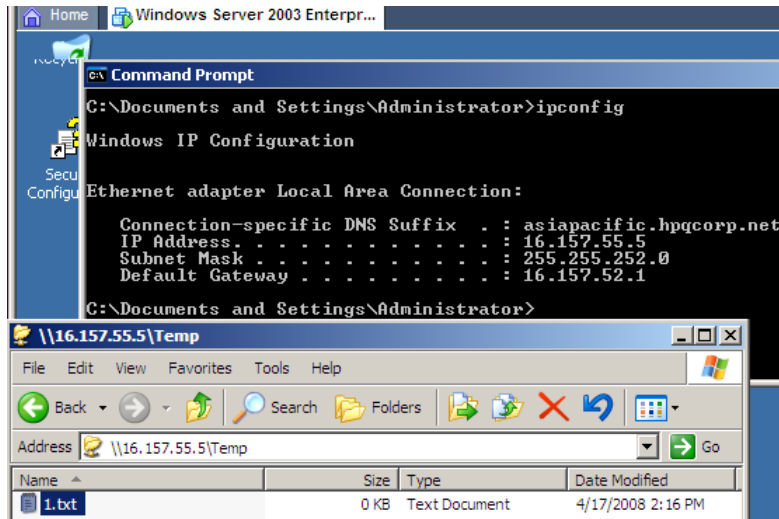
select vm/install vmware tools.

click install.

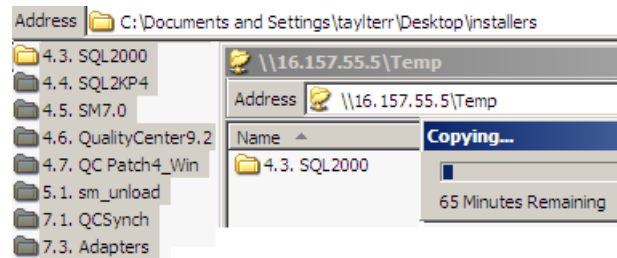
click yes. installs.

restart teh (vm) system.

test a link to the temp dir in vm and to your desktop. will need to xfer install files. !



xfer install files...2.8 GB (NOT VMWARE STUFF). about 30mins.!



4.3. SQL2000

click setup.bat. warning about sp2 not supported.

click continue. welcome.

click next. local computer

Computer Name

Enter the name of the computer on which you want to create a new instance of SQL Server or modify an existing instance of SQL Server.

SLMCPE-VP

Local Computer

Remote Computer

Virtual Server

click next. create new instance.

Installation Selection

Select one of the following installation options.

Create a new instance of SQL Server, or install Client Tools

Upgrade, remove, or add components to an existing instance of SQL Server

Advanced options

Create a New Installation
This option allows you to create a new instance of SQL Server 2000 or install Client Tools on any supported Operating System.

click next. name/company.

User Information

Enter your name below. It is not necessary to enter a company name.

Name: slmcpe

Company: HP

click next. license agreement.

click yes. server and client tools.

Installation Definition

You can select one of the following types of installations.

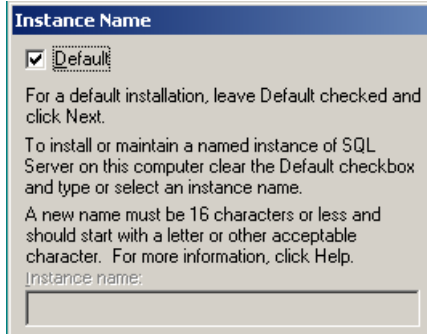
Client Tools Only

Server and Client Tools

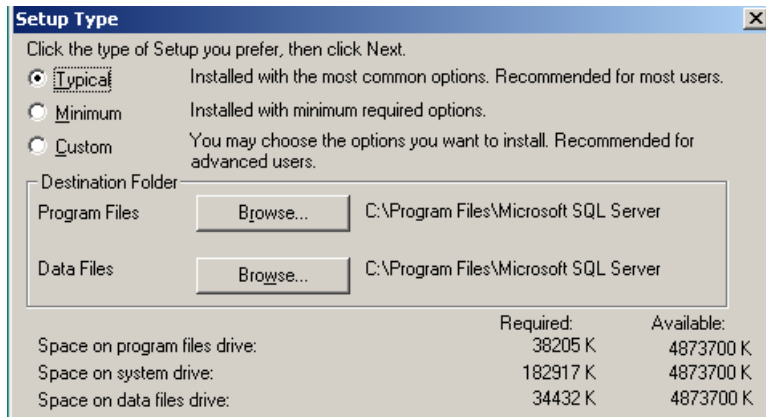
Connectivity Only

This option allows you to install a server and the client tools. Use this option if you want to set up a server with administration capabilities.

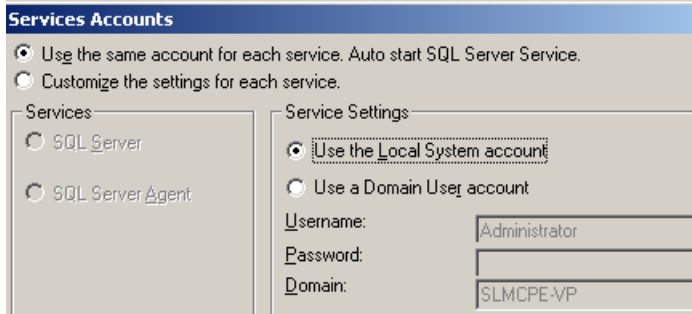
click next. default instance name.



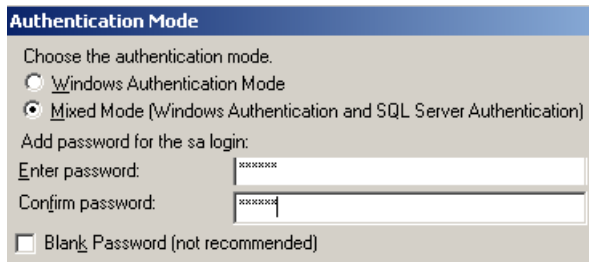
click next. type installation. typical.



click next. service account. select “use local system account”

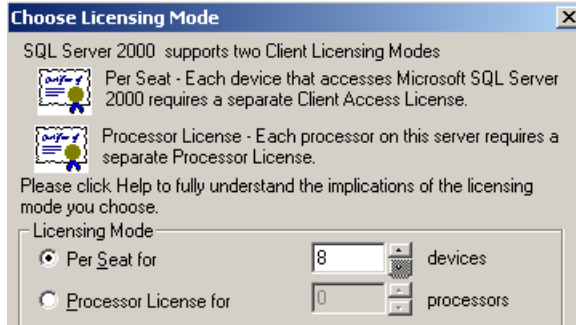


click next. select mixed mode authentication. user/password = sa/smcint



click next. enough info.

click next. licensing. per seat / 8 devices.



click next. starts installing. finished installing.

click finish.

delete the install files (to save space in vm).

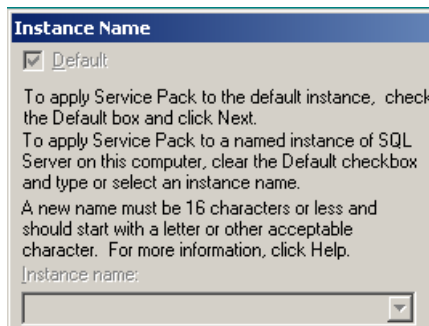
4.4. SQL2000 service pack 4

4.4.1. install

click sql2kp4/en/setup.bat. welcome.

click next. license.

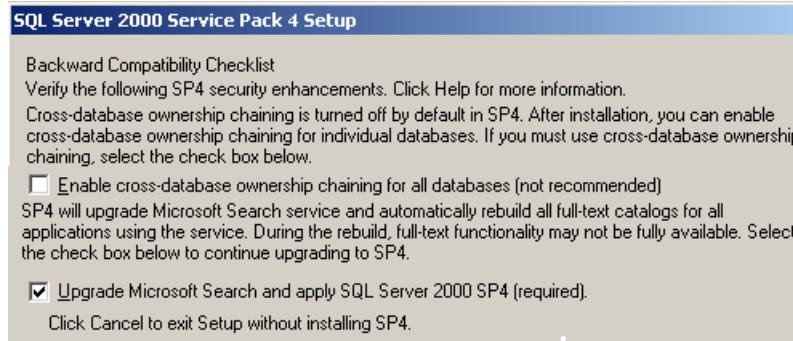
click yes. instance name.



click next. connect to server. use windows account.



click next. validating user. backward compatibility checklist. select upgrade ms search and apply sp4.



click continue. reporting features.

click ok. info gathered. enough info.

click next. installs.

click finish. runs scripts (takes a while). message about update db.

click ok.

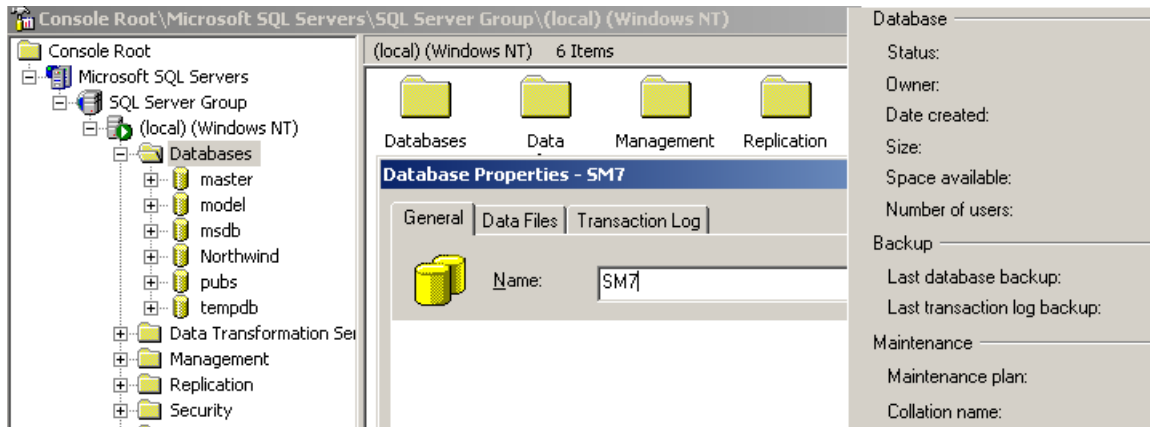
click finish.

delete the install files (to save space in vm).

4.4.2. create db SM7

mssql server / enterprise manager. ((change server name? slmcpe-vp?? i did not do this...))

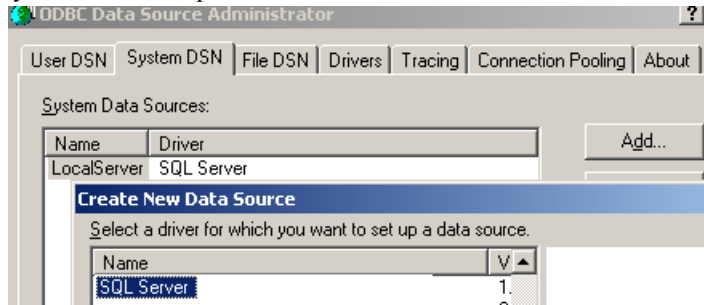
create new database. local database SM7.



4.4.3.

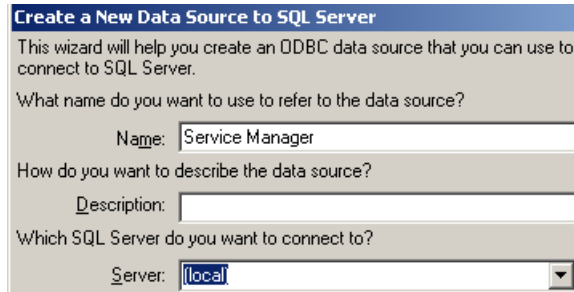
control panel/ admin tools /odbc.

system dsn. add sql server.



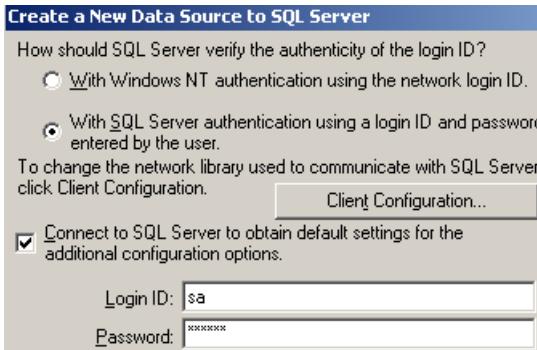
click finish. name = Service Manager.

Server local (SLMCPE-VP)

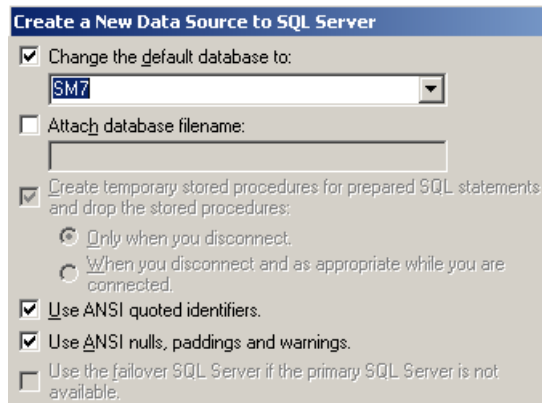


next. sql server authentication.

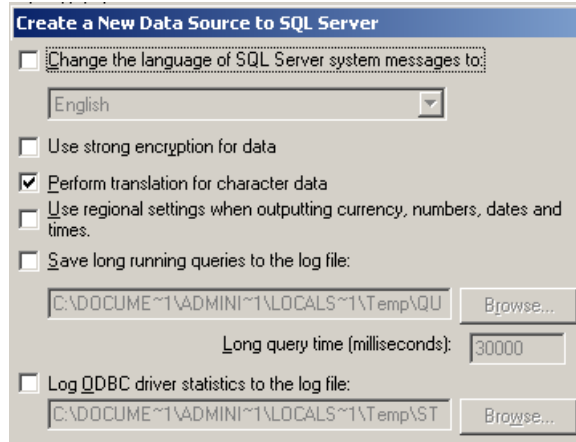
sa/smcint



default db = sm7.



next.



finish.

test data source.



ok. ok. ok.

4.5. Service Manager

4.5.1. server

sm7.0/clickme.html

Install HP Service Manager Server for Windows .

click run. are you sure?

click run. welcome install shield.

click next. accept license terms.

next. install dir.

click next. summary.

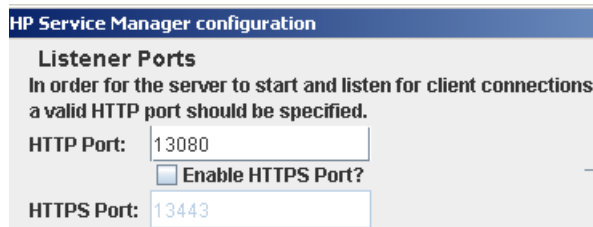
click install. installs. hp openview autopass.

check run configuration program after install.

4.5.2. server config

click finish. sm config wizard.

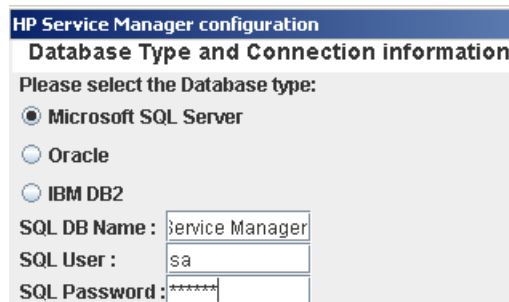
click next. listener ports. 13080.



The screenshot shows the 'HP Service Manager configuration' window with the 'Listener Ports' section. It contains the following text and fields:

- Listener Ports**
- In order for the server to start and listen for client connections, a valid HTTP port should be specified.
- HTTP Port:
- Enable HTTPS Port?
- HTTPS Port:

click next. database type and connection info. Service Manager/sa/smcint.



The screenshot shows the 'HP Service Manager configuration' window with the 'Database Type and Connection information' section. It contains the following text and fields:

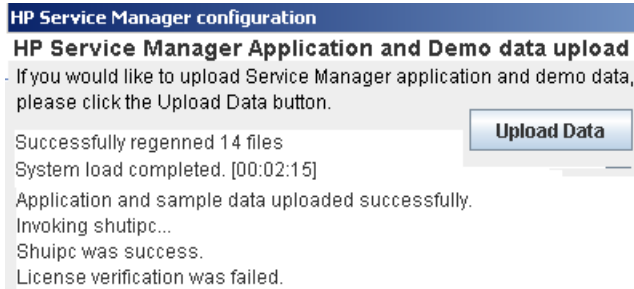
- Database Type and Connection information**
- Please select the Database type:
- Microsoft SQL Server
- Oracle
- IBM DB2
- SQL DB Name :
- SQL User :
- SQL Password :

click next.

click verify connection. verification succeeded.

click next.

click upload data. takes a while. license verify fails.



click next.

click finish.

4.5.3. client

install hp service manager client for windows.

click run. not verify.

click run. welcome.

click next. accept license.

next. dir name.

next. features.

next. summary.

click install. installs.

click finish.

4.5.4. start service/login

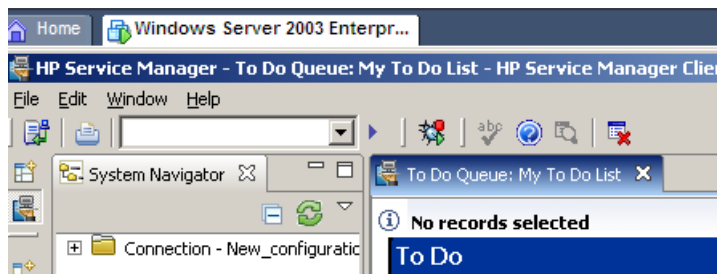
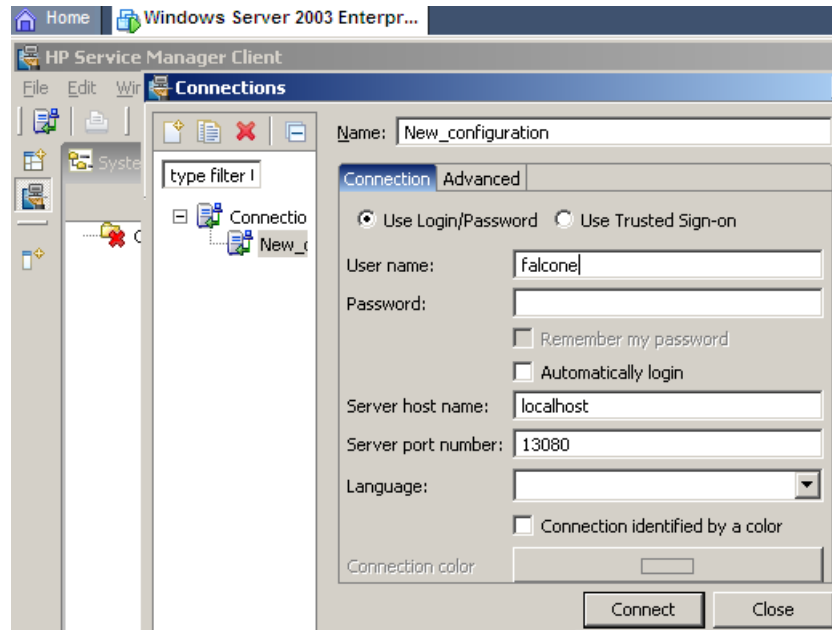
start the service. hp service manager. (all programs/startup/service manager)



client: programs/ hp/ service maanger/client

connections / new.

username/password: falcon/ (blank).



delete the install files (to save space in vm).

4.6. Quality Center

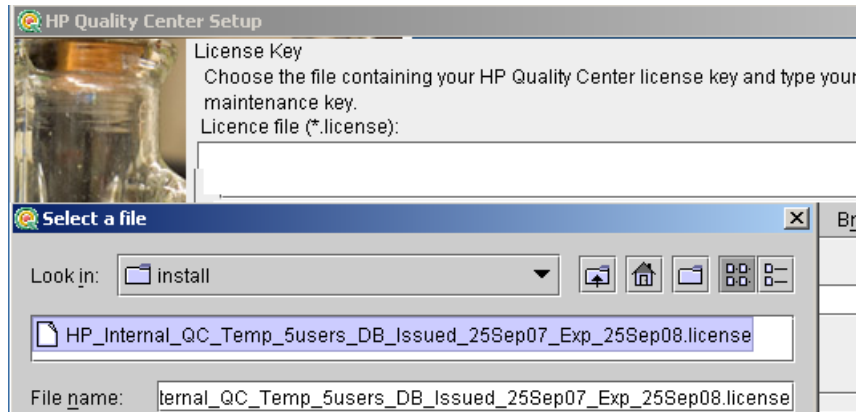
4.6.1. install

extract /quality center9.2/install/qcserver.zip.

click install/qc_9.2_windows/windows/insatllation/setup.exe. welcome.

next. accept terms.

next. entere license file (/install/ hp_internal...license).



no maintenanc ekey.

next. first node/standalone

next. dir name.

next. jboss.

next. username / password = qcadmin / smcint. domain = SLMCPE-VP.

JBoss Service	
Type your Windows login user name, password, and domain to enable JBoss to run as a service using your local network. If you do not specify a user account, the JBoss service will not have access to your local network.	
User name:	qcadmin
Password:	*****
Domain:	SLMCPE-VP

next. warning abotu iis not runing. use jboss?

next. insatll overview.

next. mail protocal.

select none.

next. database type.

select sql with server authentication.

next. db config.

server name = localhost, sa/smcint.

click next. input validated. define admin.

username/password = qcadmin / smcint

next. repository path.

next. overview.
next. installs. updates db schema. start jboss server?
select yes.
next. server starts. long time. jboss launch dialog. yes selected.
next. wait for jboss to start. qc login page appears. install complete.
finish (in install dialog).

4.6.2. login site admin / create project

login qc. asks if install.
install. downloads stuff. login dialog.
login name/pw = qcadmin / smcint
login

create project.
empty.
next. name/domain = Test2 / DEFAULT
next. db = localhost / sa / smcint.
next. warning about text features.
ok. add qcadmin to project admin.
next. overview of project create.
create. created success message.
ok.

4.6.3. get to login (install) qc client

start / all programs/ hp quality center / hp quality center
click quality center. downloads a lot. net framework setup dialog appears.
next. license.
check i accept.
install. installs.
ignore warning about closing qc.
finish. after while qc login page appears.
delete the install files (to save space in vm).

4.7. QC patch

4.7.1. install patch

logout of qc.
extract qc patch4_win.zip
setup.exe. welcome.
next. directions.
next. summary.
next. installs. updates qcbn.war. asks to deploy files automatically.
yes.
next. services stops, starts.
finish.

4.7.2. open client

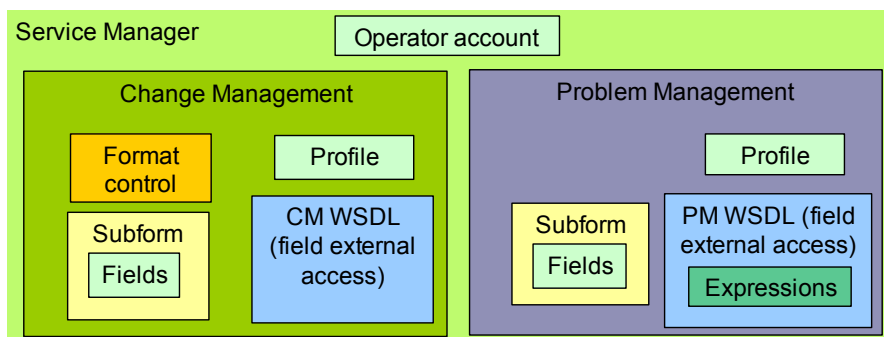
open qc. start / all programs / quality center / hp quality center. "do you want to install?"
install. downloads. login page appears.
login in qc. qadmin/smcint.
authenticate.
select domain/project DEFAULT/ Test2
login
delete the install files (to save space in vm).

5 Service Manager Customization

This chapter describes basic customization of Service Manager.

- 5.1. *WSDL data limitations* on page 48
- 5.2. *Create Operator* on page 50
- 5.3. *Change Management* on page 51
- 5.4. *Problem Management* on page 57

Figure 21 SM Customization



5.1. WSDL data limitations

- 5.1.1. Supported WSDL data types
- 5.1.2. QC 4-byte signed integer values

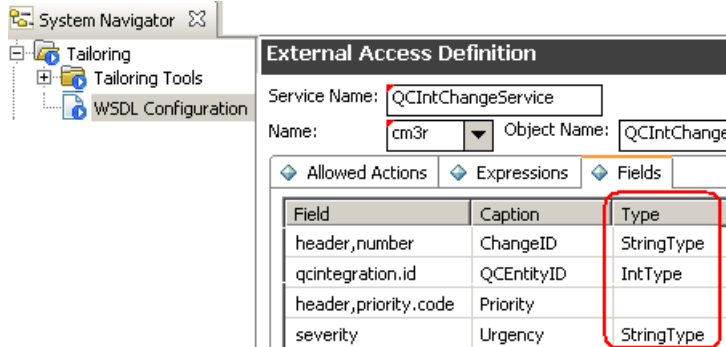
5.1.1. Supported WSDL data types

In sections

- 5.3.6. External Access of New Fields on page 54
- 5.4.6. External Access of New Fields on page 59

you specify the SM fields are accessed externally (by the Synchronizer) and optionally specify the datatype of the accessed value.

Figure 22 Change WSDL specification



If the datatype is

- NOT specified: WSDL will automatically specify a type for the field as shown in (1) below.
- Specified: The specified datatype must be one of the datatypes listed in (2) below.

Table 1 WSDL data types

SM Database Data Type	(1) WSDL Data Type (default)	(2) WSDL optional data types
Logical	BooleanType	
Date/time	DateTimeType. Note: In order to update the field correctly, you must specify the DateTimeType in SM WSDL configuration form. (that means, don't keep it empty)	
character	StringType	

Table 1 WSDL data types

SM Database Data Type	(1) WSDL Data Type (default)	(2) WSDL optional data types
Number	DecimalType	IntType
Expression	<not be exposed via web service>	<not be exposed via web service>
Array	A customized array type which is based on ArrayType	Specifying the data type of Array explicitly in WSDL configuration is ignored. Note: An Array Field can contain Logical/Datetime/Character/Number/Structure/Expression data types. Only Character type is supported in Array fields.

The following table shows all available datatypes. Data types in parentheses (Base64Type) are NOT supported by the QC Synchronizer adapter.

Table 2 All available datatypes

ArrayType	DecimalType	StringType
(Base64Type)	(DoubleType)	StructureType
BooleanType	(FloatType)	(TimeType)
(ByteType)	IntType	(AttachmentType)
DateTimeType	(LongType)	(DurationType)
(DateType)	(ShortType)	(MessageType)

5.1.2. QC 4-byte signed integer values

QC only supports 4-byte signed integers. A non-integer sent to QC from SM will be converted to integer (maximum 4 bytes). See known issue *B.3. QC 4-byte integer data limitation* on page 85.

5.2. Create Operator

The operator record identifies the logon name, password, and specific settings for each person using Service Manager. Please create an operator for this integration according to the table below.

Create an operator (Menu Navigation -> System Administration -> Ongoing Maintenance -> Operators)

Table 3 Operator record parameters

No	Page	Field	Value	Memo
1	General	Login Name	QCIntUser	
2	General	Full Name	QC Integration Default Account	
3	General	Contact ID	<Integration administrator's account in SM>	
4	General/Application Profiles	Problem Profile	PMProfile_QCInt	The problem management profile created in section below.
5	General/Application Profiles	Change Profiles	CMProfile_QCInt	The change management profile created in section below.
6	Security	Password	<Your password>	
7	Startup	Execute Capabilities	SOAP API	
8	Startup	Execute Capabilities	ChMAdmin	
9	Startup	Execute Capabilities	ProbAdmin	
10	Login Profile	Time Zone	Greenwich/Universal, or create a timezone with none time diff or DST switch in Database Manager.	
11	Login Profile	Date Format	yy/mm/dd	The date format can not be changed later, otherwise all data will be lost during the synchronization.

5.3. Change Management

This section describes the required Change Management customization

- 5.3.1. Profile on page 51
- 5.3.2. New Fields on page 51
- 5.3.3. Create Subform on page 52
- 5.3.4. Add Subform to Form on page 52
- 5.3.5. Add Format Control Calculations/Validations on page 53
- 5.3.6. External Access of New Fields on page 54

5.3.1. Profile

Profile records grant specific rights and privileges within a specific application (such as Service Desk or Incident Management) to ServiceCenter operators.

Create Profile (Menu Navigation -> System Administration -> Ongoing Maintenance -> Profiles) Change Management Profile:

Table 4 Change Management Profile

No	Page	Field	Value	Memo
1		Profile Name	CMProfile_QCInt	
2		Profile Area	Changes	
3	Security/Rights	Update	Always	
4	Security/Rights	View	Y	Check Box
5	Security/Rights	Reopen	Y	Check Box
6	Query	Query Options/All	Y	Check Box

5.3.2. New Fields

Add the following fields to table "cm3r" (System Definition -> Tables -> cm3r or Menu Navigation -> Tailoring -> Database Dictionary).

Table 5 New fields

Field	Type
qcintegration.type	Character
qcintegration.id	Number
qcintegration.project	Character

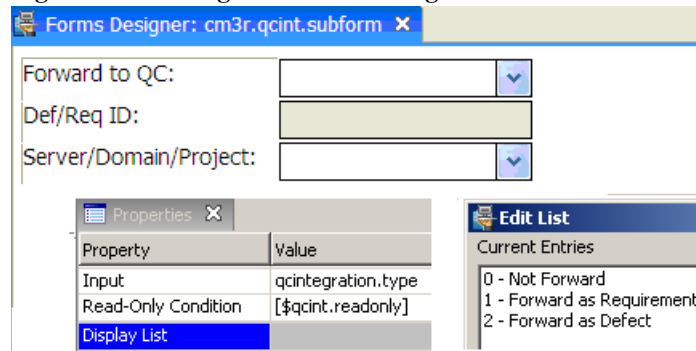
5.3.3. Create Subform

Create sub-form "cm3r.qcint.subform" without the Form Wizard (Menu Navigation > Tailoring > Forms Designer) with the following components on the canvas.

Table 6 Change subform parameters

Component	Properties
Label	Caption: "Forward to QC:"
Combo Box	<ul style="list-style-type: none"> Input: "qcintegration.type" Value List: "0;1;2" Display List: "0 - Not Forward;1 - Forward as Requirement;2 - Forward as Defect" Select Only: "Yes" Read-Only Condition: "[\$qcint.type.readonly]"
Label	Caption: "Def/Req ID:"
Text	<ul style="list-style-type: none"> Input: "qcintegration.id" Read-Only: "Yes"
Label	Caption: "Server/Domain/Project:"
Combo Box	<ul style="list-style-type: none"> Input: "qcintegration.project" Value List: "server1/domain1/project1;server2/domain2/project2" Read-Only Condition: "[\$qcint.project.readonly]" Mandatory Condition: "[qcintegration.type]<>0"

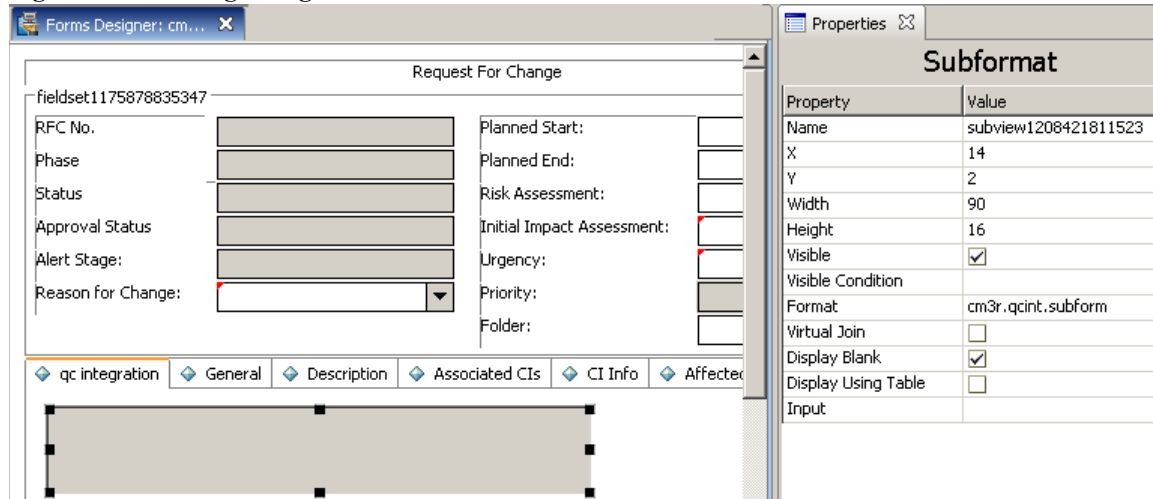
Figure 23 Change subform in designer



5.3.4. Add Subform to Form

- 1 Open the form of one phase of one category via Form Designer. For example, cm3r.rfc.build.g or cm3r.application.g (in this example use cm3r.rfc.build.g).
- 2 Add a Notebook Tab with caption "QC Integration".
- 3 Add a Subform to the new tab with format "cm3r.qcint.subform".

Figure 24 Adding change subform

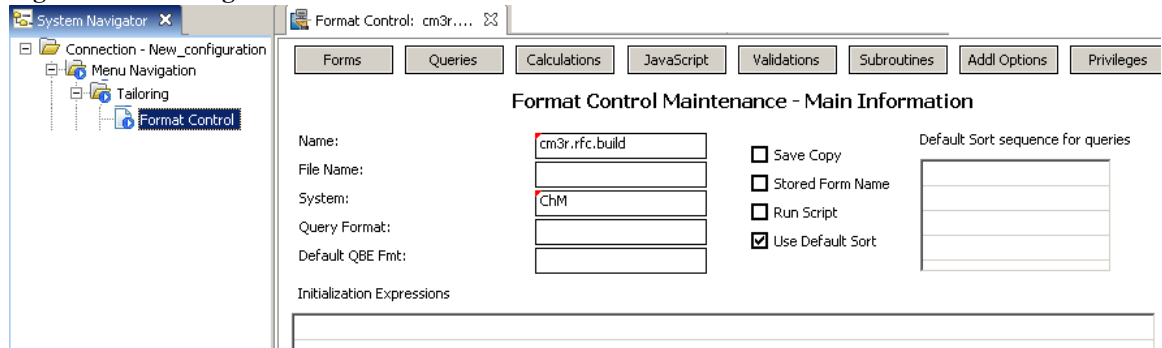


- 4 Save the changes.
- 5 If the new subform does not display correctly, then restart the SM service.
- 6 If you met the error message "Format 'cm3r.qcint.subform' not found (display, show.rio)", please restart the SM server to enable the subform.

5.3.5. Add Format Control Calculations/Validations

- 7 Open the form format control of the previous change form (in this example cm3r.rfc.build).

Figure 25 Change format control form



- 8 Click the "Calculations" button.
- 9 Add 2 records.

Table 7 Change calculations

Parameter	display	initial	calculation
1	true	true	\$qcint.type.readonly=2;if (qcintegration.type in \$file~==0) then (\$qcint.type.readonly=1)
2	true	true	\$qcint.project.readonly=2;if (qcintegration.type in \$file~==0 and not null(qcintegration.project in \$file)) then (\$qcint.project.readonly=1)

Figure 26 Change calculations

Forms Queries **Calculations** JavaScript Validations Subroutines Add Options Privileges

Format Control Maintenance - Calculations

Name: cm3r.rfc.build View: short

add	update	delete	disp...	initial	calculation
true	true				risk.assessment in \$file=nullsub(risk.assessment in \$file, "1")
true	true	true			misc3 in \$file=nullsub(misc3 in \$file, "no")
		priorit...			if (misc3 in \$file="yes") then (\$phaseptr=3;current.phase in \$file="RFC Testing")
		true			billtype in \$file=nullsub(billtype in \$file, "dept")
			true	true	\$qcint.readonly=2;if (qcintegration.type in \$file="1" or qcintegration.type in \$file="2") then (\$qcint.readonly=1)

10 Click the "Validations" button.

11 Add one record.

Table 8 Change validation record

No	Parameter	Value
1	Validation	not null(qcintegration.project in \$file)
2	Message	The Server/Domain/Project is required.
3	Add	qcintegration.type in \$file~=0
4	Update	qcintegration.type in \$file~=0
5	Set Focus to	qcintegration.project

Figure 27 Change validation record

Forms Queries Calculations JavaScript **Validations** Subroutines Add Options Privileges

Format Control Maintenance - Validations

Name: cm3r.rfc.build View: short

Validations

Add | Upd | Del | Dis | Initial | Validation Use pop-up validation messages

On Failed Validation Set Focus To | Msg ID | Message

qcintegi	qcintegi					not null(qcintegration.project in \$file)
qcintegration.project						The Server/Domain/Project is required.

12 Save the changes.

5.3.6. External Access of New Fields

13 Create a customized External Access Definition "QCIntChangeService" (Menu Navigation > Tailoring > WSDL configuration).

- Service Name: QCIntChangeService
- Name: cm3r
- Object Name: QCIntChange
- Allowed Actions:

Table 9 Change allowed actions

Allowed Actions	Action Names
save	Update

Figure 28 Change allowed actions

The screenshot shows the 'External Access Definition' configuration window. At the top, there are three tabs: 'Allowed Actions', 'Expressions', and 'Fields'. The 'Allowed Actions' tab is active. Below the tabs, there are three input fields: 'Service Name' (QCIntChangeService), 'Name' (cm3r), and 'Object Name' (QCIntChange). Below these fields is a table with three columns: 'Allowed Actions', 'Action Names', and 'Action Type'. The table contains one row with 'save' in the 'Allowed Actions' column, 'Update' in the 'Action Names' column, and an empty cell in the 'Action Type' column.

- 14 Required Fields: These fields must be exported in the web service to support the integration.
 Note: The caption value must be unique and consist of alphanumeric (letters and numbers; no spaces) with first letter capitalized. For example: “AValidCaption123”, “AnotherValidCaption”.

Table 10 Change external fields

Field	Caption	Type
header,number	ChangeID	StringType
qcintegration.id	QCEntityID	IntType
sysmodtime	Modified	DateTimeType

Figure 29 Change external fields

The screenshot shows the 'External Access Definition' window. The 'Service Name' is 'QCIntChangeService', the 'Name' is 'cm3r', and the 'Object Name' is 'QCIntChange'. The 'Fields' tab is active, displaying a table of fields. The following fields are highlighted with red boxes:

Field	Caption	Type
header,number	ChangeID	StringType
qcintegration.id	QCEntityID	IntType
header,priority.code	Priority	
severity	Urgency	StringType
header,status	Status	
header,reason	Reason	
description.structure,desc...	Description	
middle,logical.name	ConfigurationItem	
header,risk.assessment	RiskAssessment	
header,coordinator	Coordinator	
header,requested.by	RequestedBy	
sysmodtime	Modified	DateTimeType

5.4. Problem Management

This section describes the required Problem Management customization

- 5.4.1. *Profile* on page 57
- 5.4.2. *New fields* on page 57
- 5.4.3. *Expressions* on page 58
- 5.4.4. *Create Subform* on page 58
- 5.4.5. *Add Subform to Form* on page 58
- 5.4.6. *External Access of New Fields* on page 59

5.4.1. Profile

15 Problem Management Profile:

Table 11 Problem management profile

No	Page	Field	Value	Memo
1		Profile Name	PMProfile_QCInt	
2	Problems/Security/Rights	New	Y	Check Box
3	Problems/Security/Rights	Close	Y	Check Box
4	Problems/Security/Rights	Update	Always	
5	Problems/Security/Rights	Reopen	Y	Check Box

5.4.2. New fields

1 Add 2 fields to the table "rootcause" (Menu Navigation > Tailoring > Database Dictionary).

Table 12 rootcause fields

Field	Type
qcintegration.id	Number
qcintegration.project	Character

5.4.3. Expressions

These expressions are used to satisfy the business-logic requirement of the problem management.

Table 13 Problem management expressions

No	Expressions
1	cleanup(\$pm.activity);cleanup(\$src.update);if same(update in \$L.file, update in \$L.file.save) then (\$L.need.to.update=true)
2	\$src.update=update in \$L.file;if (denuLL(\$src.update)={}) then (\$src.update={"no update provided"})
3	if (\$L.need.to.update=true) then (\$src.update={"no update provided"})
4	update in \$L.file=update in \$L.file.save
5	current.phase in \$L.file="XXX" Note: Replace XXX with a phase name
6	category in \$L.file="ITIL" Note: Only apply for the demo data of SM7.0

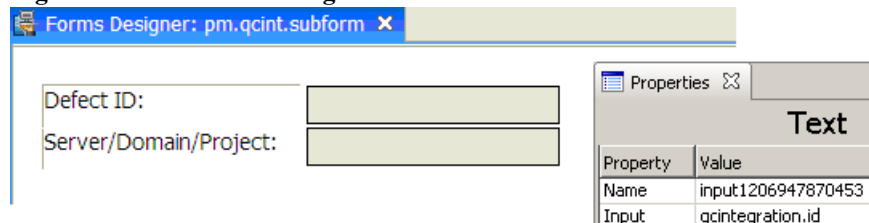
5.4.4. Create Subform

- 2 Create sub-form "pm.qcint.subform" without Form Wizard (Menu Navigation > Tailoring > Forms Designer) with the following components.

Table 14 Problem management subform

Component	Properties
Label	Caption: "Defect ID:"
Text	Input: "qcintegration.id" Read-Only: "Yes"
Label	Caption: "Server/Domain/Project:"
Text	Input: "qcintegration.project" Read-Only: "Yes"

Figure 30 Problem management subform



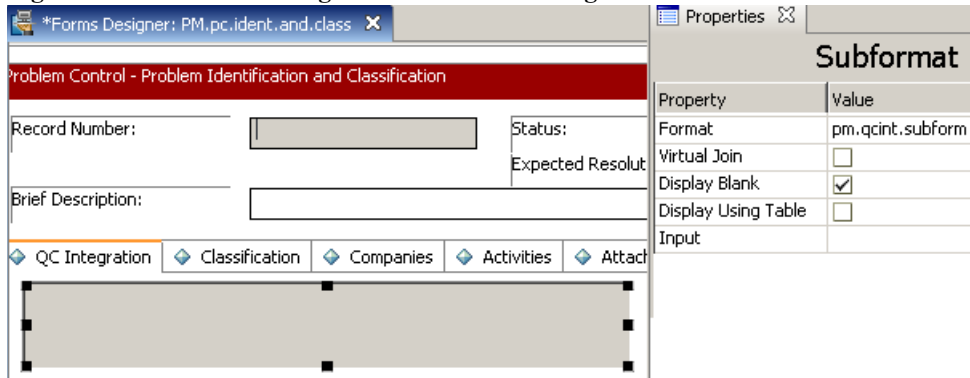
5.4.5. Add Subform to Form

The following is an example of how to add a subform to a form.

- 3 Open the default form of one phase of Problem Management via Form Designer. In this example PM.pc.ident.and.class.
- 4 Add a Notebook Tab with caption "QC Integration".

- 5 Add a Subform to the new tab with format "pm.qcint.subform".

Figure 31 Problem management subform in designer



- 6 Save the changes.
- 7 If the new subform does not display correctly, then restart the SM service.
- 8 If you met the error message "Format 'pm.qcint.subform' not found (display, show.rio)", please restart the SM server to enable the subform.

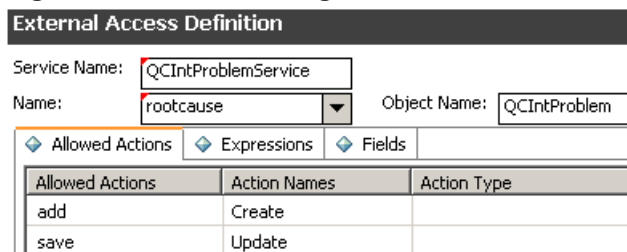
5.4.6. External Access of New Fields

- 9 Create a customized External Access Definition "QCIntProblemService" (Menu Navigation > Tailoring > WSDL configuration).
 - Service Name: QCIntProblemService
 - Name: rootcause
 - Object Name: QCIntProblem
 - Allowed Actions:

Table 15 Problem management WSDL

Allowed Actions	Action Names	Action Type
add	Create	
save	Update	

Figure 32 Problem management WSDL



- 10 Required Fields: These fields must be exported in the web service to support the integration. Note: The caption value of the exposed fields must be unique and alphanumeric (letters and numbers; no spaces) with first letter capitalized. For example: “Avalidcaption123”, “Anothervalidcaption”.

Table 16 Problem management required fields

Field	Caption	Type
qcintegration.id	QCEntityID	IntType
id	ProblemID	StringType
sysmodtime	Modified	DateTimeType
qcintegration.project	QCProject	StringType

Figure 33 Problem management required fields

External Access Definition

Service Name:

Name:

◆ Allowed Actions ◆ Expressions ◆ Fields

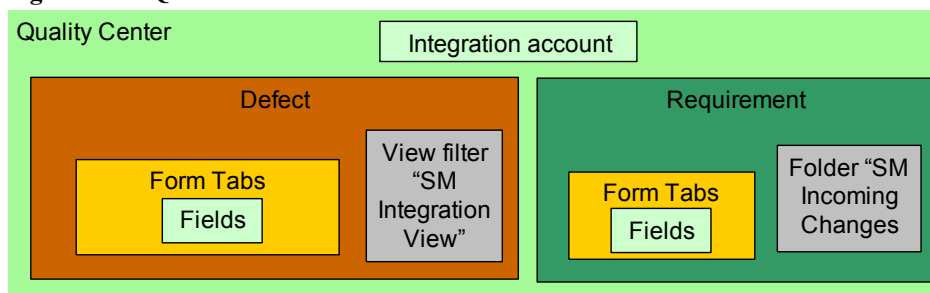
Field	Caption	Type
qcintegration.id	QCEntityID	IntType
id	ProblemID	StringType
sysmodtime	Modified	DateTimeType
qcintegration.project	QCProject	StringType
incident.category	Category	StringType
subcategory	SubCategory	StringType
product.type	ProductType	StringType
problem.type	ProblemType	StringType
initial.impact	Impact	StringType
severity	Severity	StringType
description	Description	StringType
assignment	AssignmentGroup	StringType
ticket.owner	ProblemOwner	StringType
category	WorkFlowType	StringType

6 Quality Center Customization

This chapter describes how to customize Quality Center.

- 6.1. *Integration account* on page 62
- 6.2. *Defects* on page 64
- 6.3. *Requirements* on page 68

Figure 34 QC Customization



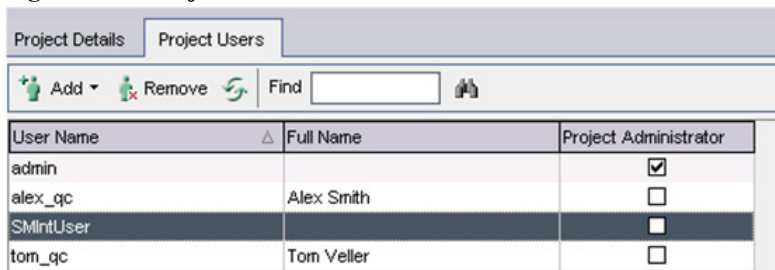
6.1. Integration account

Sometime, you need to create an integration account.

Please log on "Quality Center - Administrator" using administrator account,

- 1 In "Site Users" tab, add user named as " SMIntUser" and give it a password
- 2 in "Site Projects" tab, choose your project from the list
- 3 Click "Project Users" tab from the right panel, click "Add From The Users List"
- 4 Add "integration" to this project.
- 5 Log out.

Figure 35 Project users

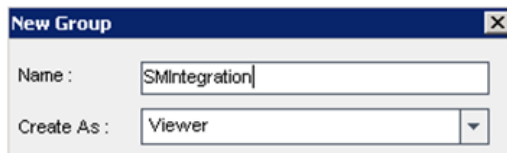


The screenshot shows the "Project Users" tab in a software interface. At the top, there are tabs for "Project Details" and "Project Users". Below the tabs, there are buttons for "Add", "Remove", and "Find", along with a search input field. The main area contains a table with the following data:

User Name	Full Name	Project Administrator
admin		<input checked="" type="checkbox"/>
alex_qc	Alex Smith	<input type="checkbox"/>
SMIntUser		<input type="checkbox"/>
tom_qc	Tom Veller	<input type="checkbox"/>

- 6 Please log on "Quality Center" using administrator account and click the menu: "TOOLS->Customize..."
- 7 Choose "Groups"
- 8 Click "New", Name: SMIntegration and Create As: Viewer.

Figure 36 New QC group



The screenshot shows a "New Group" dialog box with the following fields:

- Name: SMIntegration
- Create As: Viewer

- 9 Click "OK" and choose "Yes" to create this user group.

10 Click "Change" and assign permission for this user group.

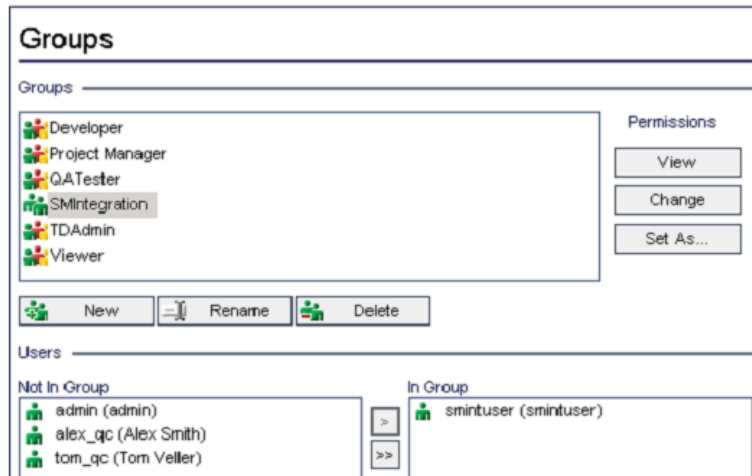
Table 17 Permissions

Requirement	Add Requirement/Modify Requirement	<input checked="" type="checkbox"/> Add Requirement <input checked="" type="checkbox"/> Modify Requirement <input type="checkbox"/> Delete Requirement <input type="checkbox"/> Add Tests To Coverage <input type="checkbox"/> Remove Tests From Coverage <input type="checkbox"/> Add Requirement Traceability <input type="checkbox"/> Modify Requirement Traceability <input type="checkbox"/> Remove Requirement Traceability <input type="checkbox"/> Risk-Based Quality Management
Defects	Add Defects/Modify Defects	<input checked="" type="checkbox"/> Add Defect <input checked="" type="checkbox"/> Modify Defect <input type="checkbox"/> Delete Defect <input type="checkbox"/> Add Defect Link <input type="checkbox"/> Modify Defect Link <input type="checkbox"/> Remove Defect Link

11 Add this integration user "SMIntUser" to this group "SMIntegration".

12 Save and close.

Figure 37 Groups



The integration account is created.

6.2. Defects

- 6.2.1. New Fields on page 64
- 6.2.2. New tabs on page 64
- 6.2.3. Add fields to tabs on page 65
- 6.2.4. Create a View on page 66

6.2.1. New Fields

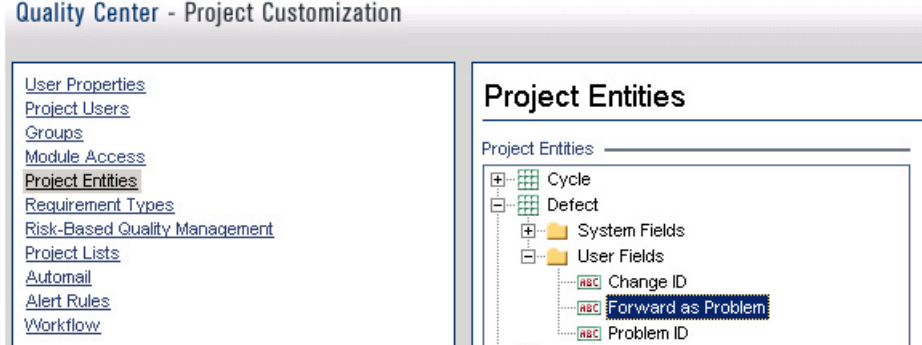
This step is to customize defect and requirement entities.

- 1 Login to Quality Center using project administrator account.
- 2 Click Tools / Customize. Module "Quality Center - Project Customization" appears.
- 3 Add the following fields for the Defect entity in Project Entities (Note: XX YY XZ are sequential numbers auto-generated by QC system).

Table 18 Defects new fields

Field Name	Field Label	Field Type	Others
BG_USER_XX	Forward as Problem	Lookup List	YesNo
BG_USER_XY	Change ID	String	
BG_USER_XZ	Problem ID	String	

Figure 38 Defects new fields
Quality Center - Project Customization

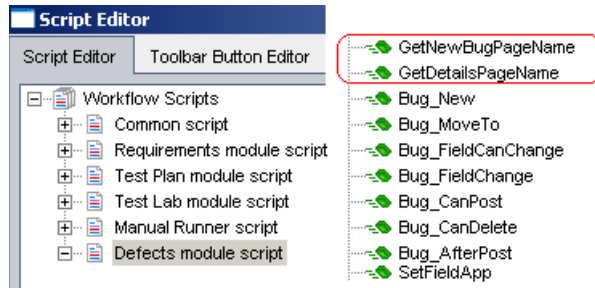
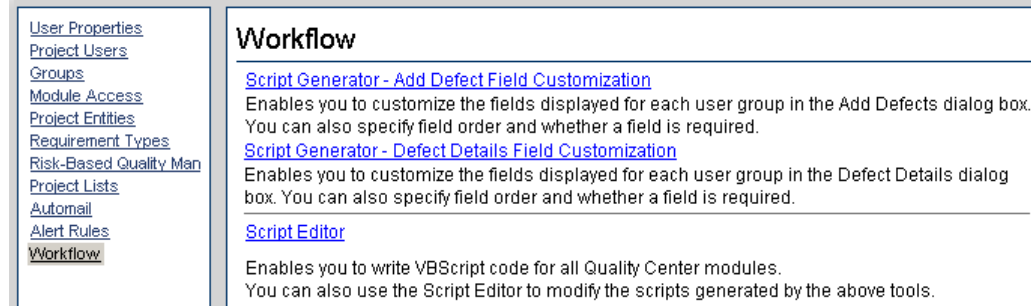


6.2.2. New tabs

Add tabs to the defect form and show fields on these tabs. For a new bug, the tab name is "SM Integration (New)". For opening of an existing defect, the tab name is "SM Integration (Details)".

- 4 In "Quality Center - Project Customization" click "Workflow".
- 5 Click Workflow-> Script Editor.
- 6 Choose "Defects module script".

Figure 39 Defects module script
Quality Center - Project Customization



- 7 Add the following code to the GetNewBugPageName event procedure (which is triggered before Quality Center opens the Add Defect dialog box). Note: “2” specifies tab 2 (the second tab).

```
select case PageNum
  case "2"
    GetNewBugPageName = "SM Integration (New)"
  end select
```

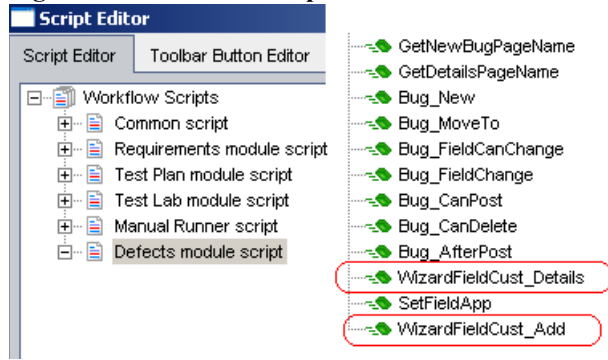
- 8 Add the following code to the GetDetailsPageName event procedure (which is triggered before Quality Center displays Defect Details dialog box). Note: “2” specifies tab 2 (the second tab).

```
select case PageNum
  case "2"
    GetDetailsPageName = "SM Integration (Details)"
  end select
```

6.2.3. Add fields to tabs

- 9 If "WizardFieldCust_Details" and "WizardFieldCust_Add" are not found in the list: Then do
 1. Script Generator - Add Defect Field Customization
 2. Script Generator - Defect Details Field Customization
 to generate these two methods.

Figure 40 Generate script methods



10 Add the following code to the WizardFieldCust_Details event procedure.

```
SetFieldApp "BG_USER_XX", True, False, 1, 0
SetFieldApp "BG_USER_XY", True, False, 1, 1
SetFieldApp "BG_USER_XZ", True, False, 1, 1
```

Where SetFieldApp parameters are

- Field name (BG_USER_XX, where XX = 2 digits)
- Visible (True)
- Required (False)
- Page number (start from 0)
- View order (start from 0)

11 Add the following code to the WizardFieldCust_Add event procedure.

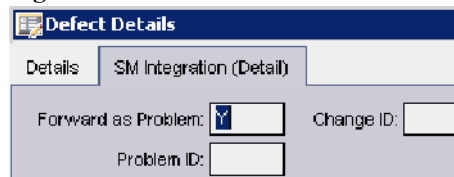
```
SetFieldApp "BG_USER_XX", True, False, 1, 0
SetFieldApp "BG_USER_XY", True, False, 1, 1
SetFieldApp "BG_USER_XZ", True, False, 1, 1
```

12 Set fields Readonly: Add following line to Bug_New and Bug_Moveto subroutines:

```
if (Bug_Fields("BG_USER_XX").Value="Y") then
    Bug_Fields("BG_USER_XX").IsReadOnly=True
end if
Bug_Fields.Field("BG_USER_XY").IsReadOnly=True
Bug_Fields.Field("BG_USER_XZ").IsReadOnly=True
```

The if loop above marks field "Forward as Problem" as read only after selected and saved.

Figure 41 Defect fields in tabs



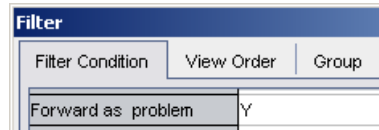
13 Exit Customization (save changes).

6.2.4. Create a View

14 In the Defects module, Click View / Filter/Sort / "Set Filters/Sort". The purpose of this view is to let QC Synchronizer correctly filter those defects to be synchronized to SM as Problems

15 Forward as Problem = Y.

Figure 42 Forward as problem

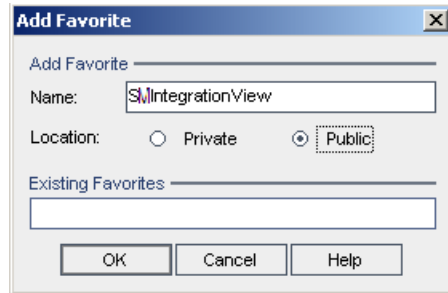


16 Add to Favorites:

— Name: SMIntegrationView

— Location: public

Figure 43 Add to favorites

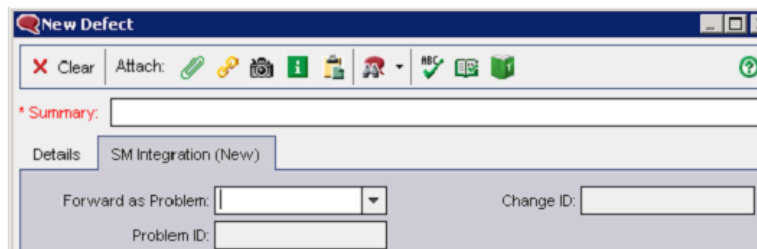


Then in QC Synchronizer you must choose this view as a filter of QC data. Without the filter, no matter what defect in QC, even not marked as "forward as Problem" will be forwarded to SM.

6.2.5. Test

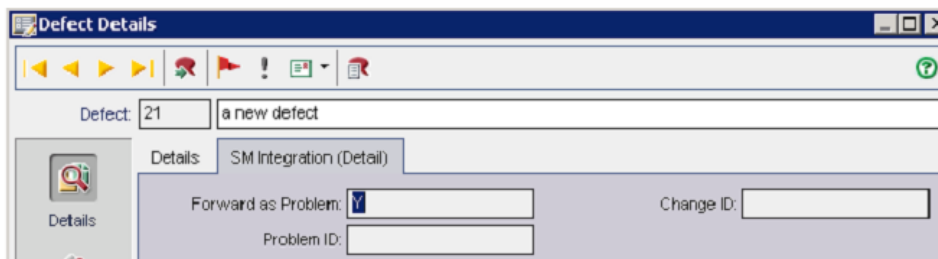
When you create a new defect, dialog box has a new tab named as "SM Integration (New)" and 3 fields are on this tab.

Figure 44 New defect new tabs and fields



When opening an existing defect, if "Forward as Problem" is already chosen "Y", this field will be marked as readonly.

Figure 45 New defect marked as read only



6.3. Requirements

- 6.3.1. Add Field on page 68
- 6.3.2. Create tabs on page 68
- 6.3.3. Add fields to tabs on page 70
- 6.3.4. Create Folder "SM Incoming Changes" on page 71

6.3.1. Add Field

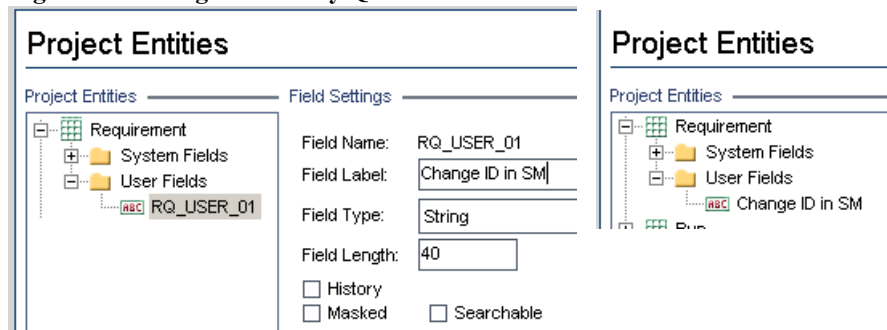
- 1 Add a field for the Requirement entity in Project Entities:

Table 19 Requirements field

Field Name	Field Label	Field Type
RQ_USER_ZZ	Change ID in SM	String

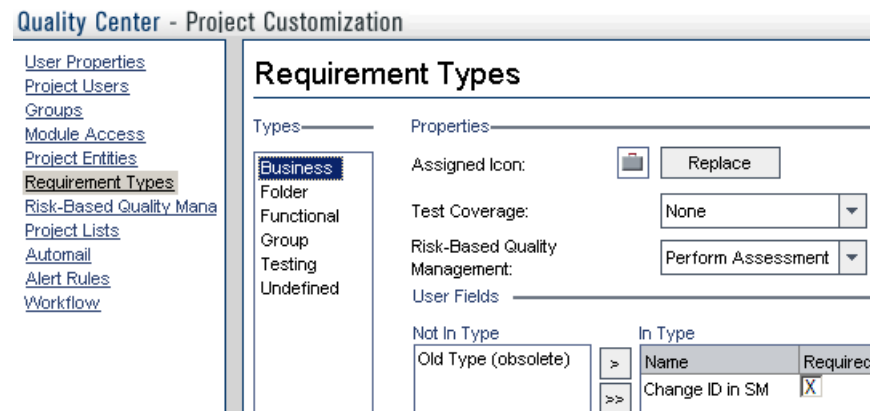
Note: ZZ is a sequential number auto-generated by QC system.

Figure 46 ZZ generated by QC



- 2 In Requirement Types: Add field "Change ID in SM" to the Business type requirement. "Business" type is the default requirement type for incoming requirements (other types can be used).

Figure 47 Requirements types field



6.3.2. Create tabs

This step is to add tabs to requirement form and show fields on these tabs.

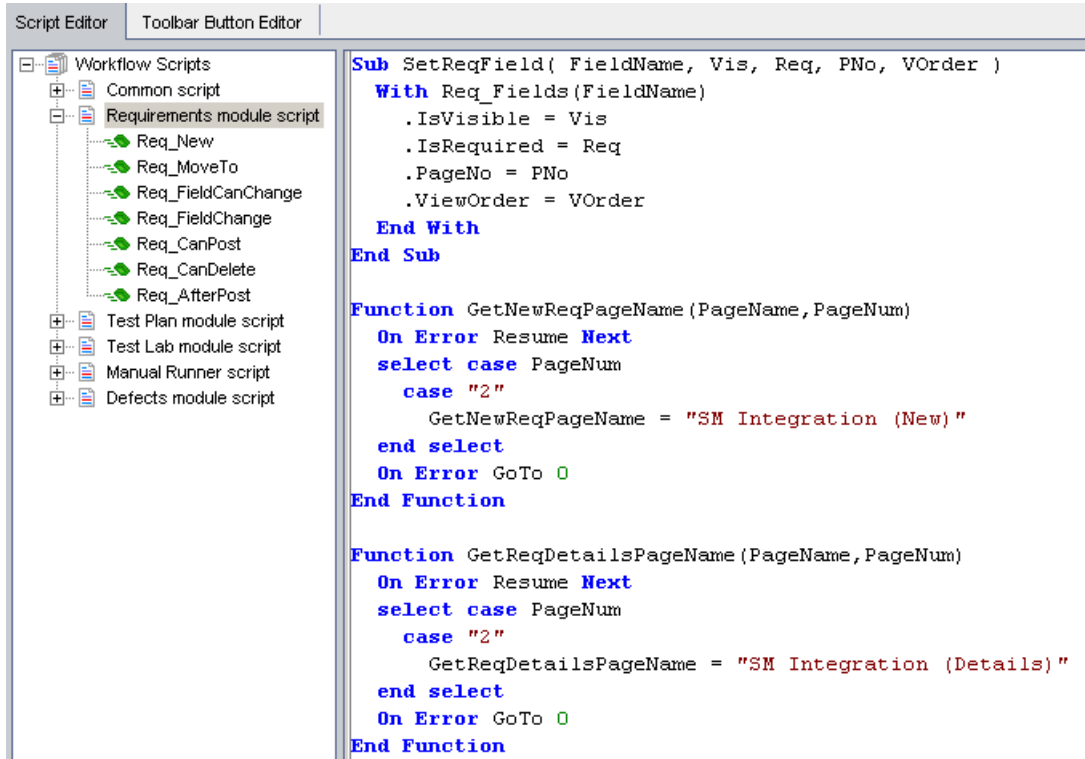
- For a new requirement, the tab name is "SM Integration (New)"
 - For opening of an existing requirement, the tab name is "SM Integration (Details)".
- 3 Click workflow-> Script Editor. Add the following code to the requirement module. Note: "2" specifies tab 2 (the second tab).
 Note: This function is called when an existing requirement is showed on dialog box. Besides, please note that: the number 2 means the second tab, if you already have N tabs and you want to show the tab at the position N+1, you need to change the number form 2 to N+1.

```
Sub SetReqField( FieldName, Vis, Req, PNo, VOrder )
  With Req_Fields(FieldName)
    .IsVisible = Vis
    .IsRequired = Req
    .PageNo = PNo
    .ViewOrder = VOrder
  End With
End Sub
```

```
Function GetNewReqPageName (PageName, PageNum)
  On Error Resume Next
  select case PageNum
    case "2"
      GetNewReqPageName = "SM Integration (New)"
  end select
  On Error GoTo 0
End Function
```

```
Function GetReqDetailsPageName (PageName, PageNum)
  On Error Resume Next
  select case PageNum
    case "2"
      GetReqDetailsPageName = "SM Integration (Details)"
  end select
  On Error GoTo 0
End Function
```

Figure 48 Script for requirements tab



6.3.3. Add fields to tabs

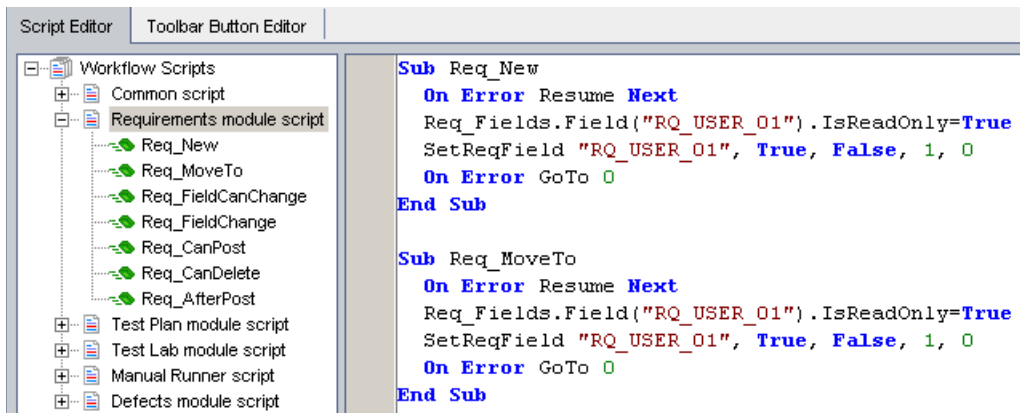
Set fields as readonly and place the fields on the tabs.

- 4 In the Script Editor for requirements module script: Add following to Req_New and Req_MoveTo.

```

Req_Fields.Field("RQ_USER_ZZ").IsReadOnly=True
SetReqField "RQ_USER_ZZ", True, False, 1, 0
    
```

Figure 49 Script to add requirements fields to tabs

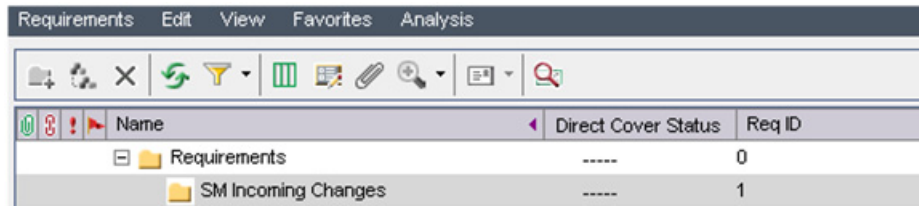


Note: Req_New is called when a new requirement is created. Req_MoveTo is called when an existing requirement is opened.

6.3.4. Create Folder "SM Incoming Changes"

- 5 In Requirements tabs: Select Requirements Folder. Note: QC Synchronizer 1.1 only supports first child level folder, while 1.2 will support any level folder. We will upgrade to 1.2 in the next dev iteration - Sprint 3.
- 6 Menu select Requirements / New Folder.
- 7 Folder name is "SM Incoming Changes".

Figure 50 Folder "SM Incoming Changes"



	Name	Direct Cover Status	Req ID
	Requirements	-----	0
	SM Incoming Changes	-----	1

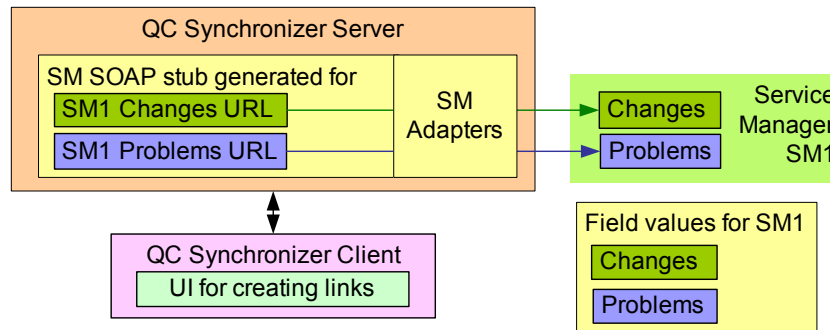
7 Quality Center Synchronizer Installation/Configuration

The Quality Center Synchronizer enables the centralized management of a set of tightly coupled one-to-one data synchronization links and provides an open and extensible platform for the development of new data synchronization adapters to entity repositories.

This chapter describes how to install and configure the Service Manager-Quality Center synchronizer:

- 7.1. *Install Quality Center Synchronizer* on page 74
- 7.2. *Generate/deploy adapters* on page 78
- 7.3. *Create SM Field Values File* on page 80

Figure 51 QC Synchronizer Installation/Configuration



7.1. Install Quality Center Synchronizer

The Quality Center Synchronizer is available from

<http://updates.merc-int.com/qualitycenter/qc90/sync/qcsynchronizer/index.html>

Refer to the Quality Center Synchronizer user guide for installation instructions (QCSyncUG.pdf). You can get the user guide from the installation package or from

http://ovweb.external.hp.com/lpe/doc_serv/

After the installation please check if QCS local time is the same with SM. eg, the UTC time on SM is 2008-12-12 13:00:00, then the UTC time on QCS should also be the same, or within 5 minutes difference. If the UTC time on QCS is 2008-12-12 13:06:00 then the synchronization will not get any data from SM.

FOR TRAINING: the following describes installation

- *7.1.1. Install QC_Sync Server* on page 74
- *7.1.2. Configure QC_Sync Server* on page 76
- *7.1.3. Install/Configure QC_Sync Client* on page 77
- *7.1.4. Service settings / start/stop* on page 78

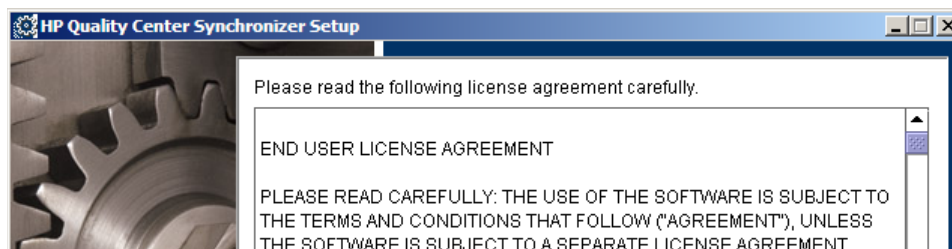
7.1.1. Install QC_Sync Server

To install:

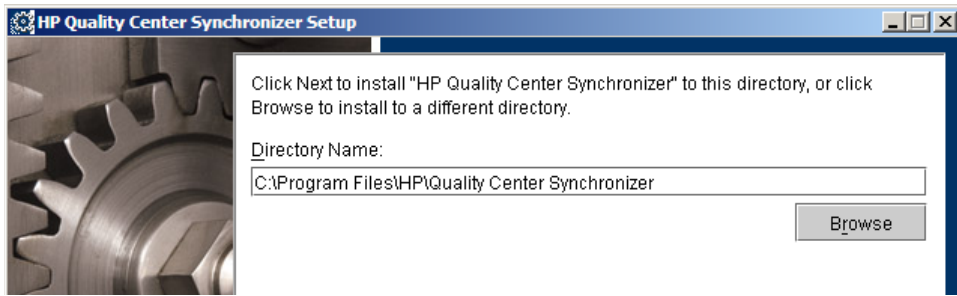
- 1 Click on setup.exe.



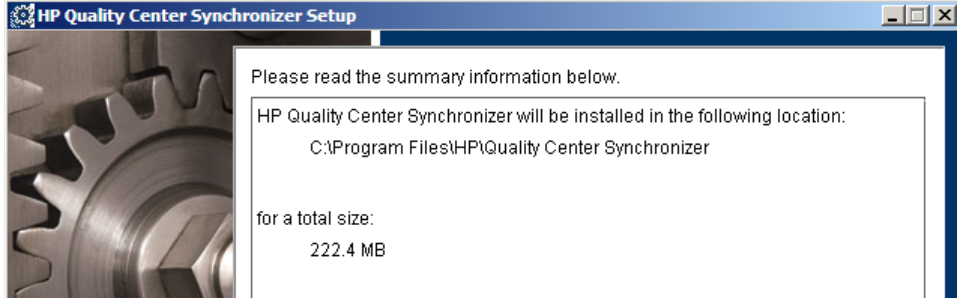
- 2



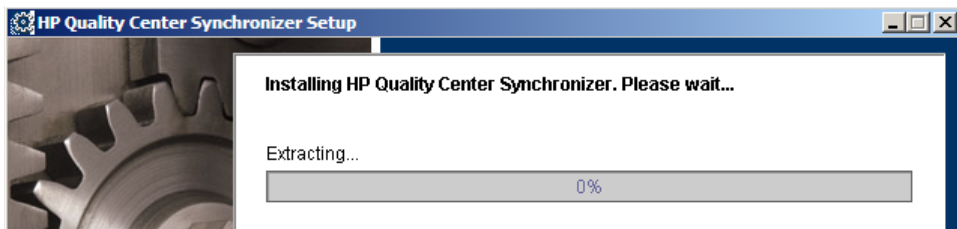
3



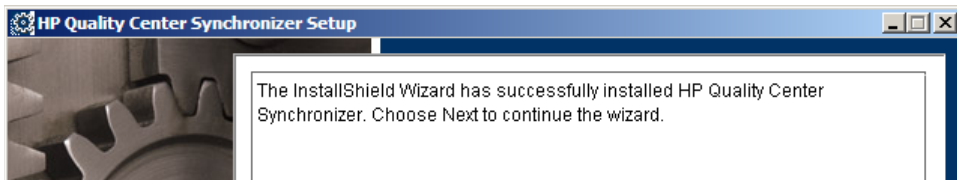
4



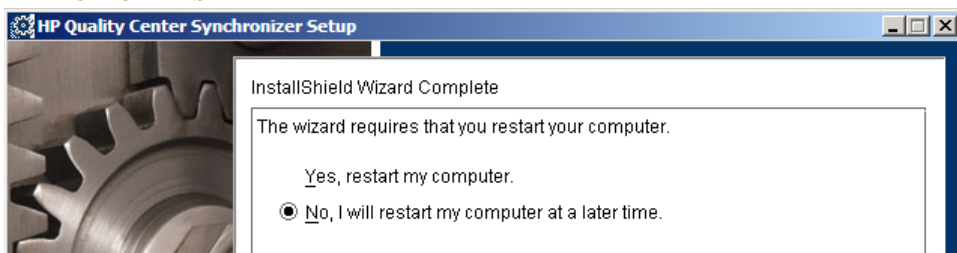
5



6

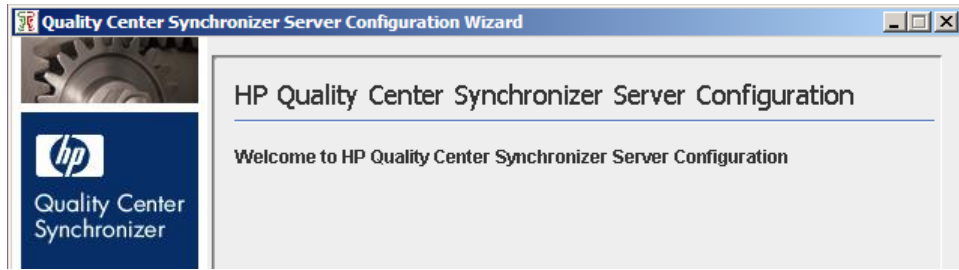


7 DO NOT RESTART

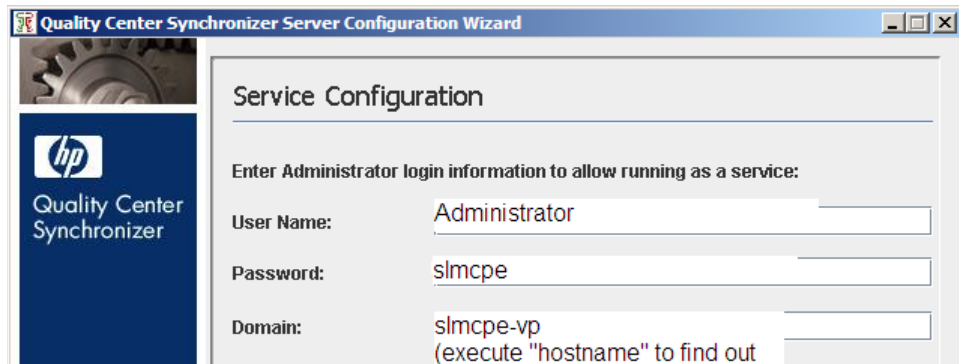


7.1.2. Configure QC_Sync Server

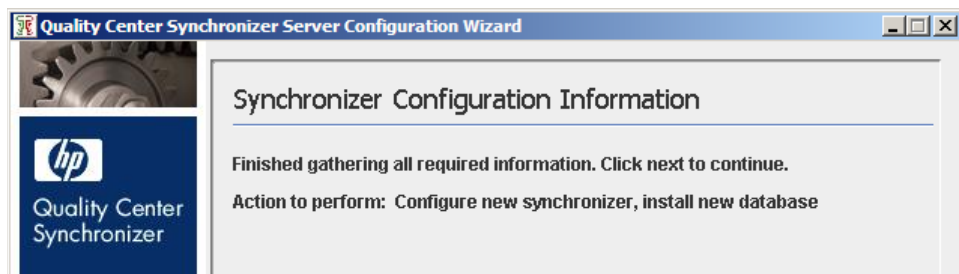
8



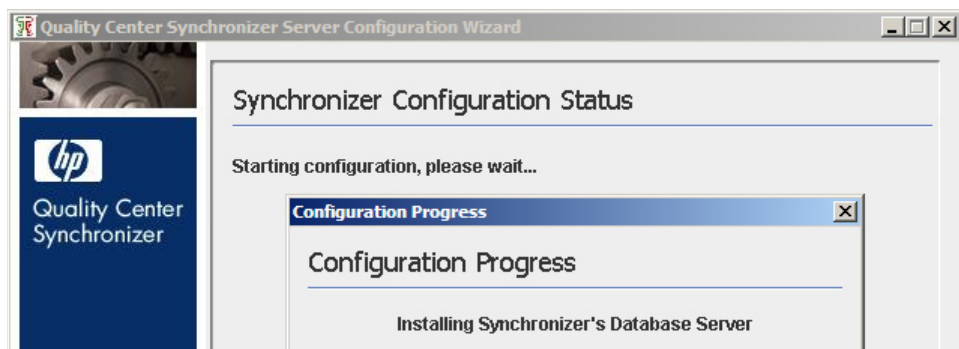
9



10



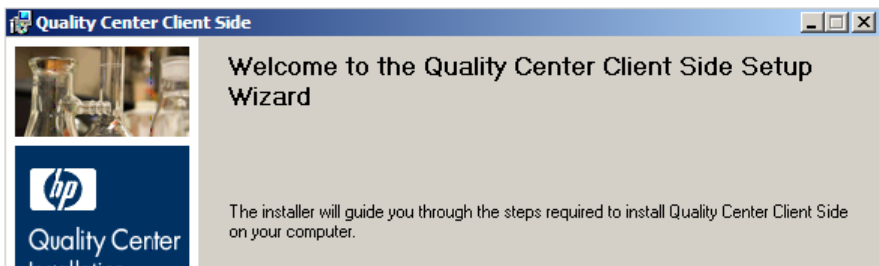
11



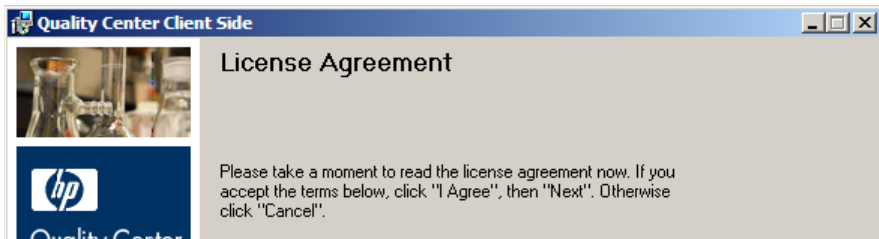
7.1.3. Install/Configure QC_Sync Client

xxx

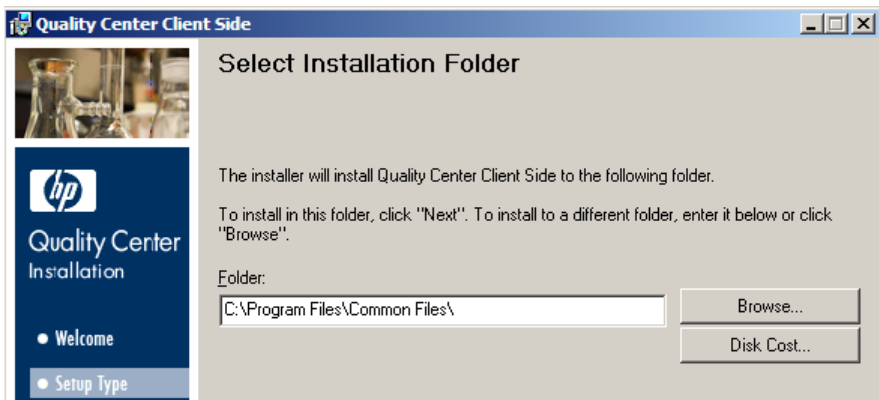
1



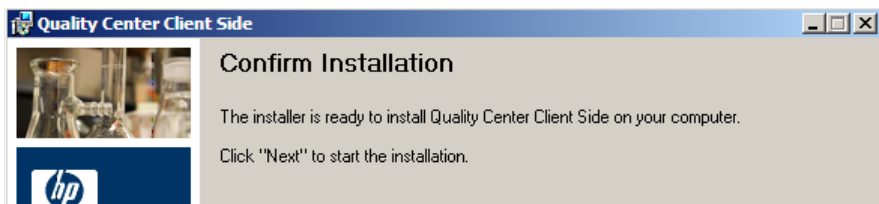
2



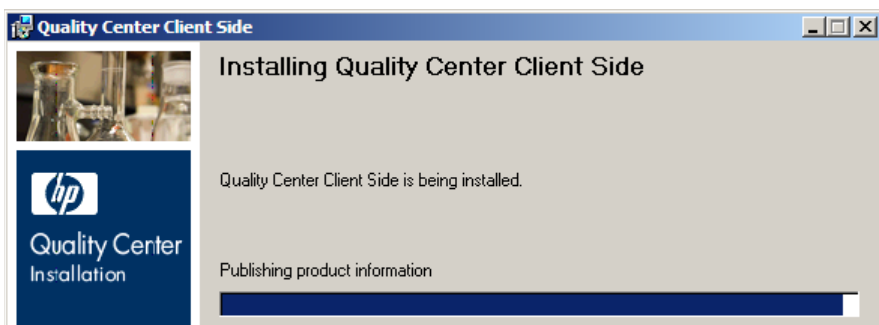
3

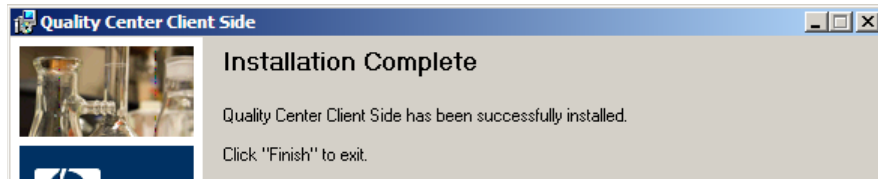


4



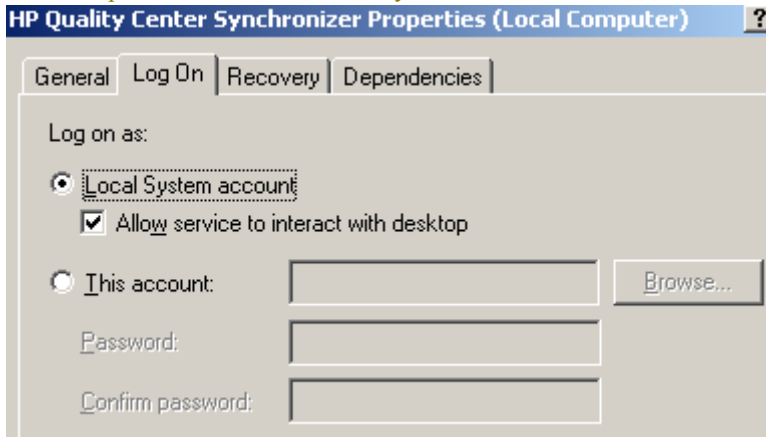
5



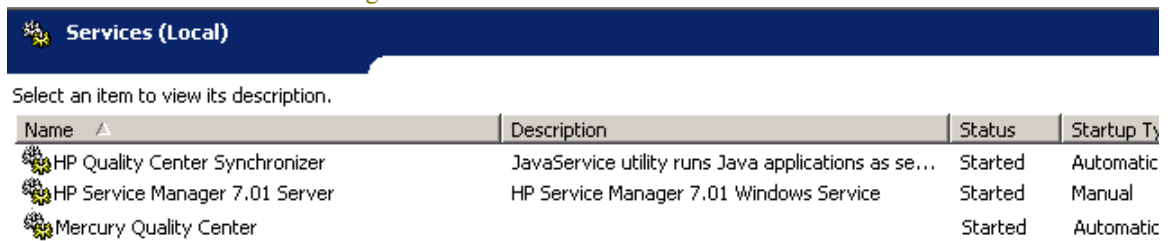


7.1.4. Service settings / start/stop

must setup the service to use local system account.



7 make sure all services running



7.2. Generate/deploy adapters

- 7.2.1. *Generate/Deploy Stub* on page 78
- 7.2.2. *Deploy Adapters* on page 79

7.2.1. Generate/Deploy Stub

Edit following lines in bin/build.properties

```
#Set up WSDL URL, please change the URL to your actual SM server, eg,
http://<your-server>:<port>/.../<service-name>.wsdl
sm.change.wsdl=http://localhost:13080/sc62server/PWS/
QCIntChangeService.wsdl
sm.problem.wsdl=http://localhost:13080/sc62server/PWS/
QCIntProblemService.wsdl
```


Run the script build.bat under bin from command line, see the console output if there is error. The stub will be generated in build folder with the name "sm-adapter-ws-client.jar".

Copy to C:\Program Files\HP\Quality Center Synchronizer\adapters

7.2.2. Deploy Adapters

Copy all files under release-package/adapters to c:\Program Files\HP\Quality Center Synchronizer\adapters. Adapters include

- sm-adapter-00.02.003.jar
- sm-adapter-axis-1.4.jar
- sm-adapter-commons-discovery-0.2.jar
- sm-adapter-commons-lang-2.3.jar
- sm-adapter-jaxrpc-1.1.jar
- sm-adapter-jdom-1.1.jar
- sm-adapter-saaj-1.2.jar
- sm-adapter-wsdl4j-1.5.1.jar

7.3. Create SM Field Values File

The configuration file is an XML file to let the SM adapter know Change/Problem fields info, including:

- Field name (The caption of a field in SM WSDL configuration form), eg, "Status", "Priority"
- Is it an array? (multi-value list)
- Is it a value list in SM? (single-value list)
- If it is a value list, what values need to be exposed from the adapter?
- If it's not a value list you don't have to configure this field in the configuration file. Adapter can automatically decide the desired data type.

Specify the configuration file. You can put it anywhere you like, but you must specify its absolute path in the adapter's link parameter. The parameter name is "Configuration File Absolute Path".

Write and validate configuration file. Below is a sample configuration file. The module element indicates if the mapping is for Change or Problem, the field elements show the field name and type. Supported data types can be found in the schema file, including

- String
- Number
- Date
- Attachment
- Single_Value_List
- Multi_Value_List

You only need to specify the type explicitly when it's Single_Value_List/Multi_Value_List because the item list need to be specified. If you want to specify if a field is readonly you need to configure this field either. By default, if a field is not configured, it's readable and writable, length is not limited.

Note:

- If the field is a list or multi-list value, it must contains items elements. For each item you need to specify the value and display text in the form of <item value="\$value">\$display text</item>.
- If this field has a limitation of length , you should specify the attribute "length", this means values from other endpoint will be truncated to match this limitation.
- If the field in WSDL is an Array then it must be mapped to Multi_Value_List.
- If the field in QC side is User_List, you can only specify String or Single_Value_List for the corresponding field of SM side.
- If the field is read only you must specify the attribute "readonly" as true
- If the field attribute "required" can be : "mandatory" in case the field is always mandatory for creation of a new entity; "optional" in case the field is never mandatory for creation of a new entity "recommended" in case the field is sometimes mandatory for creation of a new entity.

```
<?xml version="1.0" encoding="UTF-8"?>
<mapping xmlns="http://smci.hp.com/sc-qc/mapping" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://smci.hp.com/sc-qc/mapping http://smci.hp.com/
sc-qc/mapping.xsd">
<module name="change">
  <field name="Urgency" type="Single_Value_List" readonly="false"
    required="mandatory" length="50">
```

```

<items>
  <item value="1">1 - Critical</item>
  <item value="2">2 - High</item>
  <item value="3">3 - Average</item>
  <item value="4">4 - Low</item>
</items>
</field>
<field name="PropertyNames" type="Multi_Value_List">
  <items>
    <item value="network.name">Network Name</item>
    <item value="network.address">IP/Network Address</item>
    <item value="location">Location</item>
  </items>
</field>
</module>
<module name="problem">
  <field name="ID" type="String"/>
  <field name="Impact" type="Single_Value_List">
    <items>
      <item value="1">1 - Enterprise</item>
      <item value="2">2 - Site/Dept</item>
      <item value="3">3 - Multiple Users</item>
      <item value="4">4 - User</item>
    </items>
  </field>
</module>
</mapping>

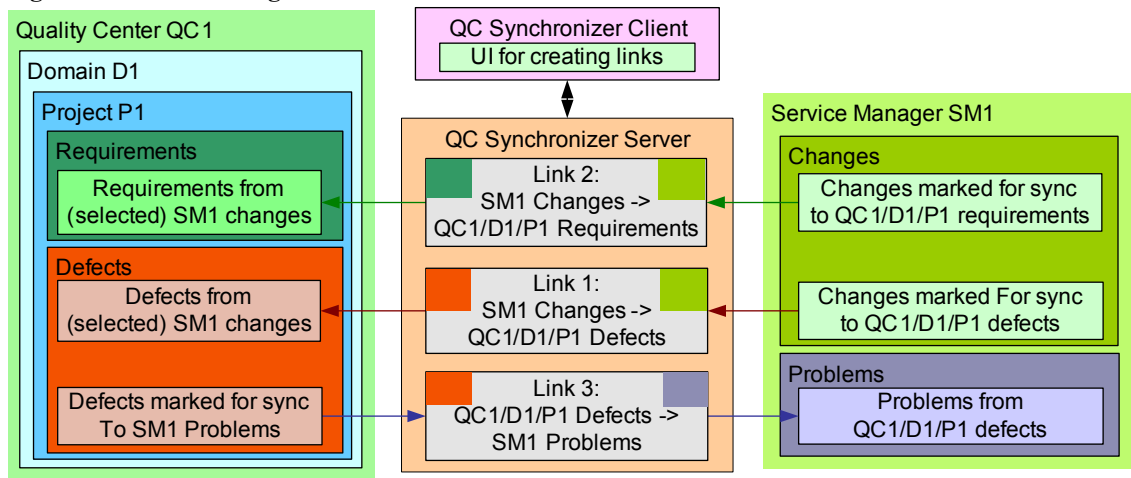
```


8 Link Configuration

This chapter shows how to configure/test links

- 8.1. General on page 84
- 8.2. Service Manager Change to Quality Center Defect on page 87
- 8.3. Service Manager Change to Quality Center Requirement on page 93
- 8.4. Quality Center Defect to Service Manager Problem on page 99

Figure 52 Link configuration



8.1. General

- 8.1.1. Endpoint parameter constraints
- 8.1.2. Must specify QC Server/Domain/Project in SM
- 8.1.3. SM field values file
- 8.1.4. Link limitations
- 8.1.5. Field mapping limitations
- 8.1.6. Timestamp

8.1.1. Endpoint parameter constraints

New link wizard: Phase2 you specify the endpoint parameters.

Figure 53 Specifying Phase2 endpoint parameters

Table 20 Endpoint parameter constraints / error messages

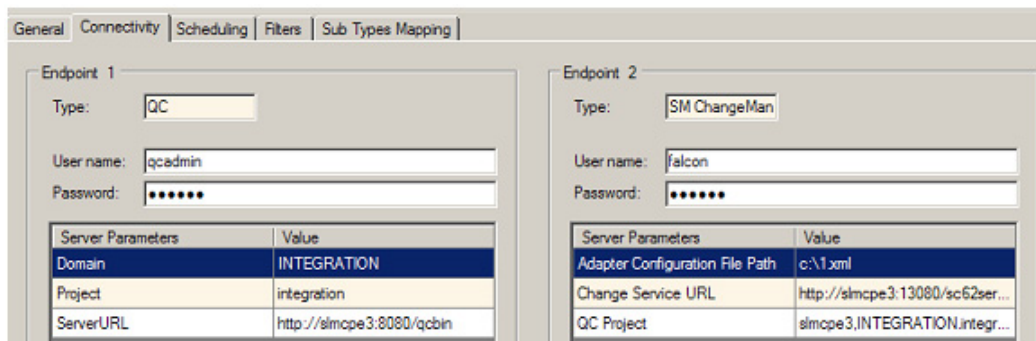
End point	Parameter	Constraint	Error Message
QC	Username		
QC	Password		
QC	Server URL		
QC	Domain		
QC	Project		
SM	User name	Required non-empty	Missing connection parameter: User name
SM	Password	Can be empty	<none>

Table 20 Endpoint parameter constraints / error messages

End point	Parameter	Constraint	Error Message
SM	Change Service URL / Problem Service URL	Required non-empty http:// <service_manager_host>:<port>/ sc62server/PWS/ QCIntChangeService.wsdl or http:// <service_manager_host>:<port>/ sc62server/PWS/ QCIntProblemService.wsdl	Missing connection parameter: Change Service URL
SM	Configuration (SM field values) file path	Valid path or empty	Connection parameter: Configuration File Path is not valid
SM	QCProject (QC server/domain/project)	Required (because of an adapter limitation). Format qc_host/qc_domain/qc_project	Missing connection parameter: QC Project

Some of the information entered above is shown in the Connectivity tab.

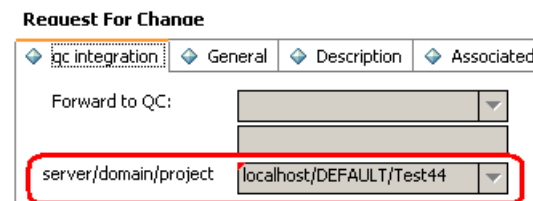
Figure 54 Endpoint parameters in Connectivity tab



8.1.2. Must specify QC Server/Domain/Project in SM

Because of a limitation in the adapter, you must also specify the QC server/domain/project in SM. You will do this later (not now).

Figure 55 Specify QC Server/Domain/Project in SM



8.1.3. SM field values file

The SM field values file must specify any fixed SM field values.

8.1.4. Link limitations

When creating field links, keep the following limitations in mind:

- 1 A link can not be duplicated. For example, if a link already exists for SMServer1/Changes -> QCServer1/Doman1/Project1/Defects, then a second link for these Changes -> Defects can not be created. A field in one endpoint can be mapped to only one field in the other endpoint.

8.1.5. Field mapping limitations

- 1 If you map string fields with different maximum lengths, during synchronization a string value in the source endpoint will be truncated as necessary if it exceeds the maximum length of the corresponding fie.
- 2 If you change the mappings you must do a full sync otherwise the historical data won't get synchronized.
- 3 You can not write to QC if a field is "User_List" type, except you are very sure that SM has exactly the same users (including logins, names, etc) as QC. Otherwise this will lead to serious problems in QC.
- 4 You can read QC "User_List" field and write to SM "String" type field only, and the field is SM MUST NOT be a field with SM logins. Except SM and QC has identical users otherwise this will lead to serious problems in SM.
- 5 If a field is mandatory, you must map a value to it. Whist if a null value is to be written to the mandatory field, an error will occur at runtime. So, you must pay attention to mandatory field. We suggest map mandatory field to mandatory field if it's a bi-directional mapping.

8.1.6. Timestamp

- 1 When an error occurs you can reset the timestamp to avoid a full sync. reset the time stamp for both the link and the link's mappings to a time earlier than when the lock issues occurred.

8.2. Service Manager Change to Quality Center Defect

The following describes how to create a link

- 8.2.1. *Specify endpoints*
- 8.2.2. *Filters*
- 8.2.3. *Field mapping*
- 8.2.4. *Scheduling/Events*

and test the created link

- 8.2.5. *Test*

8.2.1. Specify endpoints

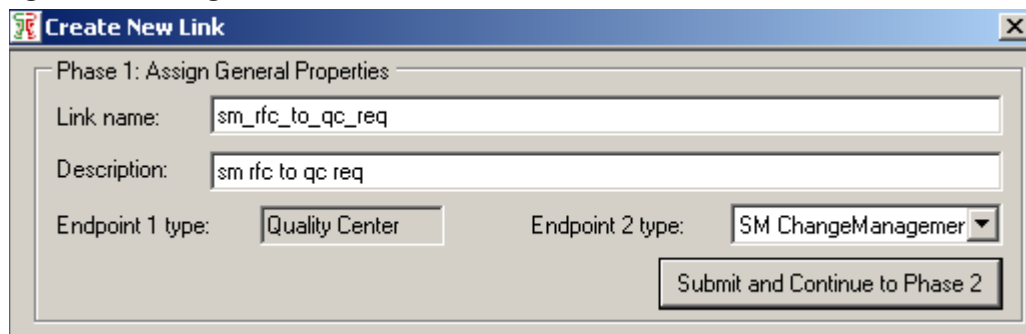
To specify endpoints, start with the new link wizard

- 8.2.1.1. *New link wizard: Phase1*
- 8.2.1.2. *New link wizard: Phase2*
- 8.2.1.3. *New link wizard: Phase3*

8.2.1.1. New link wizard: Phase 1

From the QC Synchronizer client, click Link->Create, choose endpoint 2 type as "SM ChangeManagement".

Figure 56 Change -> Defect Phase 1



The screenshot shows a window titled "Create New Link" with a close button in the top right corner. The window is divided into a header area and a main content area. The header area contains the text "Phase 1: Assign General Properties". The main content area contains four input fields: "Link name:" with the value "sm_rfc_to_qc_req", "Description:" with the value "sm rfc to qc req", "Endpoint 1 type:" with a dropdown menu showing "Quality Center", and "Endpoint 2 type:" with a dropdown menu showing "SM ChangeManagemer". A "Submit and Continue to Phase 2" button is located at the bottom right of the main content area.

8.2.1.2. New link wizard: Phase2

Specify the connection properties.

Figure 57 Change -> Defect Phase2

Server Parameters	Value
Domain	DEFAULT
Project	Test44
ServerURL	http://localhost:8080/qcb

Server Parameters	Value
Adapter Configuration File Path	C:\Program Files\HP\Quality C...
Change Service URL	http://localhost:13080/sc62se...
QC Project	localhost/DEFAULT/Test44

- "Change Service URL" (required) as

`http://<service_manager_host>:<port>/sc62server/PWS/
QCIntChangeService.wsdl`

8.2.1.3. New link wizard: Phase3

Finally choose "Defect(QC) - Change as Defect(SM ChangeManagement)" as the entity type pair.

Figure 58 Change -> Defect Phase 3

Available entity type pairs:

- Defect(QC) - RFC as Defect(SM ChangeManagement)
- Requirement(QC) - RFL as Requirement(SM ChangeManagement)

8.2.2. Filters

A filter can be used to limit restrict the QC items for synchronization. In this case no filter is required.

Figure 59 Change -> Defect Filter

Endpoint 1 Filters

No Filter

Use filter (for creation events):

Endpoint 2 Filters

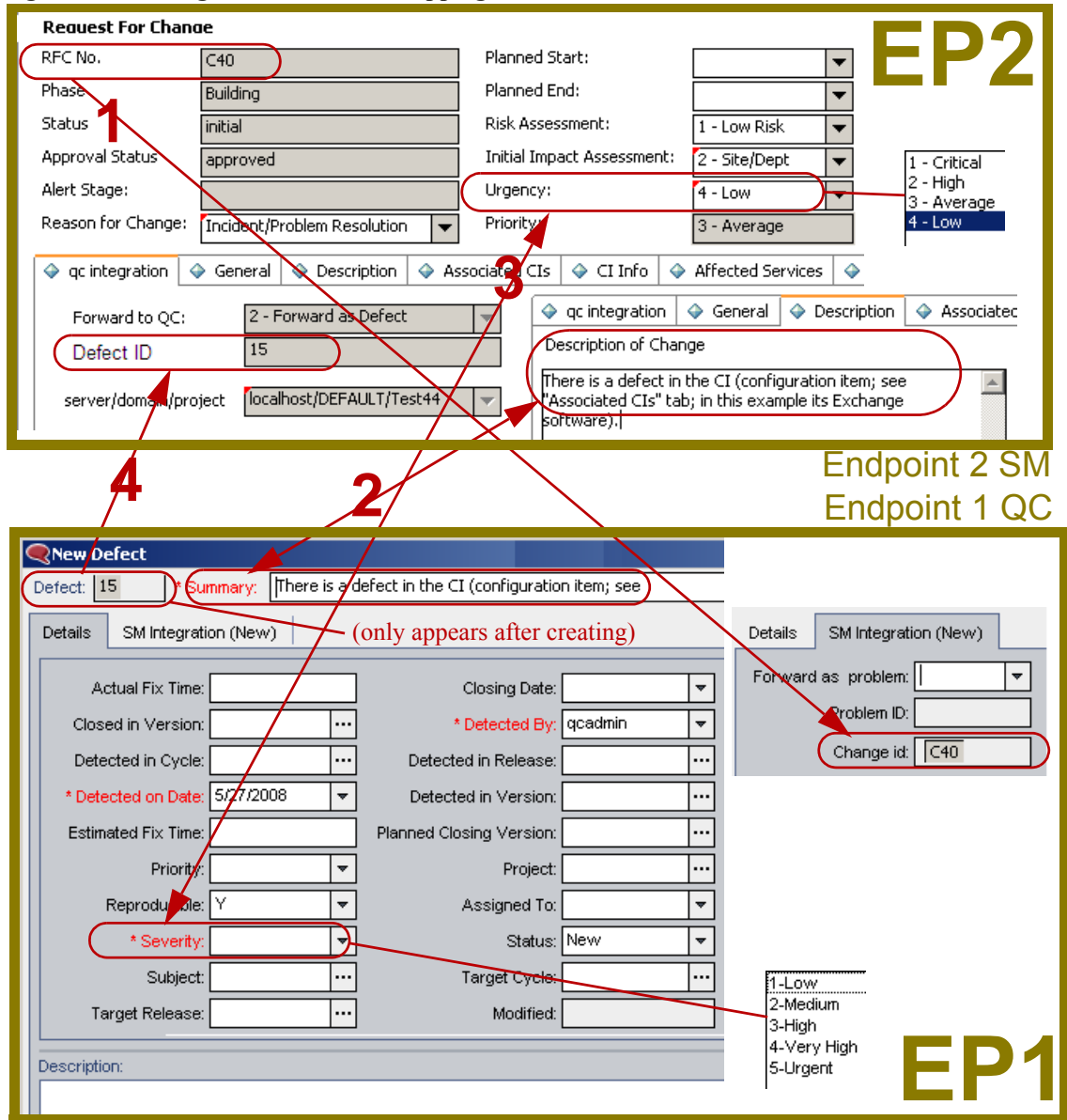
No Filter

Use filter (for creation events):

8.2.3. Field mapping

The following diagram shows the required field mappings. Basically the data required to create the defect must be sent from the change (1-3) and then the defect ID (4) must be sent back to the change.

Figure 60 Change -> Defect Field Mapping



The mappings shown above are summarized in the table below.

Table 21 SM Change -> QC Defect Required Mappings

Link # (in diagram)	EP1 QC Field (Field.value)	Direction	EP2 SM Field (Field.value)	Comments
1	Change ID	<-	ChangeID	
2	Summary	<->	Description	
3	Severity	<->	Urgency	
3a	Severity.5-Urgent	<->	Urgency.1-Critical	
3b	Severity.4-VeryHigh	<->	Urgency.2-High	
3c	Severity.3-High	<->	Urgency.3-Average	
3d	Severity.2-Medium	<->	Urgency.4-Low	
3e	Severity.1-Low	<->	(Empty string)	
4	Defect ID	->	QCEntityID	1. QC defect ID is assigned in QC only after saving new defect 2. Check for QCEntityID mapping property "Synchronize back on create".

The mappings are specified in the field mapping tab as show below:

Figure 61 Change -> Defect Mappings

Mapped Fields				Mapping properties	Value mapping	Field properties
Type	Endpoint 1 Field	Direction	Endpoint 2 Field	Endpoint 1 value	Direction	Endpoint 2 value
1	Change id	<----	ChangeID	5-Urgent	<---->	1 - Critical
4	Defect ID	---->	QCEntityID	4-Very High	<---->	2 - High
3	Summary	<---->	Description	3-High	<---->	3 - Average
2	Severity	<---->	Urgency	2-Medium	<---->	4 - Low
				1-Low	<---->	(Empty string)

Optional mappings: You can add some field mappings between the two endpoints, they can be one-way or bi-directional, and even for value list. This depends on your business requirements. For more mapping details please see the Quality Center Synchronizer User Guide.

8.2.4. Scheduling/Events

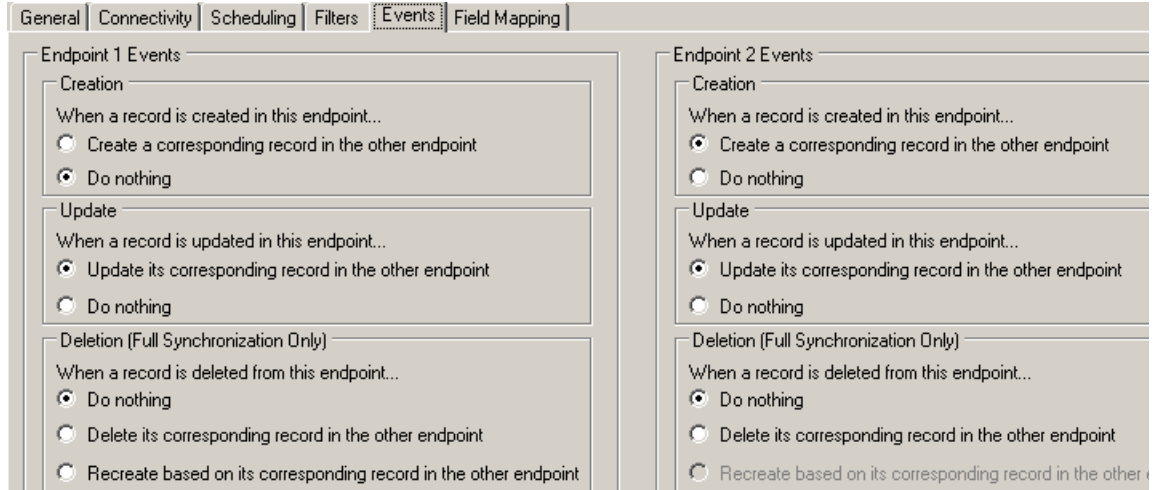
Once the link is created you need to specify the schedule to run the synchronization at the tab page "scheduling".

At the Events page, specify the events as below.

Table 22 SM Change -> QC Defect Events

	Endpoint 1 (QC Defect)	Endpoint 2 (SM Change)
create	Do nothing	Create
update	Update its corresponding...	Update its corresponding...
delete	Do nothing	Do nothing

Figure 62 Change -> Defect Events



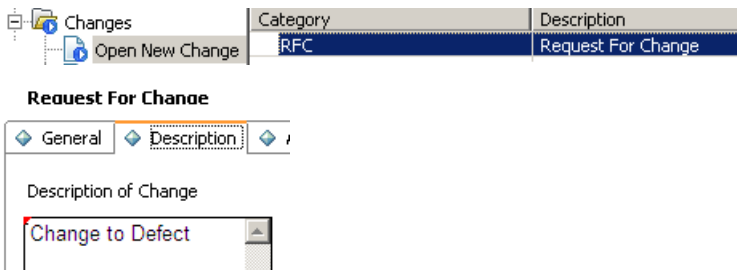
8.2.5. Test

NOTE: Synchronization may fail in case of mapping one mandatory field to a value null-able field. A mandatory field (in either SM and QC) does not accept a null value.

NOTE: The following is just an example. The exact steps required on your system may differ significantly. Note that the phase in which the tab for QC Integration appears may be different on your system.

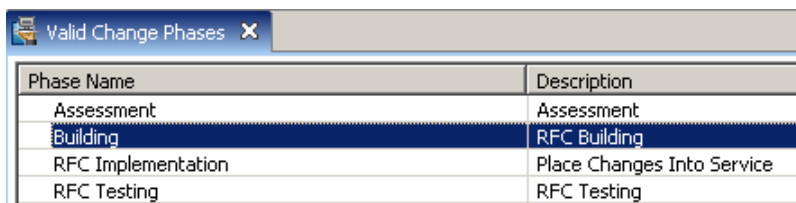
- 1 Save the configuration (an integrity check is automatically run).
- 2 Click “Enable Link”.
- 3 Create a Service Manager RFC.

Figure 63 Change -> Defect Test: Create RFC



- 4 Change the phase to building. The QC Integration tab appears.

Figure 64 Change -> Defect Test: Change Phase



- 5 Select Forward as Requirement.

Figure 65 Change -> Defect Test: Select forward as requirement

Request For Change

qc integration
 General
 Description
 Associated CIs
 CI Info

Forward to QC:

server/domain/project:

6 Synchronize.

Figure 66 Change -> Defect Test: Synchronize

 Auto Refresh

Running: Connecting to endpoint 1...
 Running: Connecting to endpoint 2...
 Running: Querying non filtered set
 Running: Handling endpoint 1 - Processing entity #1 of #1 in the Create list, (Total: passed = 0, failed = 0)
 Passed: Disconnecting...
 Completed : Passed

7 View the defect in view in Quality Center.

Figure 67 Change -> Defect Test: View created defect

Defects Edit View Favorites Analysis

Defect ID	Status	Assigned To	Priority	Summary
10	New			Change to Defect

Forward as problem:
 Change id:

Problem ID:

8.3. Service Manager Change to Quality Center Requirement

The following describes how to create a link

- 8.3.1. *Specify endpoints* on page 93
- 8.3.2. *Filters* on page 95
- 8.3.3. *Field Mapping* on page 96
- 8.3.4. *Scheduling/Events* on page 97

and test the created link

- 8.3.5. *Test* on page 97

8.3.1. Specify endpoints

To specify endpoints, start with the new link wizard:

- 8.3.1.1. *New link wizard: Phase 1*
- 8.3.1.2. *New link wizard: Phase 2*
- 8.3.1.3. *New link wizard: Phase 3*

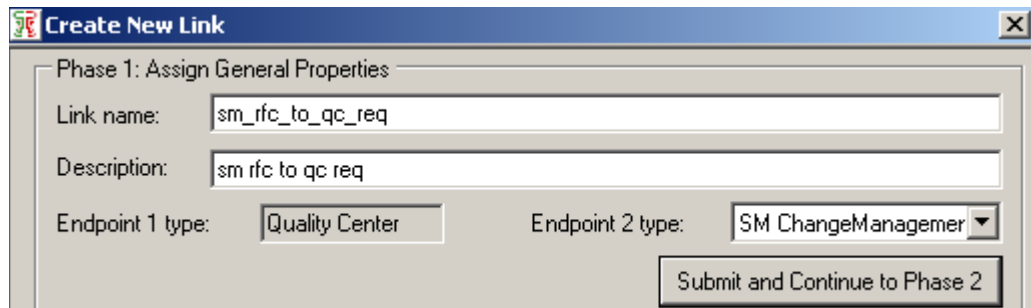
Then specify folder/type on QC:

- 8.3.1.4. *New requirement QC root folder*
- 8.3.1.5. *Specify the type for new requirements ("subtype")* on page 95

8.3.1.1. New link wizard: Phase 1

From the QC Synchronizer client, click Link->Create, choose endpoint 1 type as choose endpoint 2 type as "SM ChangeManagement".

Figure 68 Change -> Requirement: Phase 1

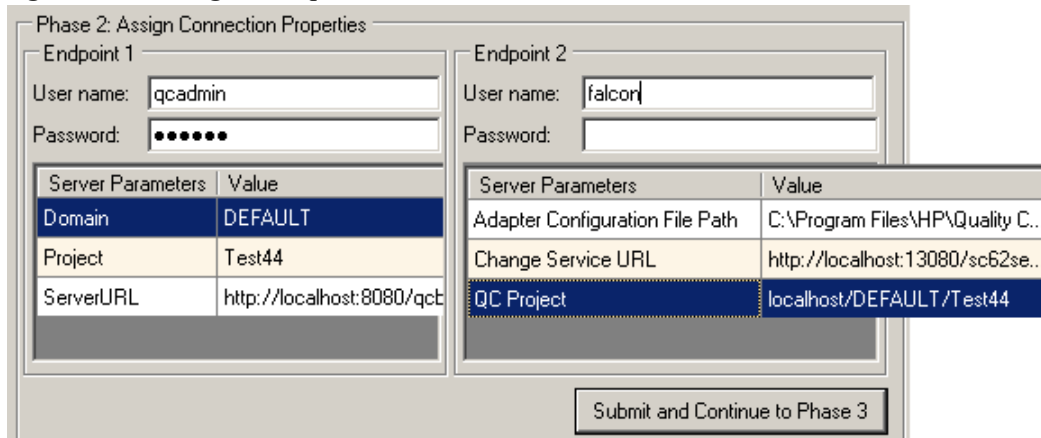


The screenshot shows a window titled "Create New Link" with a close button in the top right corner. The window content is titled "Phase 1: Assign General Properties". It contains the following fields and controls:

- Link name:** A text input field containing "sm_rfc_to_qc_req".
- Description:** A text input field containing "sm rfc to qc req".
- Endpoint 1 type:** A dropdown menu with "Quality Center" selected.
- Endpoint 2 type:** A dropdown menu with "SM ChangeManagemer" selected.
- Submit and Continue to Phase 2:** A button located at the bottom right of the dialog.

8.3.1.2. New link wizard: Phase 2

Figure 69 Change -> Requirement Phase 2

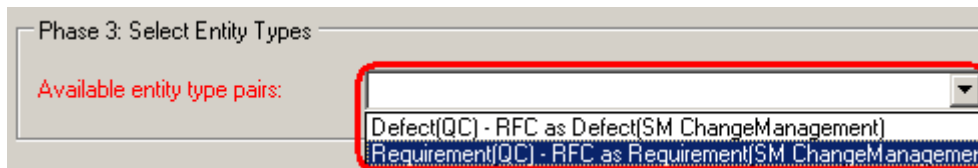


- "Change Service URL" (required) as
`http://<service_manager_host>:<port>/sc62server/PWS/QCIntChangeService.wsdl`

8.3.1.3. New link wizard: Phase 3

Finally choose "Requirement(QC) - Change as Requirement(SM ChangeManagement)" as the entity type pair.

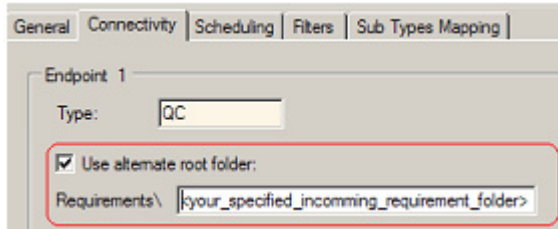
Figure 70 Change -> Requirement Phase 3



8.3.1.4. New requirement QC root folder

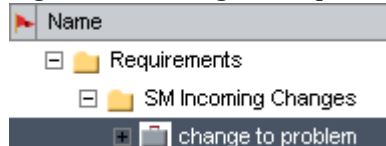
Once the link is created you need to specify the incoming requirement folder at the "connectivity" tab page as below.

Figure 71 Change -> Requirement specify new QC root folder



Requirements be created in the specified folder in QC.

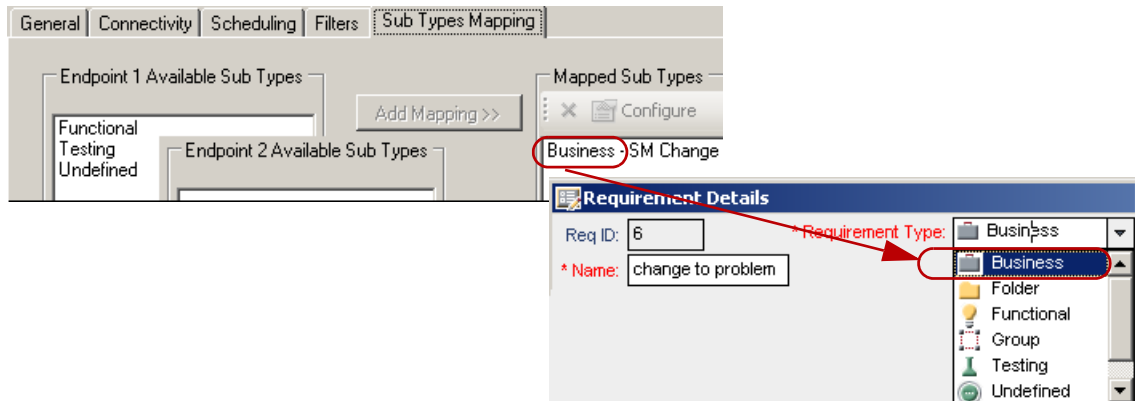
Figure 72 Change -> Requirement new folder



8.3.1.5. Specify the type for new requirements ("subtype")

At the "sub types mapping" tab page you need to specify the type of new requirements that will be created from changes.

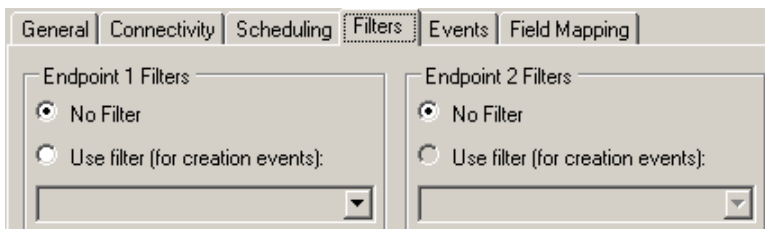
Figure 73 Change -> Requirement type



8.3.2. Filters

A filter can be used to limit restrict the QC items for synchronization. In this case no filter is required.

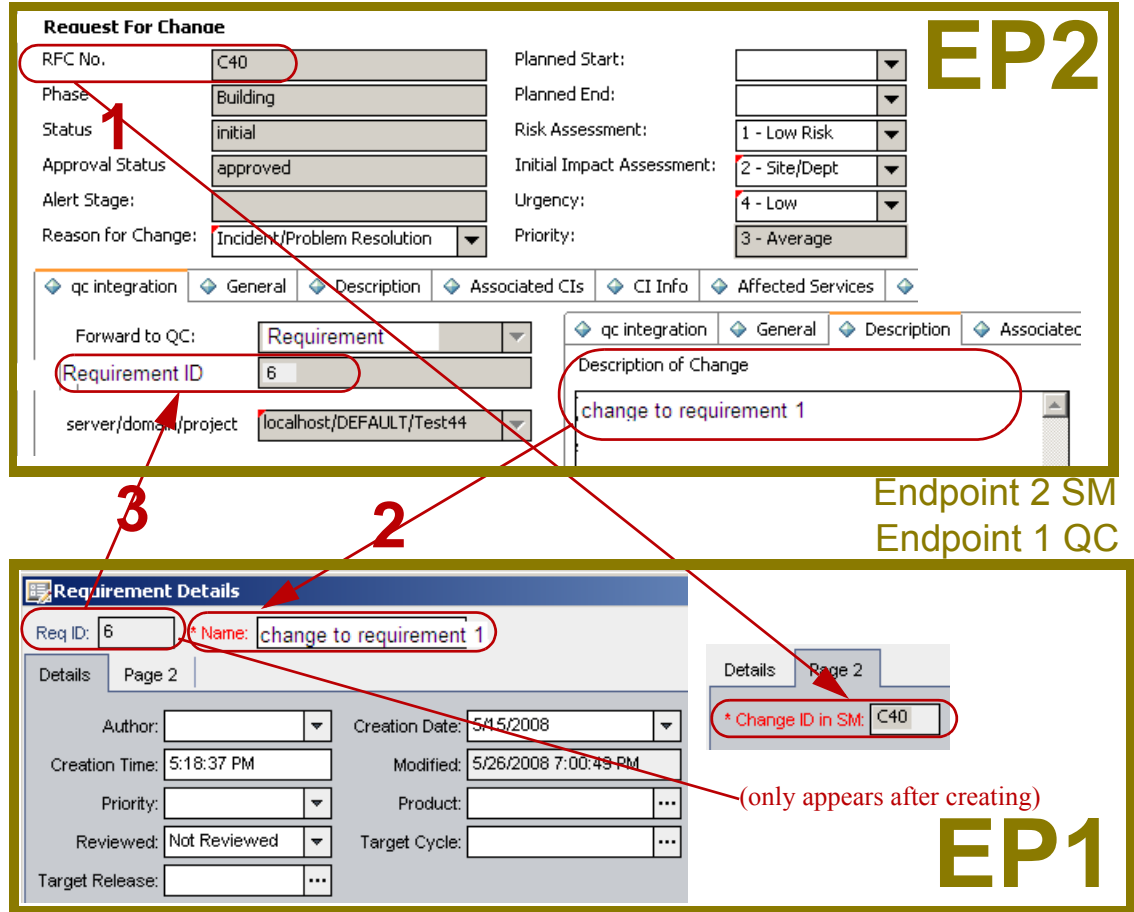
Figure 74 Change -> Requirement filters



8.3.3. Field Mapping

The following diagram shows the required field mappings. Basically the data required to create the requirement must be sent from the change (1-2) and then the requirement ID (3) must be sent back to the change.

Figure 75 Change -> Requirement field mapping



The mappings shown above are summarized in the table below.

Table 23 SM Change -> QC Requirement mappings

Link # (in diagram)	EP1 QC Field (Field.value)	Direction	EP2 SM Field (Field.value)	Comments
1	Change ID	<-	ChangeID	
2	Name	<->	Description	
4	Req ID	->	QCEntityID	Check for QCEntityID mapping property "Synchronize back on create".

The mappings are specified in the field mapping tab as show below:

Figure 76 Change -> Requirement field mappings

Mapped Fields			
Type	Endpoint 1 Field	Direction	Endpoint 2 Field
1	Change ID in SM	<---	ChangeID
2	Name	<---	Description
3	Req ID	--->	QCEntityID

Optional mappings: You can add some field mappings between the two endpoints, they can be one-way or bi-directional, and even for value list. This depends on your business requirements. For more mapping details please see the Quality Center Synchronizer User Guide.

8.3.4. Scheduling/Events

Specify the schedule to run the synchronization at the tab page "scheduling".

At the Events page, specify the events as below

Table 24 SM Change -> QC Requirement events

	Endpoint 1 (QC Requirement)	Endpoint 2 (SM Change)
create	Do nothing	Create
update	Update its corresponding...	Update its corresponding...
delete	Do nothing	Do nothing

You will see two tabs "Events" and "Field Mapping" Choose events as the screen shot below.

Figure 77 Change -> Requirement events

The screenshot shows the 'Events' configuration window with two tabs: 'Events' and 'Field Mapping'. The 'Events' tab is active, showing configuration for 'Endpoint 1 Events' and 'Endpoint 2 Events'. Each endpoint has three sections: 'Creation', 'Update', and 'Deletion (Full Synchronization Only)'. In the 'Endpoint 1 Events' section, the 'Master (controls record creation and deletion)' radio button is selected. Under 'Creation', 'Do nothing' is selected. Under 'Update', 'Update its corresponding record in the other endpoint' is selected. Under 'Deletion', 'Do nothing' is selected. The 'Endpoint 2 Events' section has the same configuration: 'Master' is selected, 'Create a corresponding record in the other endpoint' is selected for Creation, 'Update its corresponding record in the other endpoint' is selected for Update, and 'Do nothing' is selected for Deletion.

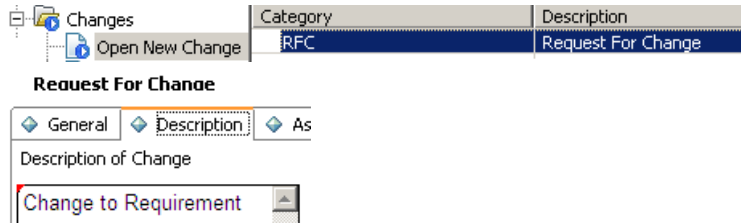
8.3.5. Test

NOTE: Synchronization maybe fail in case of mapping one mandatory field to a value null-able field. A mandatory field (in either SM and QC) does not accept a null value.

- 1 Save the configuration (an integrity check is automatically run).

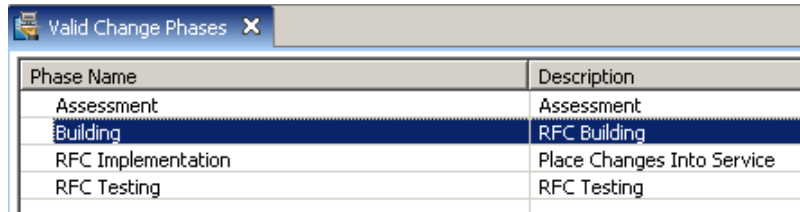
- 2 Click "Enable Link".
- 3 Create a Service Manager RFC.

Figure 78 Change -> Requirement test: Create RFC



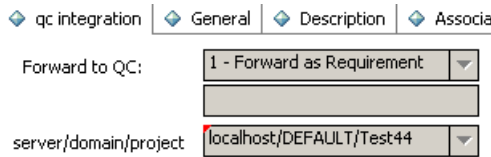
- 4 Change the phase to building. The QC Integration tab appears.

Figure 79 Change -> Requirement test: Change phase



- 5 Select Forward as Requirement.

Figure 80 Change -> Requirement test: Select forward as requirement



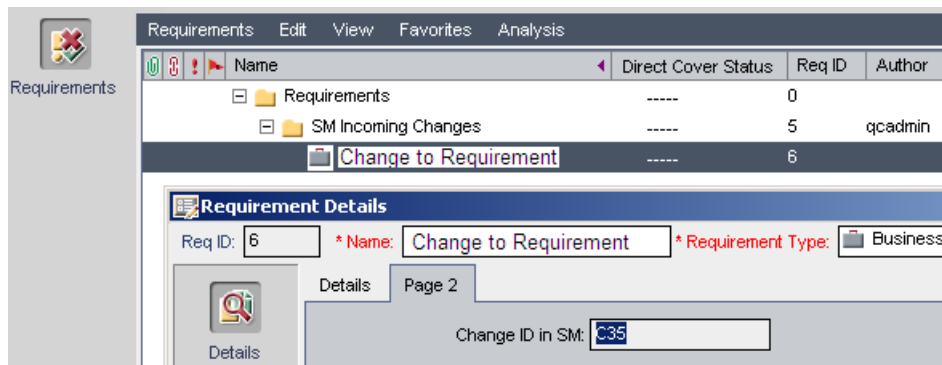
- 6 Synchronize.

Figure 81 Change -> Requirement test: Synchronize



- 7 View the Requirement in view in Quality Center.

Figure 82 Change -> Requirement test: View created in QC



8.4. Quality Center Defect to Service Manager Problem

The following describes how to create a link

- 8.4.1. *Specify endpoints* on page 99
- 8.4.2. *Filters* on page 100
- 8.4.3. *Field Mapping* on page 101
- 8.4.4. *Scheduling/events* on page 103

and test the created link

- 8.4.5. *Test* on page 104

8.4.1. Specify endpoints

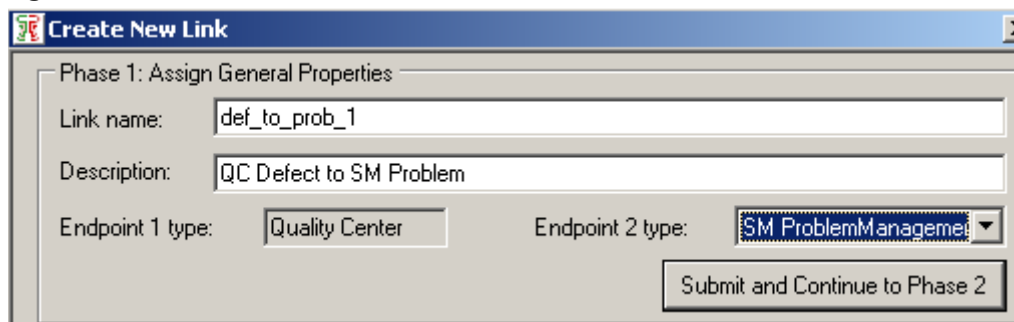
To specify endpoints, start with the new link wizard

- 8.4.1.1. *New link wizard: Phase1* on page 99
- 8.4.1.2. *New link wizard: Phase2* on page 100
- 8.4.1.3. *New link wizard: Phase3* on page 100

8.4.1.1. New link wizard: Phase 1

From the QC Synchronizer client, click Link->Create, choose endpoint 2 type as "SM ProblemManagement".

Figure 83 Defect -> Problem Phase 1



The screenshot shows a window titled "Create New Link" with a close button (X) in the top right corner. The window content is titled "Phase 1: Assign General Properties". It contains the following fields and controls:

- Link name:** A text input field containing "def_to_prob_1".
- Description:** A text input field containing "QC Defect to SM Problem".
- Endpoint 1 type:** A dropdown menu with "Quality Center" selected.
- Endpoint 2 type:** A dropdown menu with "SM ProblemManagement" selected.
- Submit and Continue to Phase 2:** A button located at the bottom right of the dialog.

8.4.1.2. New link wizard: Phase2

Figure 84 Defect -> Problem Phase 2

Phase 2: Assign Connection Properties

Endpoint 1

User name: qcadmin

Password: ●●●●●●

Server Parameters	Value
Domain	DEFAULT
Project	Test44
ServerURL	http://localhost:8080/qcb

Endpoint 2

User name: falcon

Password:

Server Parameters	Value
Adapter Configuration File Path	C:\Program Files\HP\Quality C...
Problem Service URL	http://localhost:13080/sc62se...
QC Project	localhost/DEFAULT/Test44

Submit and Continue to Phase 3

- "Problem Service URL" (required) as
`http://<service_manager_host>:<port>/sc62server/PWS/QCIntProblemService.wsdl`

8.4.1.3. New link wizard: Phase3

Finally choose "Defect(QC) - Problem by Defect(SM ProblemManagement)" as the entity type pair.

Figure 85 Defect -> Problem Phase 3

Phase 3: Select Entity Types

Available entity type pairs:

Defect(QC) - Problem by Defect(SM ProblemManagement) ▼

Defect(QC) - Problem by Defect(SM ProblemManagement)

8.4.2. Filters

At the Filters tab page, you must choose the filter "SMIntegrationView" for the endpoint 1 (QC). If the filter does not show you need to consult the QC Customization chapter and create a public view.

Figure 86 Defect -> Problem filters

General | Connectivity | Scheduling | **Filters** | Events | Field Mapping

Endpoint 1 Filters

No Filter

Use filter (for creation events):

Public: SMIntegrationView ▼

Endpoint 2 Filters

No Filter

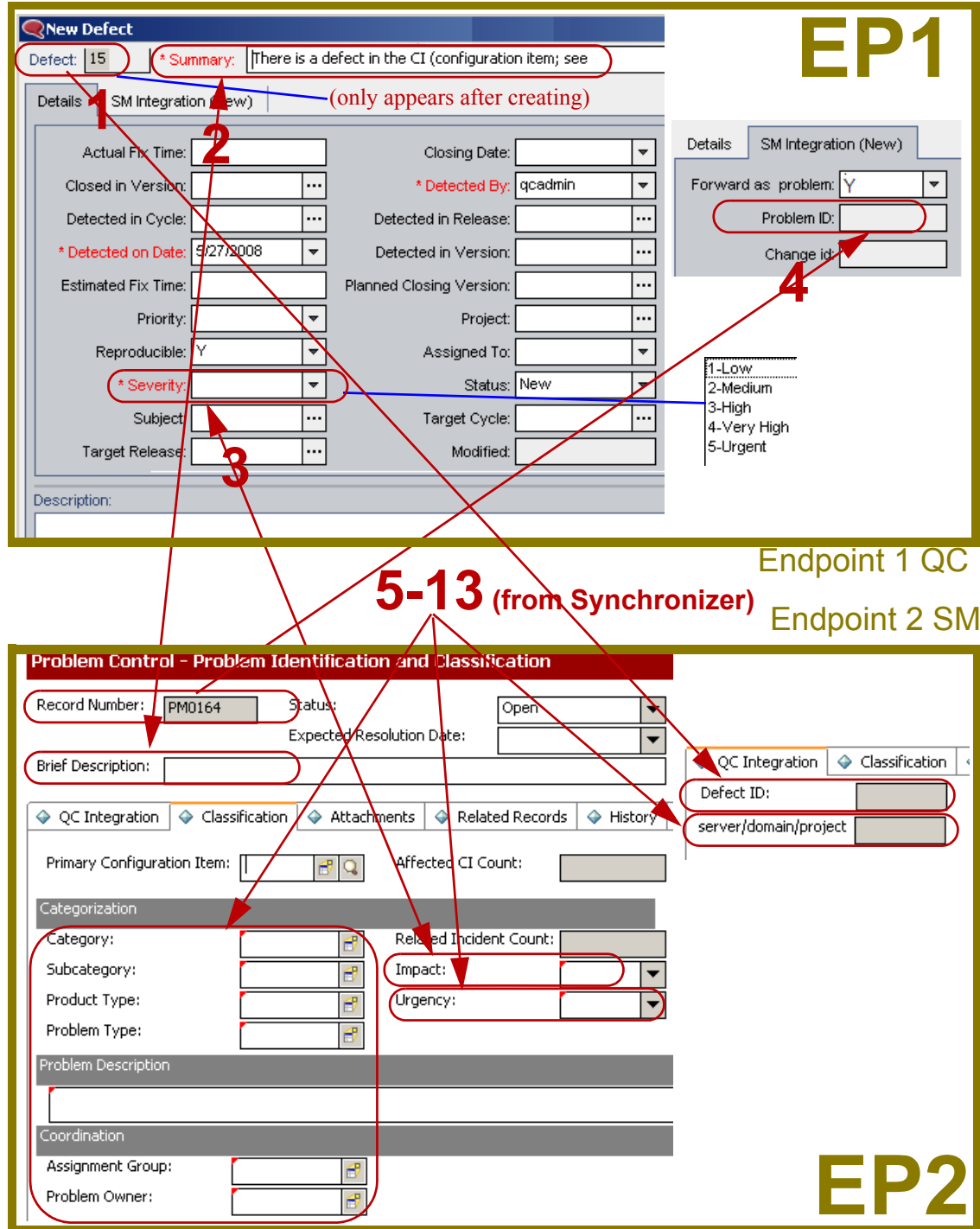
Use filter (for creation events):

▼

8.4.3. Field Mapping

The following diagram shows the required field mappings. Basically the data required to create the problem must be sent from the defect (1-3) and then the problem ID (4) must be sent back to the defect. Items 5-13 are required to create the problem, but not available from defect, so you simply specify the value in the Synchronizer link.

Figure 87 Defect -> Problem field mapping



The mappings shown above are summarized in the table below.

Table 25 QC Defect -> SM Problem Required Mappings

Link # (in diagram)	EP1 QC Field (Field.value)	Direction	EP2 SM Field (Field.value)	Comments
1	Defect ID	->	QCEntityID	Check for QCEntityID mapping property "Synchronize back on create".
2	Summary	<->	Description	
3	Severity	<->	Impact	
4	Problem ID	<-	ProblemID	
5	Value: AUTO	->	AssignmentGroup	
6	Value: client system	->	Category	Add constant mappings for Endpoint 2 (Problem) categories. By default, an SM problem has 4 level categories: "Category/SubCategory/ProductType/ProblemType", you need to specify which category your incoming problem will reside. Note, the category hierarchy could vary and can be customized by the SM administrator, eg, in SM IIA you don't have to specify these values. So, it's important to check the problem category with SM administrator and expose them correctly via SM SOAP interface as described in former chapter.
7	Value: BOB.HELPDESK	->	ProblemOwner	
8	Value: exchange	->	ProblemType	
9	Value: email client	->	ProductType	
10	Value: qc_host/ qc_domain/qc_project	->	QCProject	
11	Value: 2 - High		Severity	
12	Value: software	->	SubCategory	
13	Value: ITIL	->	WorkFlowType	By default in SM there is a field "category" requires a constant value "ITIL". If you don't expose this field or don't give it a constant mapping the synchronization can success but you will encounter errors when opening the Problem in SM. Depends on how the SM is customized this field varies and could be nullable, eg, in IIA this field is not required. For more details about this field please consult your SM administrator. If this field is required as "ITIL" we strongly suggest you expose this field as "WorkFlowType" and add a constant value "ITIL" to it.

The mappings are specified in the field mapping tab as show below:

Figure 88 Defect -> Problem field mapping

3_defect_to_problem

Mapped Fields			
Type	Endpoint 1 Field	Direction	Endpoint 2 Field
	Summary	<---->	Description
	Severity	<---->	Impact
	Problem ID	<---->	ProblemID
	Defect ID	---->	QCEntityID
	Value: <i>AUTO</i>	---->	AssignmentGroup
	Value: <i>client system</i>	---->	Category
	Value: <i>BOB.HELPDESK</i>	---->	ProblemOwner
	Value: <i>exchange</i>	---->	ProblemType
	Value: <i>email client</i>	---->	ProductType
	Value: <i>localhost/DEFAULT/T...</i>	---->	QCProject
	Value: <i>2 - High</i>	---->	Severity
	Value: <i>software</i>	---->	SubCategory
	Value: <i>ITIL</i>	---->	WorkFlowType

Optional mappings: You can add some field mappings between the two endpoints, they can be one-way or bi-directional, and even for value list. This depends on your business requirements. For more mapping details please see the Quality Center Synchronizer User Guide.

8.4.4. Scheduling/events

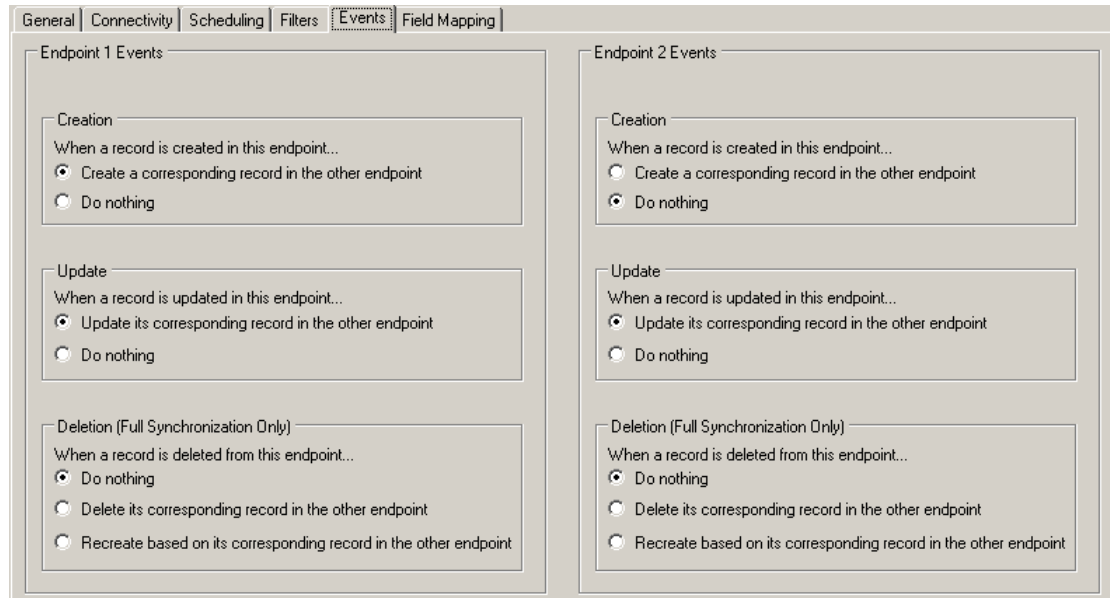
Once the link is created you need to specify the schedule to run the synchronization at the tab page "scheduling".

At the Events tab page, specify the events as shown below

Table 26 QC Defect -> SM Problem events

	Endpoint 1 (QC Defect)	Endpoint 2 (SM Change)
create	Create	Do nothing
update	Update its corresponding...	Update its corresponding...
delete	Do nothing	Do nothing

Figure 89 Defect -> Problem events

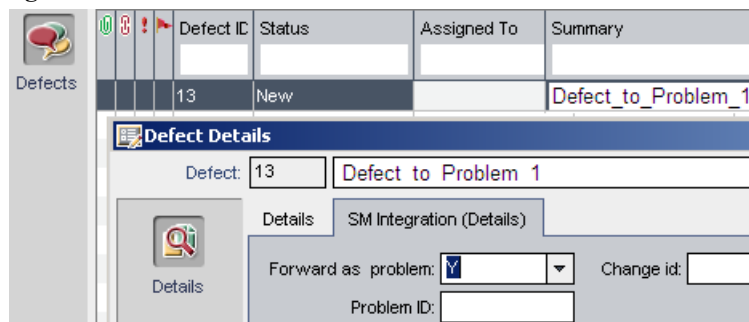


8.4.5. Test

NOTE: Synchronization maybe fail in case of mapping one mandatory field to a value null-able field. A mandatory field (in either SM and QC) does not accept a null value.

- 1 Save the configuration (an integrity check is automatically run).
- 2 Click “Enable Link”.
- 3 Create a Quality Center defect.
- 4 Specify “Forward as problem”.

Figure 90 Defect -> Problem test: Create defect



- 5 Synchronize.

Figure 91 Defect -> Problem test: Synchronize



- 6 View the problem in Service Manager.

Figure 92 Defect -> Problem test: Created problem

Problem Control - Problem Identification and Classification

Record Number:

Brief Description:

◆ QC Integration ◆ Classification ◆ Activities ◆ Attachmen

Defect ID:

server/domain/project

7 View the problem in Quality Center.

Figure 93 Defect -> Problem test: Problem data synchronized back to defect

Defect Details

Defect:

Details SM Integration (Details)

Forward as problem: Change id:

Problem ID:

