SERENA

SERENA®
Development Manager 3.5 Connector for HP Quality Center / ALM

Implementation Guide

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Welcome to Orchestrated ALM

Contacting Technical Support

Serena provides technical support for all registered users of this product, including limited installation support for the first 30 days. If you need support after that time, contact Serena Support at the following URL and follow the instructions:

http://www.serena.com/support

Language-specific technical support is available during local business hours. For all other hours, technical support is provided in English.

The Serena Support web page can also be used to:

■ Report problems and ask questions.

■ Obtain up-to-date technical support information, including that shared by our customers via the Web, automatic E-mail notification, newsgroups, and regional user groups.

■ Access a knowledge base, which contains how-to information and allows you to search on keywords for technical bulletins.

■ Download fix releases for your Serena products.

Chapter 1

Overview of the Connector for Quality Center / ALM

About the Connector for HP Quality Center / ALM

The Serena Development Manager Connector for HP Quality Center / ALM enables you to submit an item in Serena Development Manager and have the item automatically replicated in Quality Center, or to have the submission of an item in Quality Center automatically trigger creation of a corresponding item in SBM. You can synchronize the creation, update, and deletion of defects, tests, requirements, releases, and cycles.

What's Included with the Connector for HP Quality Center

The heart of the Connector for HP Quality Center is a set of Web Services that provide an API to key Quality Center features, such as submitting and updating defects, tests, requirements, releases, and cycles. The Development Manager process apps can interact with Quality Center using these Web services. For more information on what you can do with the Connector Web services, please see "What You Can Do With the Connector Web Services" on page 11.

Using the Quality Center Connector with Serena Development Manager

Serena Development Manager orchestrates all of your development processes, from story and task definition through to testing and deployment. By incorporating HP Quality Center / ALM, you can tie your test cases and requirements to your code management and defect tracking processes, ensuring full auditability across all of your project artifacts.

This document will walk you through the configuration steps necessary to use Quality Center / ALM together with Serena Development Manager. For detailed information on installing and configuring Development Manager, please see the *Development Manager Installation and Configuration Guide*.

For a detailed use case for using the Quality Center / ALM connector with Serena Development Manager, please see the *Serena Development Manager Getting Started Guide*.

How the Connector works with Quality Center Versioning

The Connector for HP Quality Center supports item versioning in Quality Center to an extent. The Connector supports versioning of requirements and tests. The Connector Web Services update an item by checking the item out, updating it, and checking in a new version. The Connector does not support working with previous versions of items in Quality Center. Note that adding attachments requires checking items out and in, creating new versions.

Chapter 2
Setting Up the Connector

Pre-Requisites

You must install all of the following before you install the Connector components in order to use the SBM Connector for HP Quality Center:

■ SBM version 2009 or later, 32bit or 64bit

■ HP Quality Center, version 10 or later

■ If you will use the Connector with Serena Development Manager, Dimensions CM 12.1.1 or later, and the Development Manager components (for details, see the *Serena Development Manager Installation and Configuration Guide*)

Important Installation Notes

■ You cannot install Quality Center using the SQL Server Express database that ships with SBM. If you want to use a SQL Server Express database for both SBM and Quality Center for testing, download the Advanced version of SQL Server Express and use that for both products.

Installing the Connector Components

Installing and Registering Quality Center Modules

You must download and install the required Quality Center modules to any SBM Application Engine server.

To install Quality Center modules to the SBM Application Engine server:

1 On the machine that hosts the SBM Application Engine, download Quality Center modules by opening your browser and logging in to Quality Center.

The URL might look something like the following:

`http://<HP Server Name>:8080/qcbin/start_a.jsp`

If prompted, complete client install steps, including enabling Active X and installing the Microsoft Visual C++ 2005 SP1 ATL Security Update Resdistributible. See this link for more information: <u>http://www.microsoft.com/download/en/ details.aspx?displaylang=en&id=14431</u>

2 If necessary, install the Quality Center Common Library. To do this, open the following URL:

`http://<HP Server Name>:8080/qcbin/start_a.jsp?common=true`

3 Log in to the Quality Center admin module, for example:

`http://<HP Server>:8080/qcbin/start_a.jsp`

4 Logging in will automatically download the necessary modules to your server.

5 If you are using Quality Center 11, you must register the OTA Type Library on all systems to which the SBM Application Engine is installed. In Quality Center, click the

Help menu, and select **Add-ins page**. From the Add-ins page, click HP Quality Center Connectivity, then download the Connectivity Add-In.

Installing the Connector

To install the Connector to Quality Center for Serena Development Manager implementations, run the Development Control installer on the SBM server. The Connector components will be installed as part of the full Development Control installation.

Setting Permissions for File Attachment Processing

The Connector Web Services process temporary files for Quality Cneter file attachments in a directory on the SBM Application Engine server. The IWAM IIS user, or whichever user is set as the default server user, must have read / write access to this directory.

To set the correct permissions for handling of Quality Center file attachments by the Connector Web Services:

1 Log on to the SBM Application Engine server.

2 Locate the following directory:
`SBM installation root/SBM/Application Engine/webservices/bin`

3 Grant read / writer permissions to this directory to the IWAM IIS user, or default user.

What You Can Do With the Connector Web Services

The Connector for HP Quality Center / ALM provides full access to Quality Center functionality with a set of Web Services that you can invoke from SBM orchestrations. The example orchestrations provided with the Connector address just a subset of all of the functionality available from the Web Services. The full functionality includes:

■ Creating / updating defects in Quality Center. You can create them in either of the following ways:

  • By calling the **AddBugWithFields** method, which populates the required fields and creates a new bug. This method creates a new bug in a single step, but requires all of the required fields to be populated. This is true for all methods named "WithFields."

  • By calling the **AddBug** method, which first creates a new bug, then populates the fields, and then updates the new bug. This method does not require all of the required fields to be populated before creating the bug.

■ Creating / updating new cycles in Quality Center with the **AddCycle** method.

■ Creating / updating new releases in Quality Center with the **AddRelease** method.

■ Adding new file attachments to Quality Center items with the **AddFileAttachment** method.

■ Creating new requirements in Quality center. You can create them either with a method call that populates all required fields before creating the requirement (**AddRequirementWithFields**), or with a method call that creates the requirement without first populating all required fields (**AddRequirement**).

- Creating new tests in Quality center. You can create them either with a method call that populates all required fields before creating the test (**AddtestWithFields**), or by including additional methods that specify parameters (**Addtest**).

- Getting information about releases, tests, bugs, cycles, requirements, fields, etc.

- Removing defects, cycles, releases, requirements, tests.

- Retrieve defects, requirements, and tests using Quality Center filter queries. You can validate the queries using the Filter dialog in Quality Center, and then reproduce the queries in the **GetDefectsWithQuery**, **GetRequirementsWithQuery**, or **GetTestsWithQuery** methods.

- Retrieve links to items related to defects, requirements, and tests in Quality Center:

  - For requirements and tests, use the **GetLinkedBugs** method to return URLs to linked defects.

  - For Bugs, use the **GetLinkedRequirements** method to return URLs to linked requirements, and the **GetLinkedTests** method to return URLs to linked tests.

  - For tests, to return URLs to all coverage requirements, use the **GetRequirementCoverageForTest** method.

  - For requirements, to return URLs to all coverage tests, use the **GetTestCoverageForRequirement** method.

For complete information on the Web Services, please see the **SBM Connector for HP Quality Center Web Services Reference**.

Configuring Quality Center

To use the Quality Center Connector with Serena Development Manager, you must complete a number of additional configuration steps. These steps help you set up Quality Center to use with the default, out-of-box implementation of Serena Development Manager.

Configuring HP from the Site Administration tool:

1 Log into the Site Administration tool for Quality Center.

2 Under **Site Users**, add a user account that corresponds with every SBM and Dimensions CM user who must also have access to Quality Center. These user names must precisely match the corresponding user names in SBM and Dimensions CM.

3 Add a user with the name QCConnector.

4 Under Site Projects, create a new, empty project. Name this project QLARIUS and add it to the DEFAULT domain.

5 Add all of the users you just set up to the new QLARIUS project.

6 Activate the project, and optionally enable versioning for it, in order to version requirements and tests.

7 Log into the QLARIUS project as an administrator and continue to the next section.

Configuring HP Quality Center Projects:

1 In Quality Center / ALM, select **Customize** from the **Tools** menu.

2 Under **Project Entities**, edit or add the following fields under **Defect**.

- Select the **User Fields** folder, and add a new string type field called DVM CR ID.

- Under **System Fields**, select the following fields in turn and make sure that the **History** option is enabled:

  - **Assigned To**

  - **Description**

  - **Detected in Cycle**

  - **Detected in Release**

  - **Modified**

  - **Severity**

  - **Summary**

  - **Target Cycle**

  - **Target Release**

3 Under **Project Lists**, make the following changes:

a Select **Severity**, and set the options to:

- **1**

- **2**

- **3**

- **4**

b Select **Bug Status**, and set the options to:

- **Closed**

- **Define Test Cases**

- **Fixed**

- **New**

- **Open**

- **Ready for Test**

- **Test Cases Defined**

- **Test Completed (failed)**

- **Test Completed (passed)**

- **Testing**

4 Select **Project Users**, then select the *QCConnector* user.

5 Click the **Member** tab and ensure that the *QCConnector* user is a member of the *TDAdmin* and *Viewer* groups.

6 Select **Workflow**, then click the **Script Editor** link.

7 In the Script Editor, expand **Project Scripts**, then select the **Common Script** node. Add the following to the end of this script.

```
Function Project_InvokeALF(sEventType, sObjectId)
' Set up parameters:
sUrl = "http://sbm_server:8085/eventmanager/services/
    ALFEventManagerDocLit"
sProduct = "Event Definition Product Name"
sProdVer = "Event Definition Version"
sProdInst = "Event Definition Product Instance"
sObjectType = "Event Definition Object Type"
sUsername = "QCconnector"
sPassword = "ttqc"
sSoapAction = """"""
' Set up soap query:
sXml = "<env:Envelope " _
& "xmlns:env=""http://schemas.xmlsoap.org/soap/envelope/"" " _
& "xmlns:xsd=""http://www.w3.org/2001/XMLSchema"" " _
& "xmlns:xsi=""http://www.w3.org/2001/XMLSchema-instance"" " _
& "xmlns:ns=""http://www.eclipse.org/alf/schema/EventBase/1"">" _
& "<env:Body>" _
& "<ns:ALFEventNoticeDoc>" _
& "<ns:Base>" _
& "<ns:EventId>" & sEventType & "</ns:EventId>" _
& "<ns:Timestamp xsi:nil=""true"" />" _
& "<ns:EventType>" & sEventType & "</ns:EventType>" _
& "<ns:ObjectType>" & sObjectType & "</ns:ObjectType>" _
& "<ns:ObjectId>" & sObjectId & "</ns:ObjectId>" _
& "<ns:Source>" _
& "<ns:Product>" & sProduct & "</ns:Product>" _
& "<ns:ProductVersion>" & sProdVer & "</ns:ProductVersion>" _
& "<ns:ProductInstance>" & sProdInst & "</ns:ProductInstance>" _
& "</ns:Source>" _
& "<ns:User>" _
& "<ns:ALFSecurity>" _
& "<ns:UsernameToken>" _
& "<ns:Username>" & sUsername & "</ns:Username>" _
& "<ns:Password>" & sPassword & "</ns:Password>" _
& "</ns:UsernameToken>" _
& "</ns:ALFSecurity>" _
& "</ns:User>" _
& "</ns:Base>" _
& "<ns:Extension>" _
& "<ns:QCDomain>" & DomainName & "</ns:QCDomain>" _
& "<ns:QCProject>" & ProjectName & "</ns:QCProject>" _
& "<ns:QCUser>" & UserName & "</ns:QCUser>" _
& "</ns:Extension>" _
& "</ns:ALFEventNoticeDoc>" _
& "</env:Body>" _
& "</env:Envelope>"
' Create objects to DOMDocument and XMLHTTP:
set objDom = CreateObject("MSXML2.DOMDocument")
set objXmlHttp = CreateObject("MSXML2.XMLHTTP")
' Load XML:
objDom.async = False
objDom.loadXML sXml
' Open the Web service:
```

```
objXmlHttp.open "POST", sUrl, False
' Create headings:
objXmlHttp.setRequestHeader "Content-Type", "text/xml; charset=utf-
    8"
objXmlHttp.setRequestHeader "SOAPAction", sSoapAction

'msgbox "XML Payload = " & sXml
' Send XML command:
objXmlHttp.send objDom.xml
' Get all response text from the Web service:
sRet = objXmlHttp.responseText
' Close object
set objXmlHttp = Nothing
On Error GoTo 0
End Function
```

8 On the Script Editor, expand **Project Scripts** then select **Defects module** script.

9 To the very top of this script, add:
   ```
   Dim ALFEventType
   ```

10 Select the `Bug_CanPost` statement and add the following after the line starting with:
   `Bug_CanPost`:
   ```
   ' For new defect (that was not submitted yet, BG_BUG_ID is always
       Null
   If Bug_Fields("BG_BUG_ID").IsNull Then
   ALFEventType = "QCBugCreated"
   Else
   ALFEventType = "QCBugUpdated"
   End If
   ```

   The resulting screen should look something like the following:
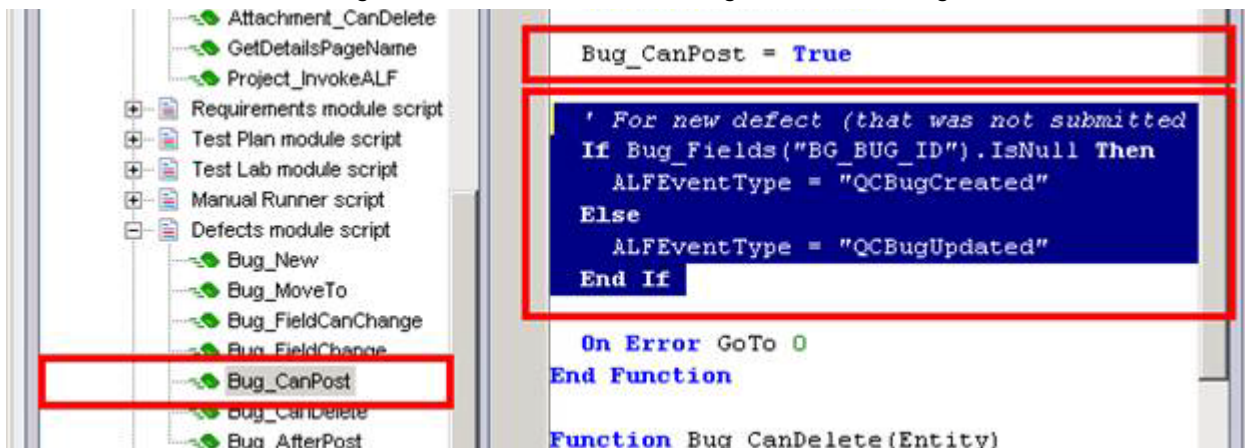
11 Select the `Bug_CanDelete` statement and add the following before the `End Function` line:
   ```
   Project_InvokeALF "QCBugDeleted",
       cStr(Bug_Fields("BG_BUG_ID").Value)
   ```

12 Select the `Bug_AfterPost` statement and add the following line before the `End Sub` line
   ```
   Project_InvokeALF ALFEventType cStr(Bug_Fields("BG_BUG_ID").Value)
   ```

Configuring Serena Business Manager

You must complete a number of configuration steps in Serena Business Manager clients before you can use the connector.

Configuring Connector Users

Complete the following administration steps from SBM System Administrator, on the SBM server:

> **NOTES** The procedures here that are carried out in SBM are described in relation to SBM 2009 R4.03. In SBM 10.1, these steps are carried out in a web-based System Administrator. Consult the appropriate user documentation for SBM 10.1, in particular, the SBM System Administrator Guide.

1 In SBM System Administrator, select the Users tab.

2 Click the Add button to add a new user. Name the new user QCconnector and give it the password ttqc.

3 Edit the QCconnector user and display the Roles tab.

4 Select the Development Control CR Project, select the **User** role, and click **Enable**.

5 While still editing the user, click the **Privileges** tab. From here, click the **Tables** tab. Select Quality Connector from the **For Table** list, and select the **View** privilege under **Grant Privileges**. Save these changes.

6 Also in SBM System Administrator, make sure that end users are assigned to roles and groups that are associated with the project.

7 Users that need to perform the necessary transitions for a dev change request of type *Defect* (e.g. Josh the development manager, Alexander the build engineer) may also need the view privilege for the Quality Center table. Perform those steps described above for those users also.

Configuring the connector user in SBM 10.1 and later

1 In SBM Application Administrator, Select Users.

2 Select the *QCconnector* user.

3 Select **Privileges**

4 Select **Table**

5 Under Tables, select *Quality Connector.*

6 Under **Grant Privileges**, select **View**.

7 Click the **Save** button.

Configuring Other Users

Users that need to perform the necessary transitions for a dev change request of type *Defect* (e.g. Josh the development manager, Alexander the build engineer) may also need
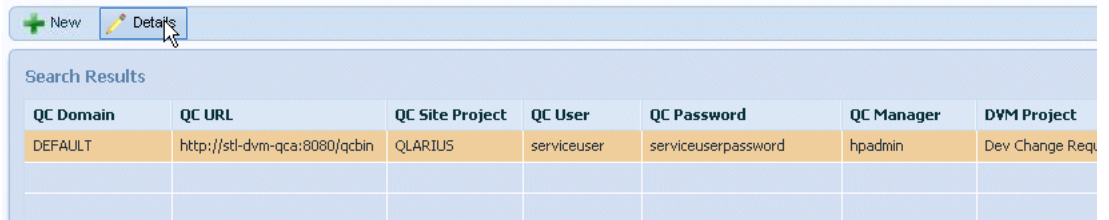
the view privilege for the Quality Center table. Perform the steps described above for those users also.

Configuring the Connector Auxiliary Table

With Development Manager, an auxiliary table called Quality Connector is set up to store Quality Center connection and mapping information. You must set the values correctly for this table.

To do this:

1 Log in to the SBM Web interface.

2 Click the Administrator button in the toolbar

3 Click **Manage Auxiliary Data** in the main window.

4 Select Quality Connector from the Table list.

5 Click the **Details** button to edit the existing entry in the table.

6 Enter the server details and the name of the QC Connector user and password.

7 Click the **Update** button.

8 The final auxiliary table record should look something like the following:

QC Domain:	DEFAULT
QC URL:	http://dvm-qca:8080/qcbin
QC Site Project:	QLARIUS
QC User:	serviceuser
QC Password:	serviceuserpassword
QC Manager:	hpadmin
DVM Project:	Dev Change Requests Project

NOTE The QC Manager user, for example *hpadmin*, will need to be added in Quality Center as user for the project, for example *QLARIUS*, that you are using.

Do not add more than one entry in the table for each Quality Center project or for each SBM project, or this may produce unexpected results.

9 In the Web interface, make sure that users of the integration can see all field sections (**User Profile** | **Sections**).

Synchronizing Modifier History

The SBM Connector Web Services can return the name of the user who last modified an item in Quality Center. This is useful to prevent continuous update loops. However, Quality Center does not store the last modifier information as a data field for entities. Therefore, to retrieve the last modifier's user name, the Web services query an item's history. Quality Center only stores history for an item when a field that is set to track history is updated. To ensure that Quality Center returns the last modifier when queried by the Web serivces, set the **Modified** system field to record history. Serena recommends enabling history for all fields that are replicated using the Web services. This ensures that the identity of the last modifier is always stored for every change.

To enable history tracking on the Modified field for all types of items:

1 Log into Quality Center as the administrator and select Tools | Customize.

2 From the Project Customization view, select **Project Entities**.

3 Expand the type of item for which you will enable history tracking, and then expand the **System Fields** folder under this.

4 Select the **Modified** field, and then click the History check-box.

5 Click **Save**.

6 Repeat these steps for all types of items that are synchronized between Quality Center and SBM.