Tivoli.

Netcool Service Quality Management Center

IBM

Version 4.1.4

Integration Guide

SC27-3569-01

Note: Before you use this information and the product it supports, read the information in Notices.

This edition applies to version 4, release 1, modification 4 of IBM Tivoli Netcool Service Quality Manager (Product number 5724-V48) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

1 About this publication

The IBM® Tivoli® Netcool® Service Quality Management Center version 4.2.3 solution includes three modules; IBM Tivoli Business Service Manager version 4.2.1, IBM Tivoli Netcool Service Quality Manager version 4.1.3, and IBM Tivoli Netcool Customer Experience Manager version 4.1.3.

Tivoli Business Service Manager is the integration dashboard for end-to-end service management. It provides analytics whose primary focus is on the availability of the business service. It allows customers to quickly navigate to the business impact of events on the performance or availability of a business service, and more quickly drill down to the root cause of the impact. It provides a dashboard that displays service impact and service status across business and technology components.

Tivoli Netcool Service Quality Manager allows you to measure and report on aggregate service levels. It calculates the service quality throughout the service path, aggregating base performance indicators into key quality indicators (KQIs). Tivoli Netcool Service Quality Manager is the analytics engine for delivered service quality calculation and determines performance against pre-determined service-level agreements (SLAs).

Tivoli Netcool Customer Experience Manager provides a detailed analysis of the experience of an individual subscriber and correlates this data back to broader service quality trends. It analyzes individual subscriber transactions and compares these transactions to service quality aggregated by service, location, subscriber group, and device type.

This publication provides details on how the individual components within the solution can be integrated together providing the ability to visualize overall service quality and delivered customer experience in a common dashboard layer.

It describes how to provision a shared user repository and single sign-on between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager. This guide also provides the steps to integrate service level events into Tivoli Business Service Manager.

This guide also provides the steps to create custom launches from Tivoli Business Service Manager to Tivoli Netcool Service Quality Manager and Tivoli Netcool Customer Experience Manager. It describes how service metrics such as KQI and key performance indicators (KPIs) can be displayed in charts in the Tivoli Business Service Manager dashboards and how external business intelligence reports can be launched from the dashboards.

1.1 Intended audience

This publication is intended Tivoli Netcool Service Quality Manager customers.

Readers must be familiar with the following topics:

- IT principles
- IP networking
- UNIX® operating systems

1.2 What this publication contains

This publication contains the following chapters:

- Chapter 2 "Single sign-on configuration"

  Provides the steps required to configure a shared user repository and single sign-on between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager.

- Chapter 3 "Event integration"

  Provides a description of how SLA and service-level objective (SLO) events can be integrated into Tivoli Netcool/OMNIbus and from there to Tivoli Business Service Manager.

- Chapter 4 "Tivoli Netcool Service Quality Management Center menu configuration"

  Provides a description of how Tivoli Business Service Manager and Tivoli Netcool WebTop menu items can be configured to open KQI history charts, BusinessObjects reports or to launch directly to the Tivoli Netcool Service Quality Manager and Tivoli Netcool Customer Experience Manager user interface applications.

- Chapter 5 "Launching SLA web view"

  Provides a description of how the Tivoli Netcool Service Quality Manager SLA web view component can be launched from Tivoli Business Service Manager dashboards.

- Chapter 6 "Launching Tivoli Netcool Customer Experience Manager"

  Provides a description of how the Tivoli Netcool Customer Experience Manager components can be launched from Tivoli Business Service Manager dashboards.

- Chapter 7 "Launching KQI history charts and BusinessObjects reports"

  Provides a description of how KQI history charts can be displayed and how BusinessObjects reports can be launched from Tivoli Business Service Manager dashboards.

- Chapter 8 “Launching Resource Viewer”

  Provides a description of how to install and launch the Resource Viewer.

- Chapter 9 "Displaying Tivoli Netcool Service Quality Manager metrics in Tivoli Business Service Manager dashboards"

  Provides a description of how Tivoli Business Service Manager data sources, data fetchers and associated rules can be configured in order to display Tivoli Netcool Service Quality metrics in Tivoli Business Service Manager dashboards.

This publication contains the following appendixes:

- Appendix A "Glossary"

  Provides a description of product terms and acronyms.

1.2 Publications

This section lists the IBM Tivoli Netcool Service Quality Manager core library publications. It also describes how to access Tivoli publications online and how to order Tivoli publications.

1.2.1 IBM Tivoli Netcool Service Quality Manager core library

The IBM Tivoli Netcool Service Quality Manager core library contains the following publications:

- *IBM Tivoli Netcool Service Quality Management Center Integration Guide*, SC27-3569-01

  Describes the IBM Tivoli Netcool Service Quality Management Center solution. Provides information about how to integrate IBM Tivoli Business Service Manager, Tivoli Netcool Service Quality Manager, and Tivoli Netcool Customer Experience Manager in a common dashboard layer.

- *IBM Tivoli Netcool Service Quality Manager AIX Server Installation Guide*, GC23-9847-02

  Describes how to install the Tivoli Netcool Service Quality Manager Server system on IBM AIX® systems.

- *IBM Tivoli Netcool Service Quality Manager Solaris Server Installation Guide*, GC23-9846-02

  Describes how to install the Tivoli Netcool Service Quality Manager Server system on Solaris systems.

- *IBM Tivoli Netcool Service Quality Manager Client Installation Guide*, GC23-9850-02

  Describes how to install the Tivoli Netcool Service Quality Manager client.

- *IBM Tivoli Netcool Service Quality Manager Upgrade Guide*, SC23-9842-02

  Details how to upgrade from one Tivoli Netcool Service Quality Manager version to another.

- *IBM Tivoli Netcool Service Quality Manager AIX and Solaris Administration Guide*, SC27-3570-01

  Provides an overview of the AIX and Solaris Tivoli Netcool Service Quality Manager administrative tasks including instructions on how to complete the following tasks:

  - Starting and stopping Tivoli Netcool Service Quality Manager.
  - Running batch processes such as archiving trace files and log files.
  - Backing up and restoring the system.

- *IBM Tivoli Netcool Service Quality Manager Provisioning Service SI Guide*, SC23-9853-02

  Provides information for provisioning the Tivoli Netcool Service Quality Manager system.

- *IBM Tivoli Netcool Service Quality Manager Customer Experience Manager Provisioning Guide*, SC23-9843-01

  Provides information for provisioning the Tivoli Netcool Customer Experience Manager system.

- *IBM Tivoli Netcool Service Quality Manager Customer Experience Manager Monitoring Guide*, SC23-9482-01

  Describes how to use and monitor the Tivoli Netcool Customer Experience Manager feature in Tivoli Netcool Service Quality Manager.

- *IBM Tivoli Netcool Service Quality Manager Monitoring Guide*, SC23-9103-02

  Describes monitoring (Service level agreement (SLA) monitor, Key quality indicator (KQI) analyzer, alarm monitor, audit manager and SLA Webview applications) in Tivoli Netcool Service Quality Manager.

- *IBM Tivoli Netcool Service Quality Manager Configuration Guide*, SC23-9102-02

Describes SLA provisioning (parties, SLAs, and SLA templates applications) and Tivoli Netcool Service Quality Manager provisioning (services resources, KQI models, and service models applications) in Tivoli Netcool Service Quality Manager.

- *IBM Tivoli Netcool Service Quality Manager BusinessObjects Installation and Configuration Guide*, SC23-9473-02

  Provides information on the steps required to install and configure the BusinessObjects server and client for use with Tivoli Netcool Service Quality Manager.

- *IBM Tivoli Netcool Customer Experience Manager Customer Relationship Management Development Guide*, SC23-9857-01

  Provides an overview of how to implement Java code to connect a CRM system with the Tivoli Netcool Customer Experience Manager product.

- *IBM Tivoli Netcool Service Quality Manager Release Notes*, GI11-9221-02

  Provides information on the Tivoli Netcool Service Quality Manager release contents, platform requirements, installation and upgrade procedures, and known issues.

1.3.2 Accessing terminology online

The IBM Terminology website consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology website at http://www-01.ibm.com/software/globalization/terminology/index.jsp.

1.3.3 Accessing publications online

The product CD contains the publications that are in the product library. The format of the publications is PDF.

IBM posts publications for Tivoli products, as they become available and whenever they are updated, to the Tivoli Documentation Central website at http://www-01.ibm.com/software/tivoli/documentation.

Note: If you print PDF documents on other than letter-sized paper, set the option in the **File > Print** window that allows Adobe® Reader to print letter-sized pages on your local paper.

1.3.4 Ordering publications

You can order many Tivoli publications online at http://www-05.ibm.com/e-business/linkweb/publications/servlet/pbi.wss.

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to http://www-05.ibm.com/e-business/linkweb/publications/servlet/pbi.wss.
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

1.4 Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education website at http://www-01.ibm.com/software/tivoli/education.

1.5 Tivoli user groups

Tivoli user groups are independent, user-run membership organizations that provide Tivoli users with information to assist them in the implementation of Tivoli Software solutions. Through these groups, members can share information and learn from the knowledge and experience of other Tivoli users. Tivoli user groups include the following members and groups:

- 23,000+ members
- 144+ groups

Access the link for the Tivoli Users Group at www.tivoli-ug.org.

1.6 Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

1.6.1 Online

Access the Tivoli Software Support site at http://www.ibm.com/support/entry/portal/Overview/Software/Tivoli/Tivoli_brand_support_(general)?ibmprd=tivman.

Access the IBM Software Support site at http://www.ibm.com/support/entry/portal/Open_service_request/Software/Software_support_(general).

1.6.2 IBM Support Assistant

The IBM Support Assistant is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The Support Assistant provides quick access to support-related information and serviceability tools for problem determination. To install the Support Assistant software, go to: http://www-01.ibm.com/software/support/isa/

1.7 Conventions used in this guide

This publication uses several conventions for special terms and actions, operating system-dependent commands and paths, and margin graphics.

1.7.1 Typeface conventions

This publication uses the following typeface conventions:

Bold

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text.
    - Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as **Tip:** and **Operating system considerations:**)
    - Keywords and parameters in text.

Italics

- Citations (examples: titles of publications, diskettes, and CDs)
- Words defined in text (example: a non-switched line is called a *point-to-point line*)
- Emphasis of words and letters (words as words example: "Use the word *that* to introduce a restrictive clause."; letters as letters example: "The LUN address must start with the letter *L*.")
- New terms in text (except in a definition list): A *view* is a frame in a workspace that contains data.
- Variables and values you must provide (example:…where *myname* represents…)

`Monospace`

- Examples and code examples.
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text.
- Message text and prompts addressed to the user.
- Text that the user must type.
- Values for arguments or command options.

1.7.2 Operating system-dependent variables and paths

This publication uses the UNIX convention for specifying environment variables and for directory notation. When using the Windows® command line, replace $*variable* with %*variable*% for environment variables and replace each forward slash (/) with a backslash (\) in directory paths. The names of environment variables are not always the same in the Windows and UNIX environments. For example, %TEMP% in Windows environments is equivalent to $TMPDIR in UNIX environments.

Note: If you are using the bash shell on a Windows system, you can use the UNIX conventions.

1.3 Copying examples from this guide

If you copy any examples directly from this guide, you must ensure that you remove any return characters or other extraneous characters that might be copied with the text. If you do not delete these characters, the code might not operate correctly.

2 Single sign-on configuration

The IBM® Tivoli® Business Service Manager and IBM Tivoli Netcool® Service Quality Manager / Tivoli Netcool Customer Experience Manager web-based user interfaces are provided using IBM WebSphere® based application servers. As a result, you can configure a shared user repository between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager that uses single sign-on (SSO) between the products.

In the single sign-on environment, you can log on to Tivoli Business Service Manager on one computer and then, using the same browser, access Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager on a second computer, without logging onto the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager server. Similarly you can log on to Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager on one computer and then, using the same browser, access Tivoli Business Service Manager without logging on.

This chapter describes how to configure a shared Tivoli Business Service Manager – Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager user repository and single sign-on.

2.1 Overview

The Tivoli Business Service Manager 4.2.1 and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager 4.1.3 products include web-based user interfaces that run in separate WebSphere instances. Tivoli Business Service Manager runs in the IBM Embeddable WebSphere Application Server program and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager runs in the IBM Base WebSphere Application Server program.

Single sign-on between the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager products is possible by performing the following configuration tasks:

- Add the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager LDAP repository to the Tivoli Business Service Manager Embeddable WebSphere Application Server instance (federated user repository).
- Enable single sign-on and domain name configuration.
- Enable the exchange of Lightweight Third-Party Authentication (LTPA) tokens between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager WebSphere instances.
- Enable certificate exchange between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager WebSphere instances.

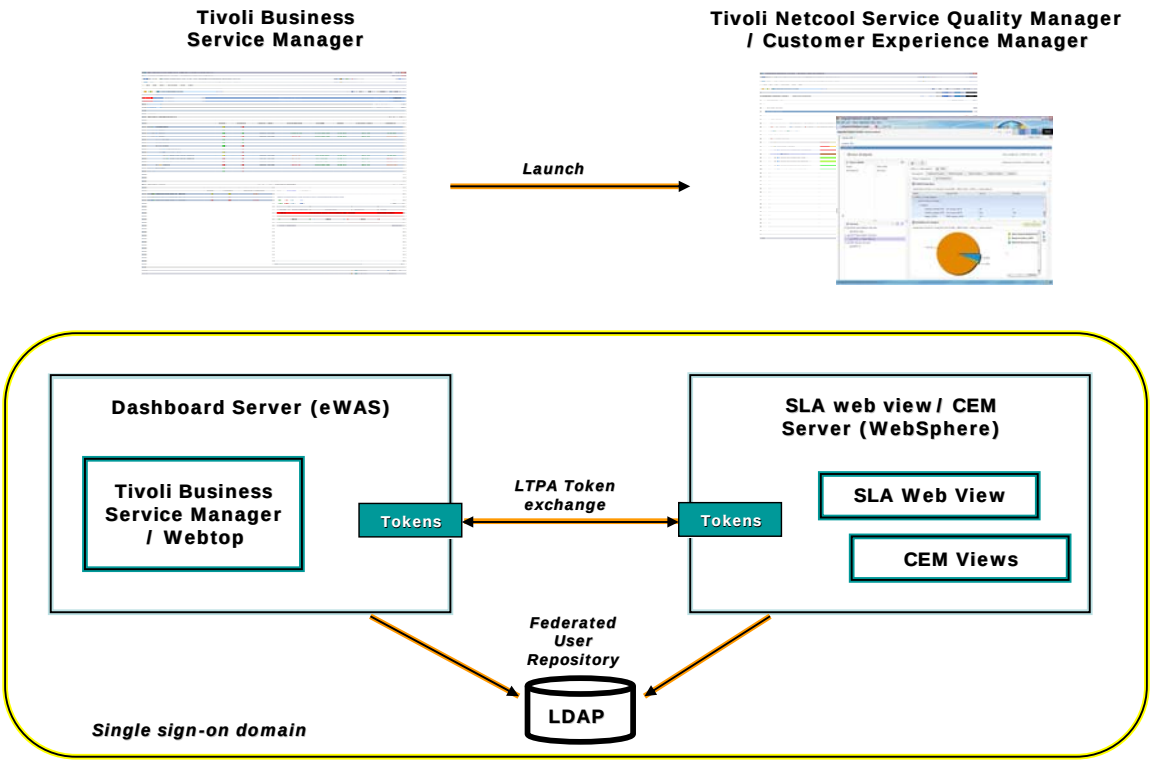

Figure 1: Single sign-on configuration

2.2 Prerequisites

To take advantage of support for SSO between Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager WebSphere Application Servers, both applications must meet the following prerequisites and conditions:

- Servers
  - Verify that all servers are configured as part of the same domain name service (DNS) domain. The WebSphere realm names on each system in the DNS domain are case-sensitive and must match identically. Note that for a distributed Tivoli Netcool Service Quality Manager installation all configuration outlined in this document is carried out on the application server.
  - For example, if the DNS domain is specified as `mycompany.com`, then SSO is effective with any WebSphere Application Server on a host that is part of the `mycompany.com` domain, for example, `a.mycompany.com` and `b.mycompany.com`.
  - For example, the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager login URLs might be:
    - Tivoli Business Service Manager:
      https://blarney.cork.ie.ibm.com:16316/ibm/console/logon.jsp
    - Tivoli Netcool Service Quality Manager:
      https://thomond.cork.ie.ibm.com:9043/ibm/console/logon.jsp
  - In this case, both Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager are part of the “cork.ie.ibm.com” domain.

- The domain name settings are described in sections 2.3.4 and 2.3.5.

- User management
  - For the combined Tivoli Business Service Manager / Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager system as shown previously, users must exist in the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager LDAP repository for SSO to work correctly.
- Authentication and credential use
  - Users normally authenticate using Tivoli Business Service Manager (through Tivoli Integrated Portal) and subsequently launch into Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager. However, the Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager GUI can be launched directly and users are authenticated using the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager WebSphere Application Server. In this case if the user subsequently starts the Tivoli Business Service Manager console (from the same browser), then they will be automatically logged in.
- Authorization
  - Existing Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager authorization mechanisms remain in place. The user must have appropriate roles assigned in both the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager systems.
- Certificate management and LTPA tokens
  - Signer certificates and LTPA tokens must be exchanged between the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager systems in order for SSO to work between those platforms. This task is a one-time configuration task performed by an administrative user.
- Browser configuration
  - HTTP cookies must be enabled in browsers because the authentication information that is generated by the Tivoli Business Service Manager server is transported to the browser in a cookie. The cookie is used to transfer the authentication information for the user to the server, exempting the user from entering the authentication information.

2.3 Single sign-on configuration procedure

Important: Before beginning these procedures, back up the following files on your Tivoli Business Service Manager server:

`<TIP_PROFILE_HOME>/config/cells/TIPCell/nodes/TIPNode/servers/server1/server.xml`

`<TIP_PROFILE_HOME>/config/cells/TIPCell/security.xml`

An example of `TIP_PROFILE_HOME` is `/appl/IBM/tivoli/tip/profiles/TIPProfile/config`.

In addition, back up the following files on your Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager server:

`<WEB-SPHERE_HOME>/AppServer/profiles/isc/config/cells/<hostname>Node02Cell/nodes/<hostname>Node02/servers/server1/server.xml`

`<WEBSPHERE_HOME>/AppServer/profiles/isc/config/cells/<hostname>Node02Cell/security.xml`

The following examples show how `WEBSPHERE_HOME` is set to `/appl/IBM/WebSphere` and host name is set to `thomond`:

`/appl/IBM/WebSphere/AppServer/profiles/isc/config/cells/thomondNode02Cell/nodes/thomondNode02/servers/server1/server.xml`

`/appl/IBM/WebSphere/AppServer/profiles/isc/config/cells/thomondNode02Cell/security.xml`

2.3.1 Federated LDAP server configuration

1. Log on to the Tivoli Business Service Manager server as an administrative user. Select **Secure administration, applications, and infrastructure** from the left navigation area under **Security**. The page shown in Figure 2 is displayed.

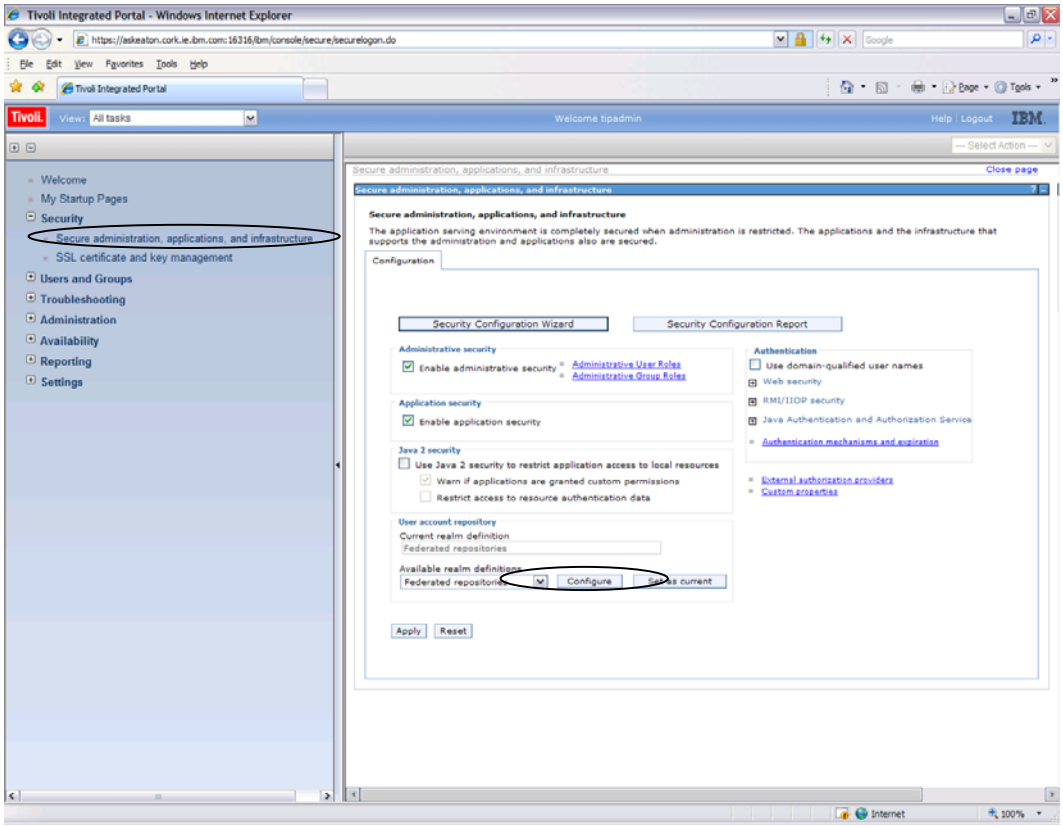

Figure 2: Federated repository configuration

2. Click **Configure**.

3. If the Tivoli Business Service Manager user registry has been set to OMNIbus leave the Realm name unchanged. In this case a separate change must be made on the Tivoli Netcool Service Quality Manager server as detailed in section 2.3.5, step 20.

   If the Tivoli Business Service Manager user registry has not been set to OMNIbus, on this page, change the `Realm name` to `<Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager host name>:<LDAP Secure Port>`, for example `thomond:1636`.

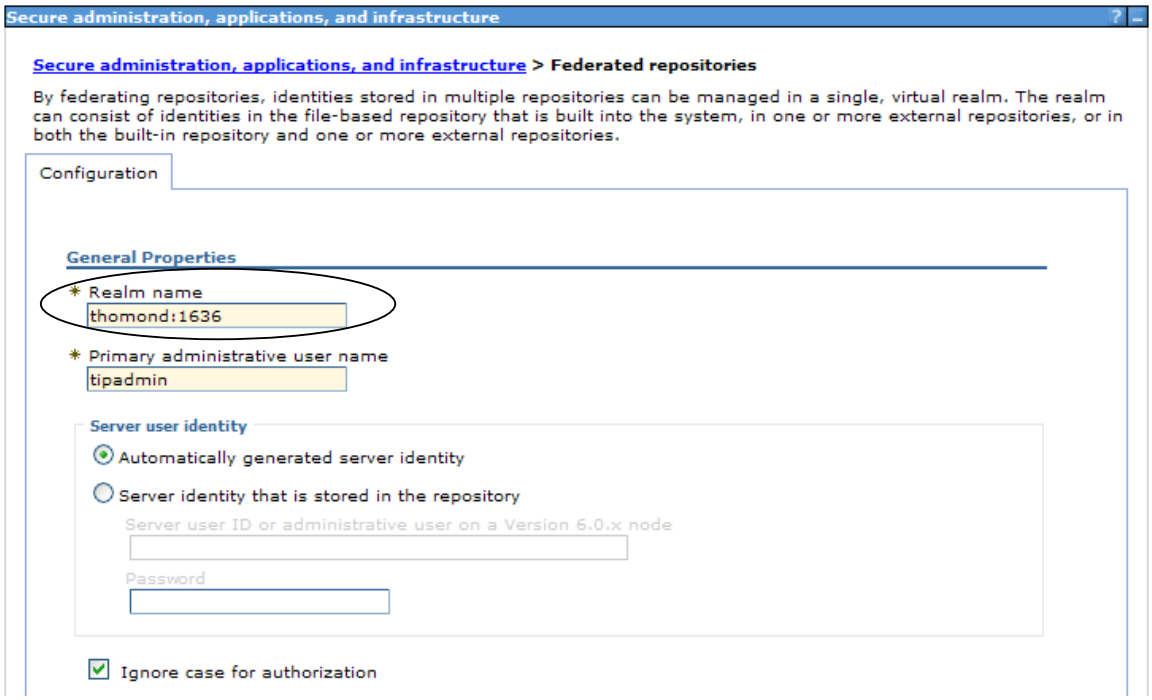

Figure 3: Realm name

4. Select **Apply** and the following window is displayed.

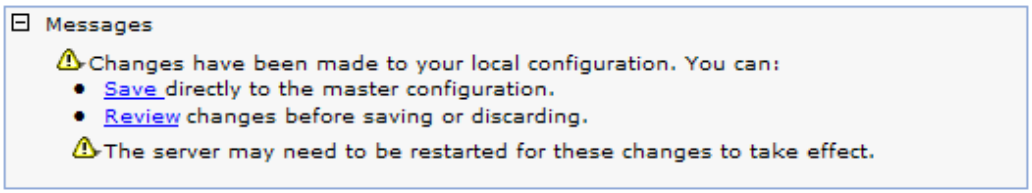

Figure 4: Confirmation message

5. Click **Save**.

6. On the **Federated Repositories** page, click the **Manage repositories** link.

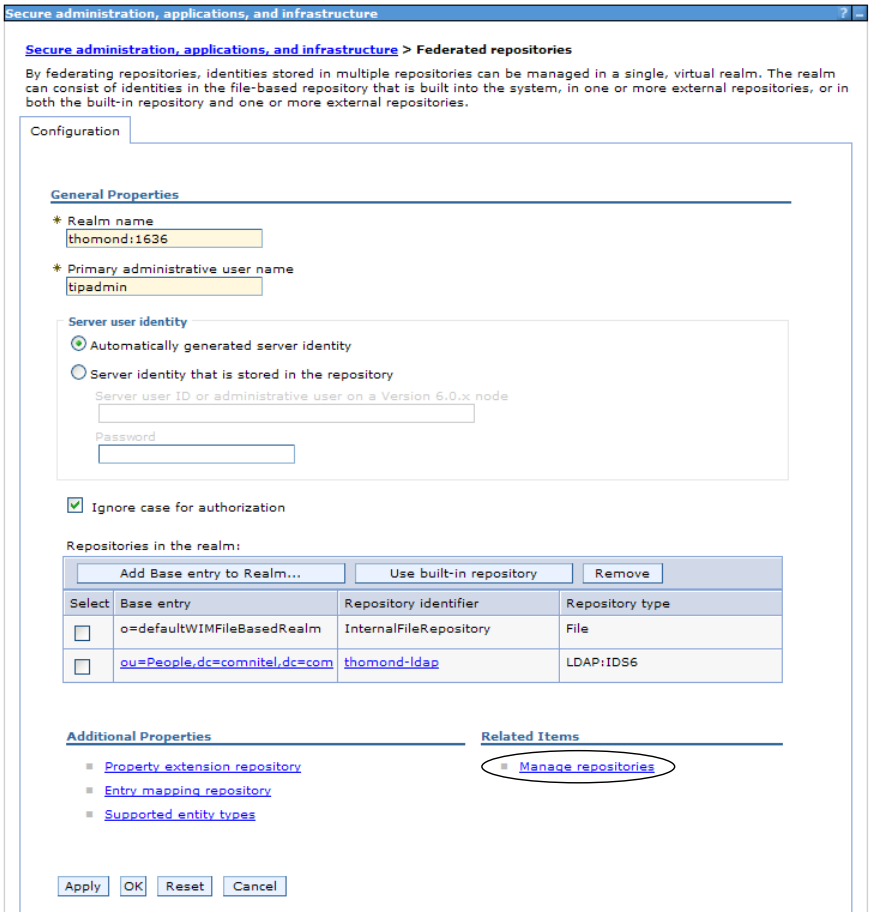

Figure 5: Manage repositories

7. On the next page, click **Add**.

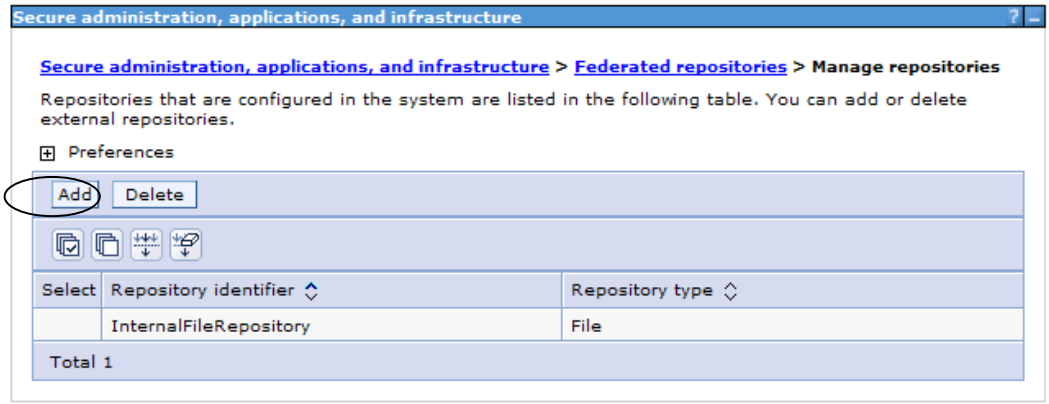

Figure 6: Adding a federated LDAP repository

8. Enter the following details and then click **Apply**.

Repository identifier: A name for the LDAP server

Directory type: IBM Tivoli Directory Server Version 6 (for an IBM AIX LDAP server)
or
Sun ONE (for a Solaris LDAP server)

Primary hostname: *< LDAP hostname>*

Port: *< LDAP port>,* usually 1389

Bind distinguished name: *< LDAP DN>,* usually "Directory Manager"

Bind password: *< LDAP password>*

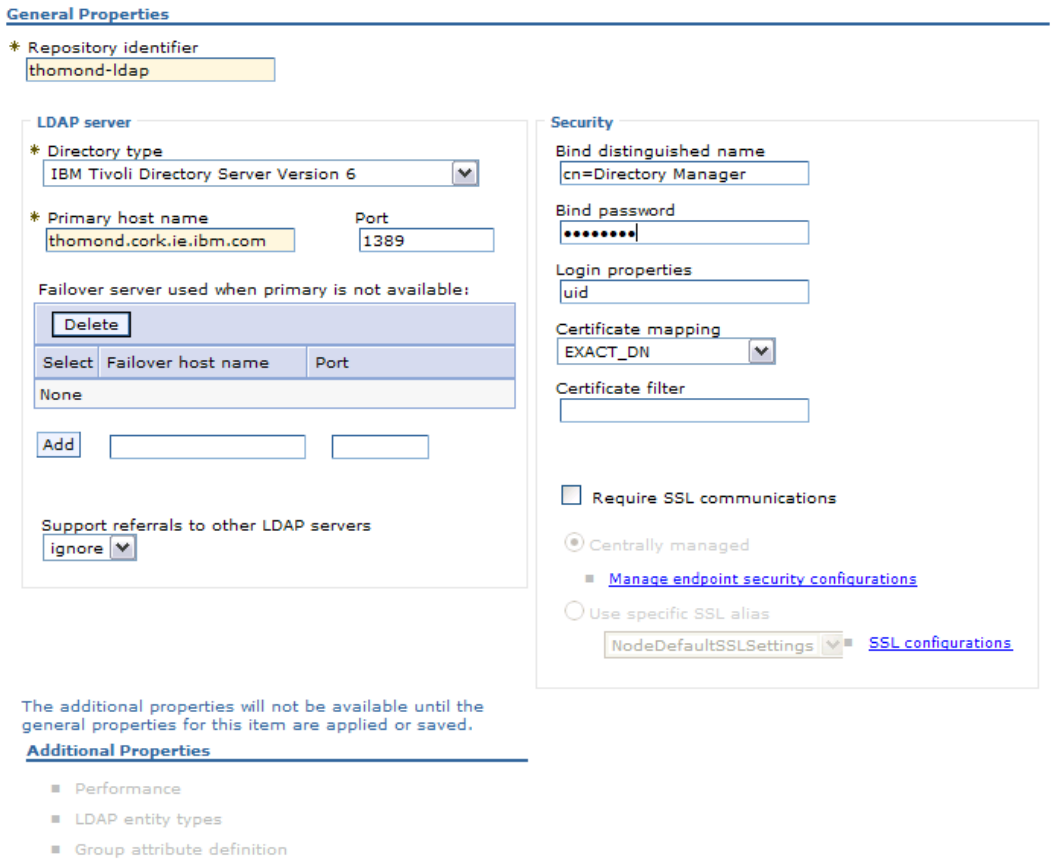

Figure 7: LDAP details

The following confirmation message window is displayed. Click **Save**.

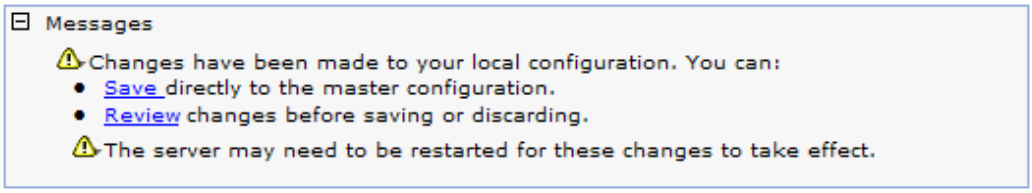

Figure 8: Confirmation message

The following window is displayed.

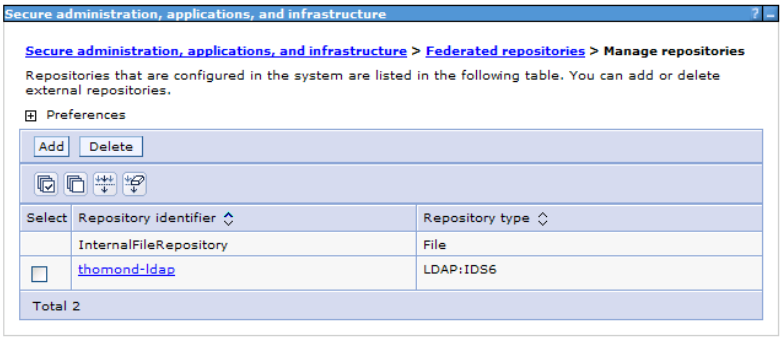

Figure 9: Federated LDAP repository

9. Click **Federated repositories**.

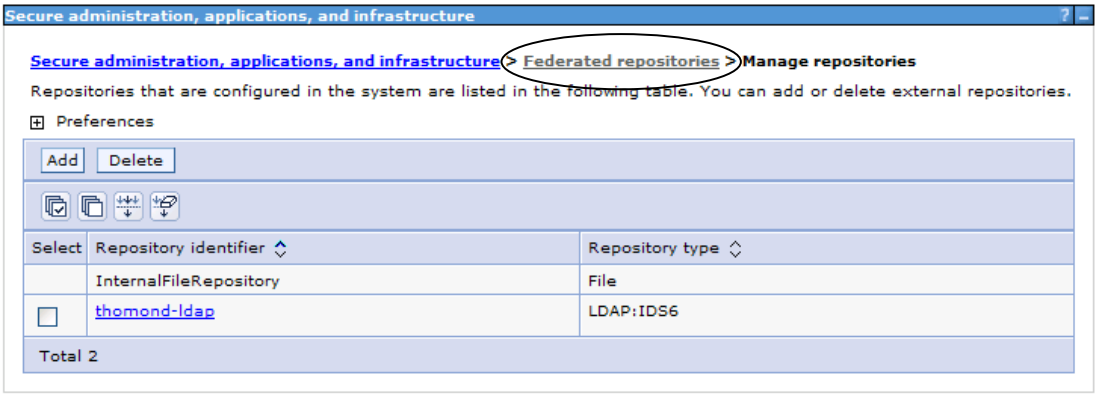

Figure 10: Selecting Federated repositories

10. In the following window, click **Add Base entry to Realm.**

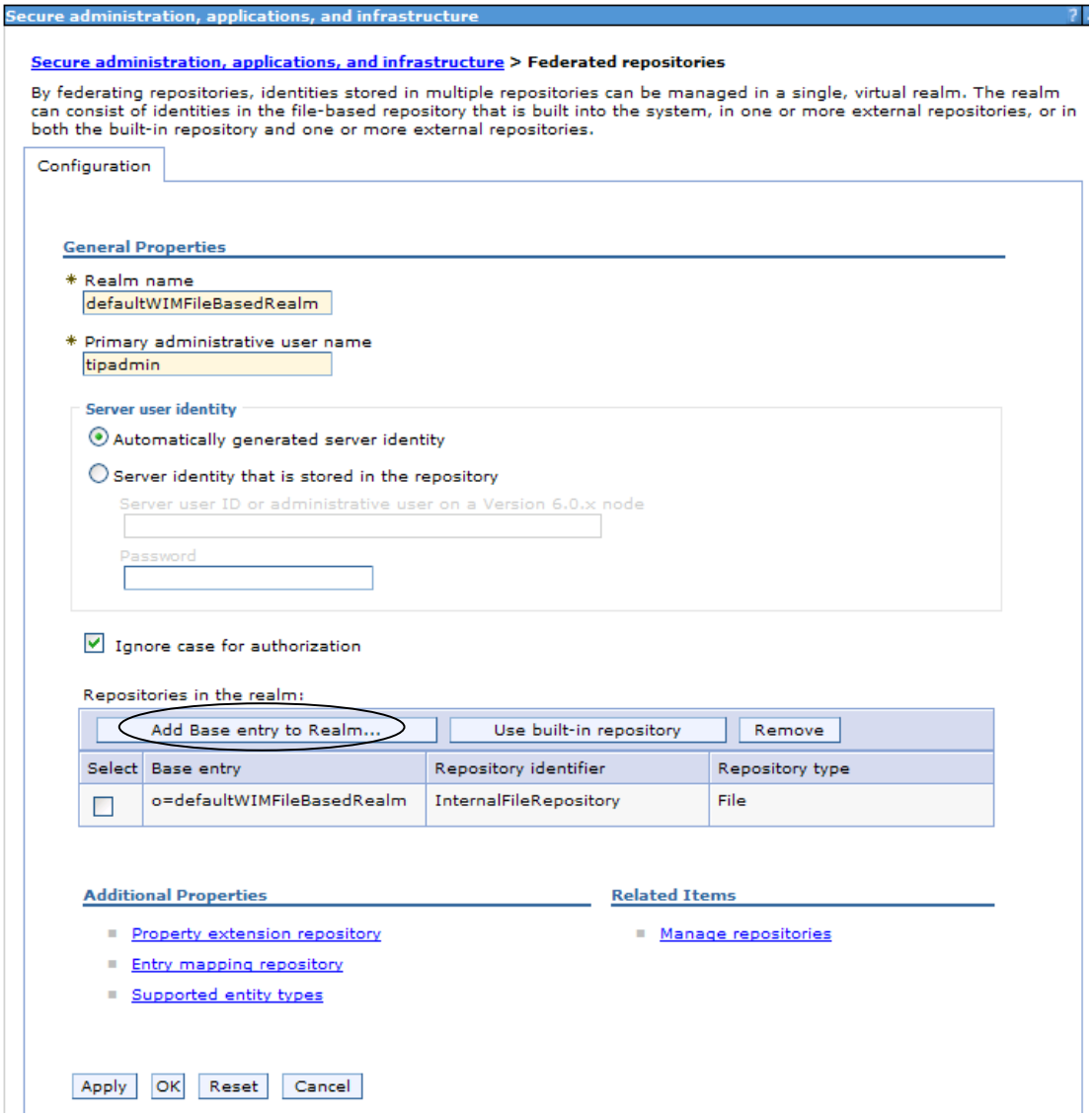

Figure 11: Adding base entry to realm

11. In both **Distinguished name** entries, add `ou=People,dc=comnitel,dc=com` as follows:

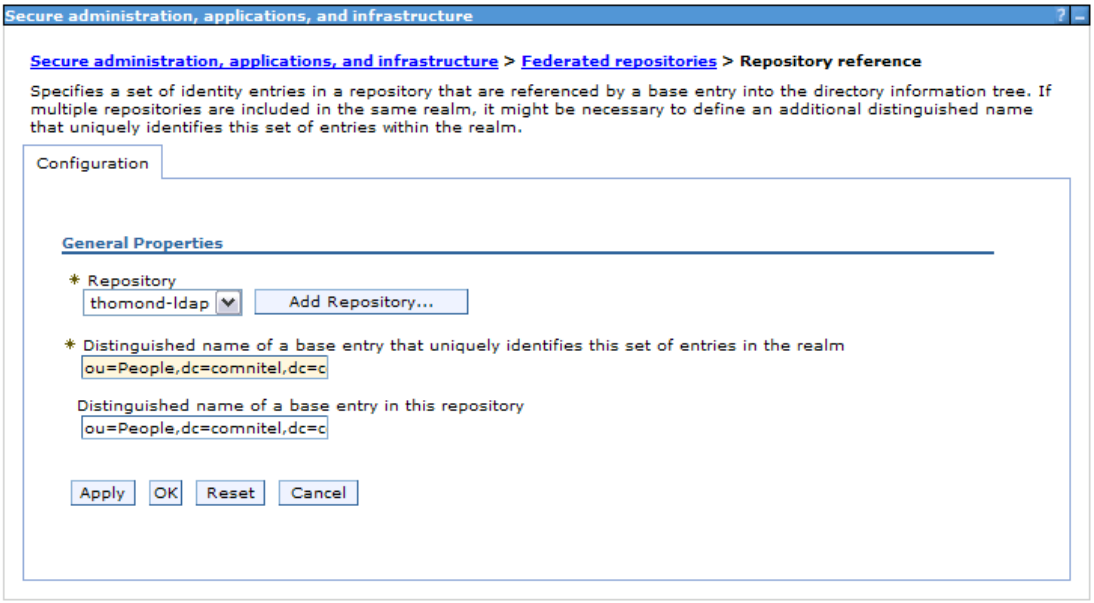

Figure 12: Repository reference details

12. Click **Apply**. When the following window is displayed, click **Save**.

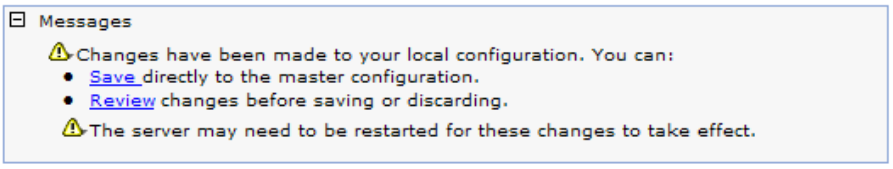

Figure 13: Confirmation message

13. In the **Secure administration, applications, and infrastructure > Federated repositories** window, you can view the LDAP repository, as shown in Figure 14.

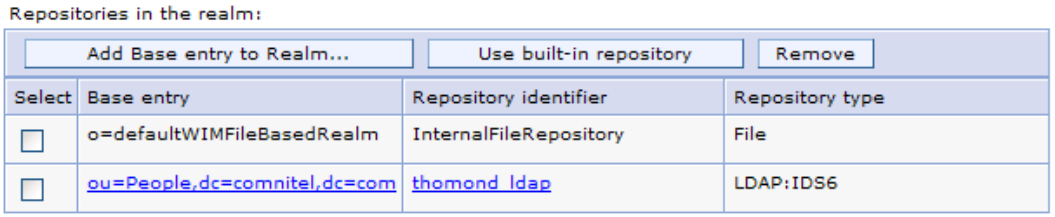

Figure 14: LDAP repository

2.3.2 Configuring LDAP details – Tivoli Directory Server

Note: This task applies only to a Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager server running Tivoli Directory Server on an AIX or Solaris system.

1. Log on to Tivoli Business Service Manager as an administrative user and open **Secure administration, applications, and infrastructure > Federated repositories** (see section 2.3.1 steps 1 and 2). Click the **Repository identifier**.

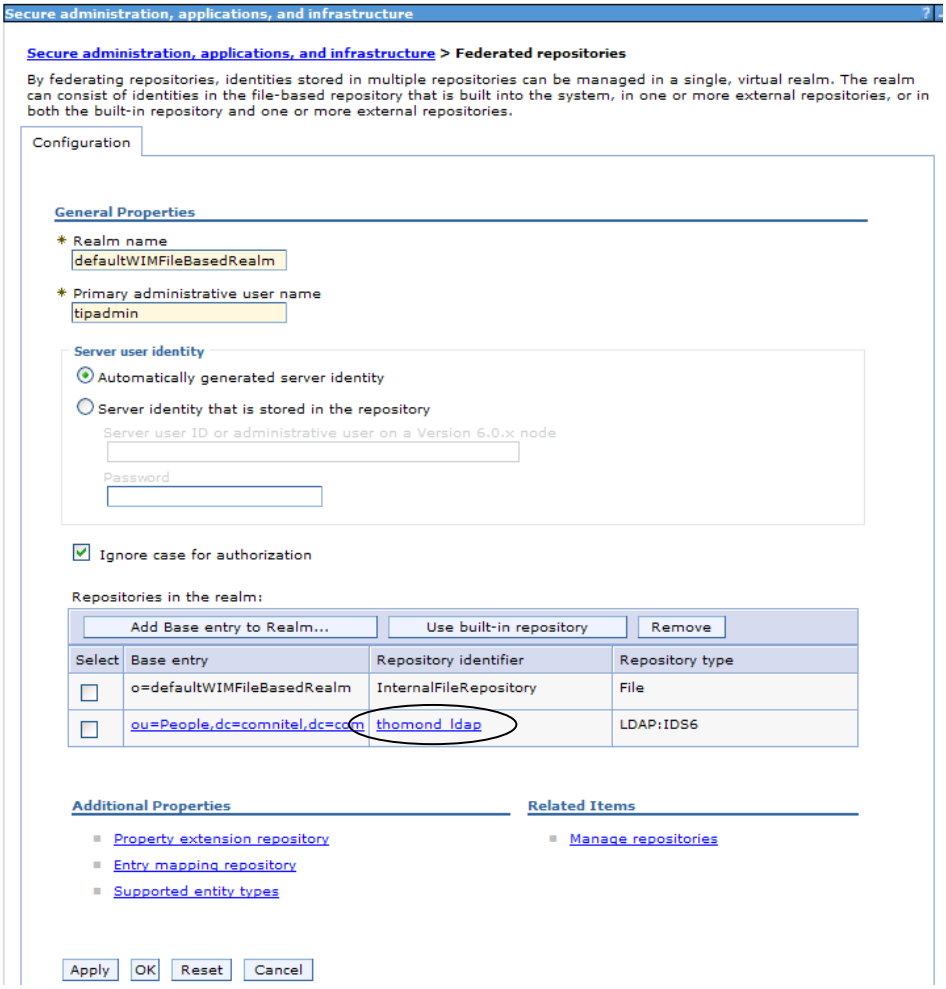

Figure 15: Federated repository

2. In the following window, click **LDAP entity types**.

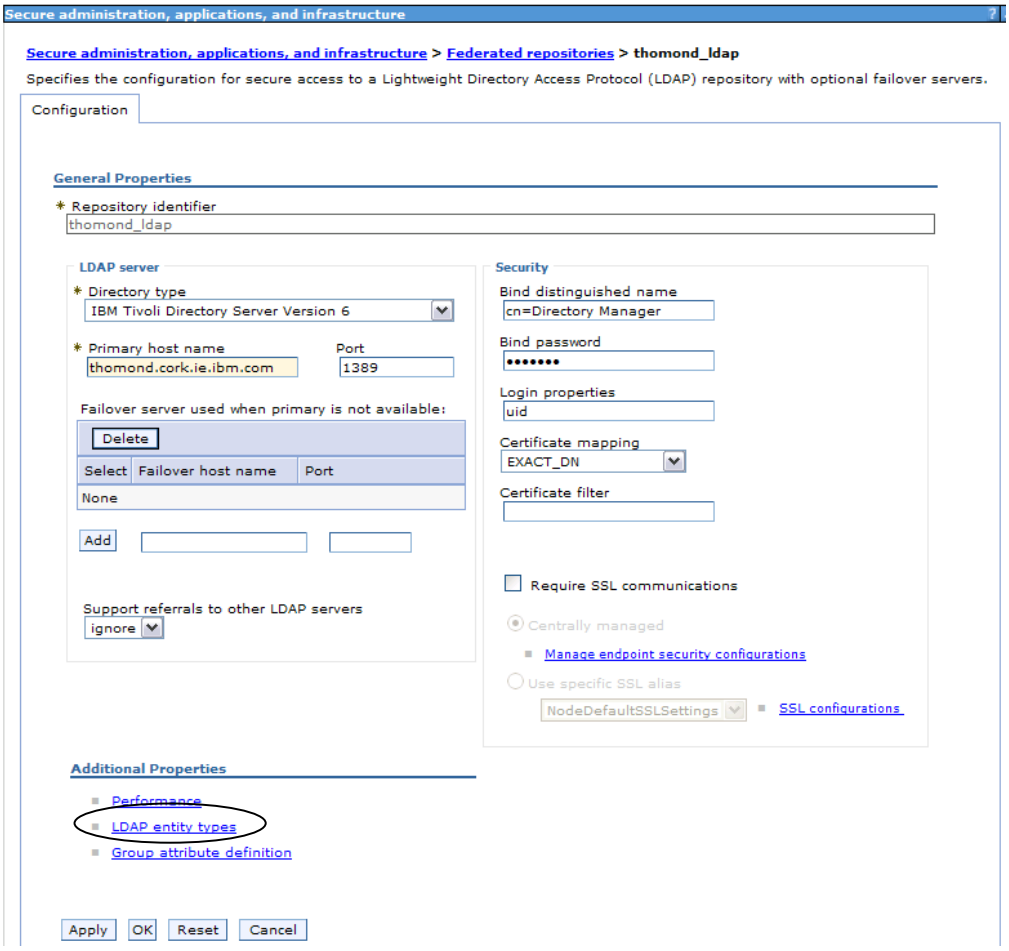

Figure 16: LDAP entity types

3. In the following window, click **Group**.

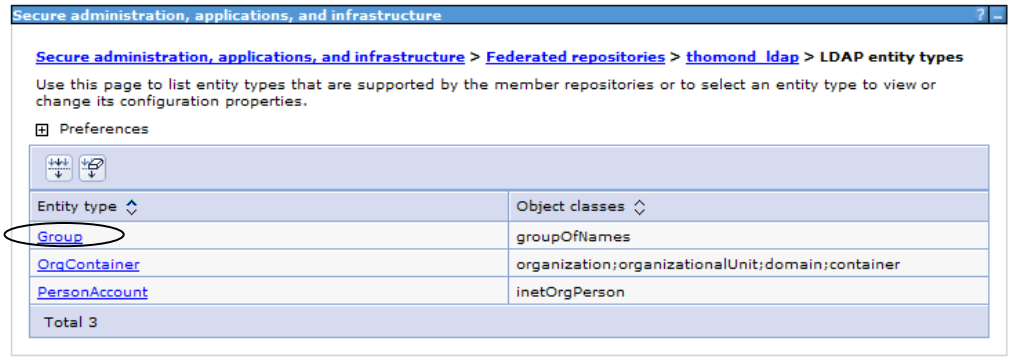

Figure 17: Group

4. In the Group definition enter the following information, and click **Apply**.

```
Object classes:          ibm-dynamicGroup
Search bases:            ou=Groups,dc=comnitel,dc=com
```

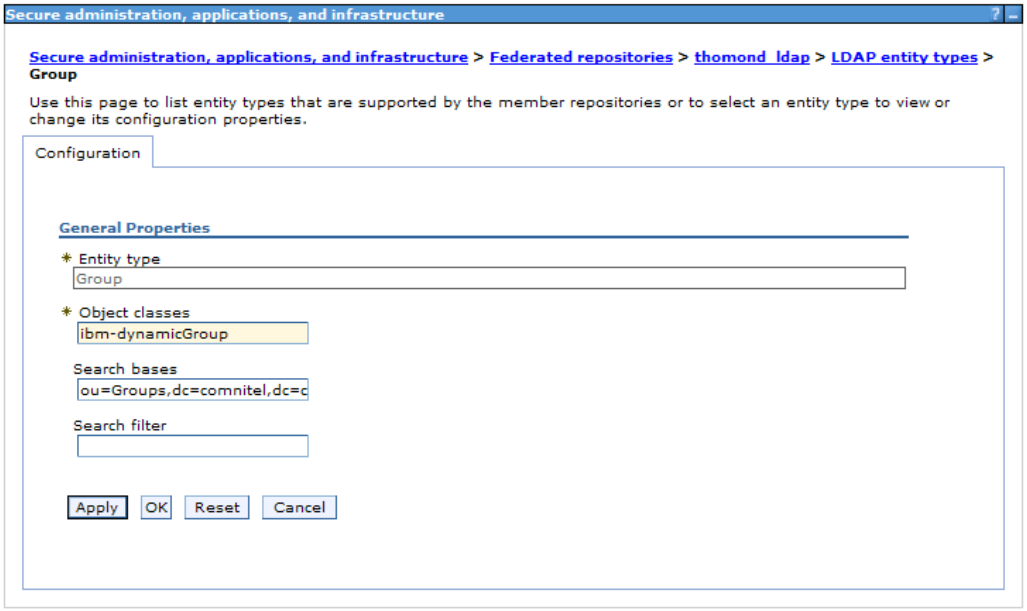

Figure 18: Group definition

5. Click **Save** when the following window opens.

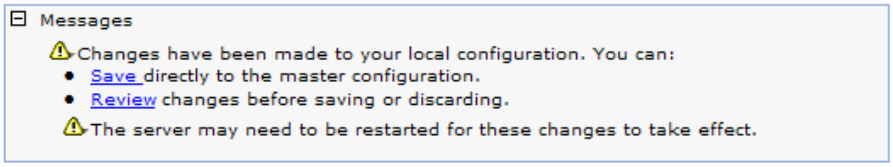

Figure 19: Confirmation message

6. Open **Secure administration, applications, and infrastructure** > **Federated repositories**, or repeat the steps detailed in Step 1 and click the **Repository identifier**.

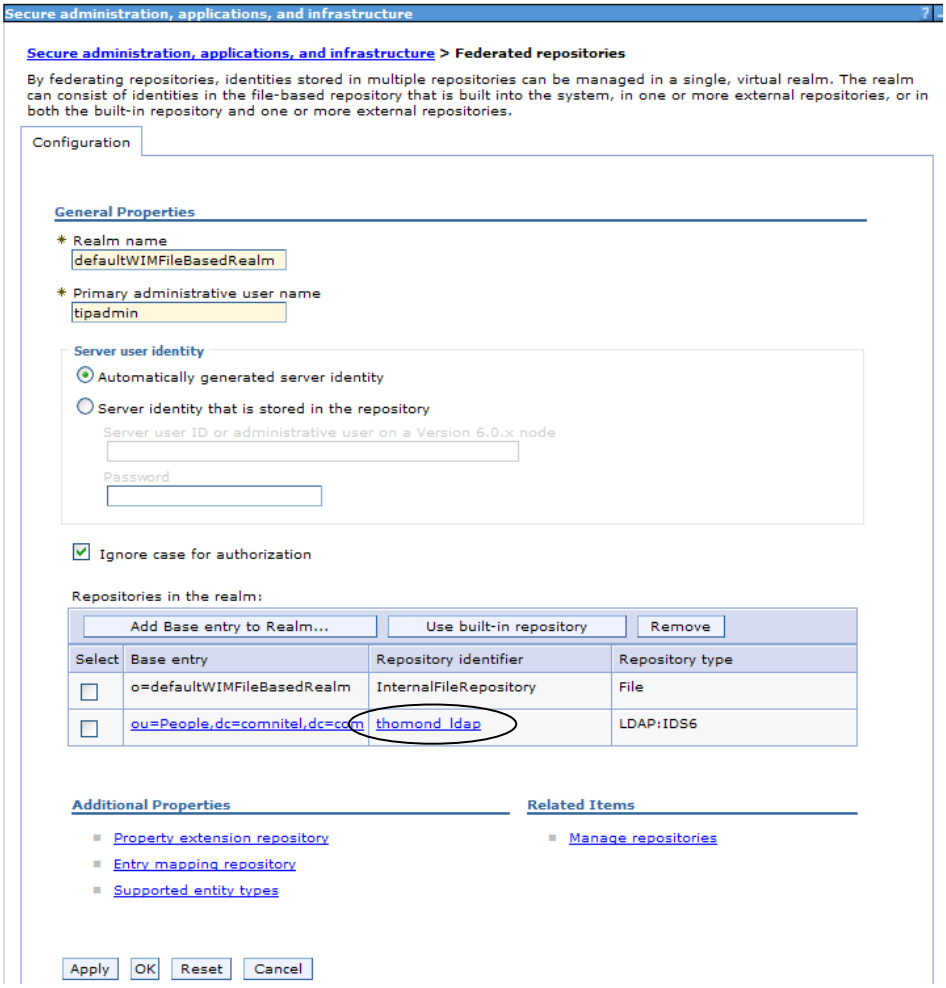

Figure 20: Federated repository

7. In the following page, click **Group attribute definition**.

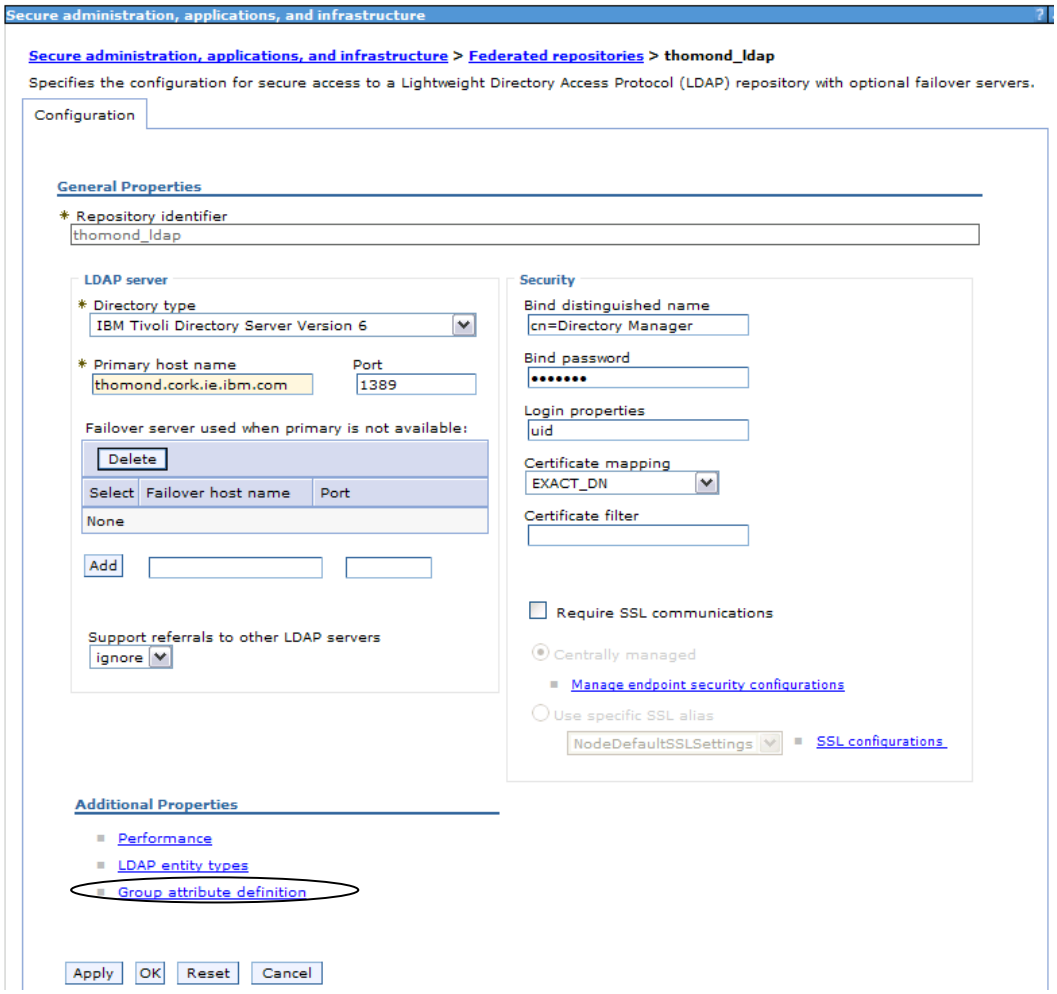

Figure 21: Group attribute definition

8. In the following window, click **Dynamic member attributes**.

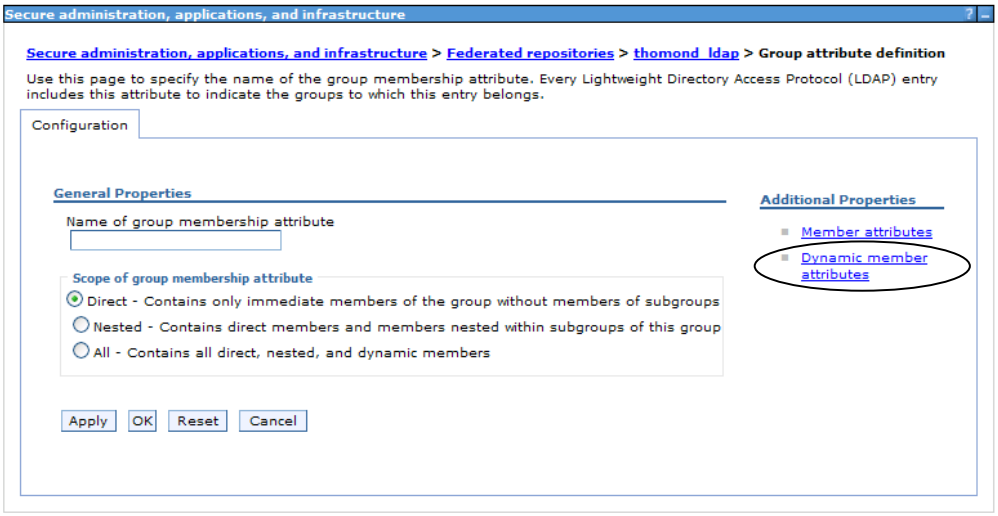

Figure 22: Dynamic member attributes

9. In the following window, click **New**.

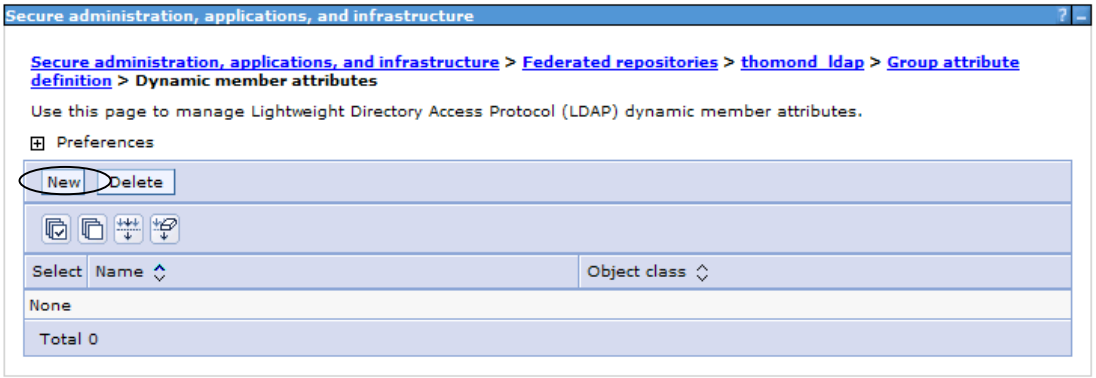

Figure 23: Adding dynamic member attribute

10. In the dynamic member attribute screen, enter the following information and click **Apply**.

```
Name of dynamic member attribute:          memberURL
Dynamic object class:                      ibm-dynamicGroup
```

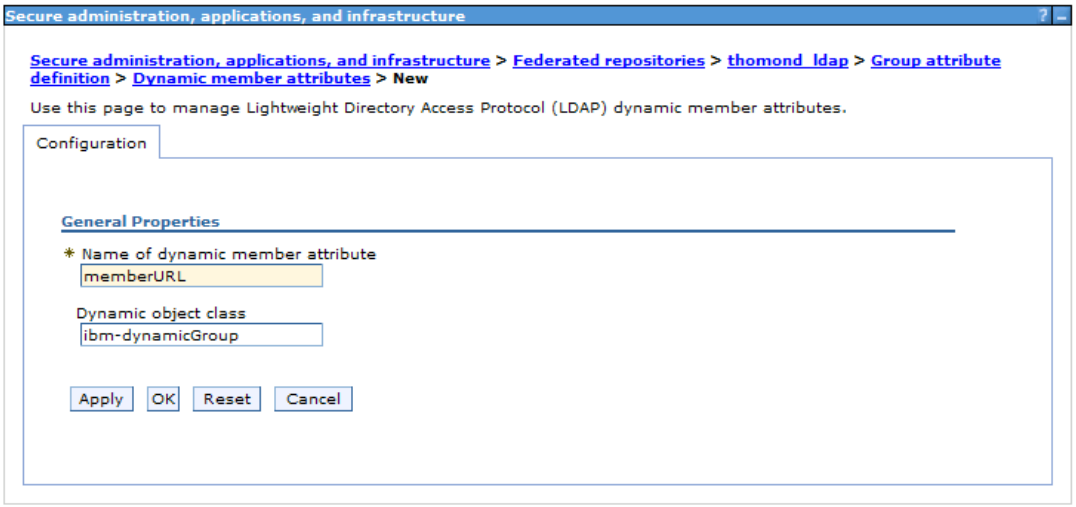

Figure 24: Dynamic member attribute

11. When the following window is displayed, click **Save**.

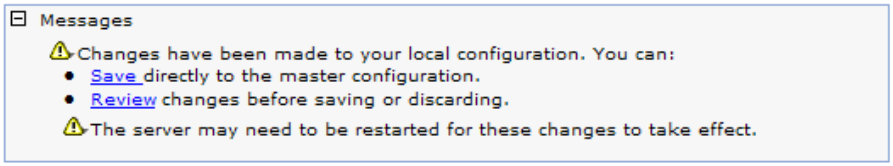

Figure 25: Confirmation message

2.3.3 Configuring LDAP details – Sun ONE Directory Server

Note: This task applies only to a Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager server running on a Solaris system.

1. Log on to Tivoli Business Service Manager as an administrative user and open **Secure administration, applications, and infrastructure** > **Federated repositories** (see section 2.3.1 steps 1 and 2) and click the **Repository identifier**.

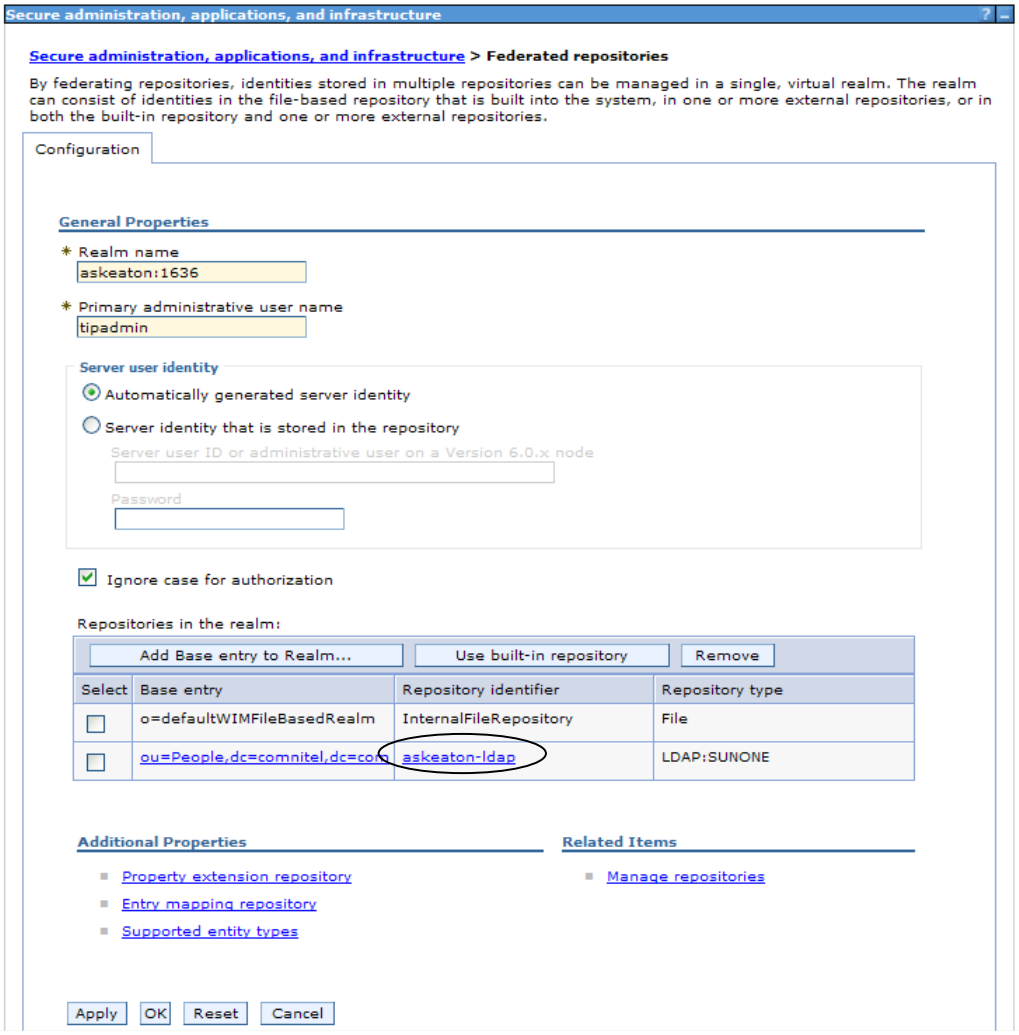

Figure 26: Federated repository

2. In the following window, click **LDAP entity types**.

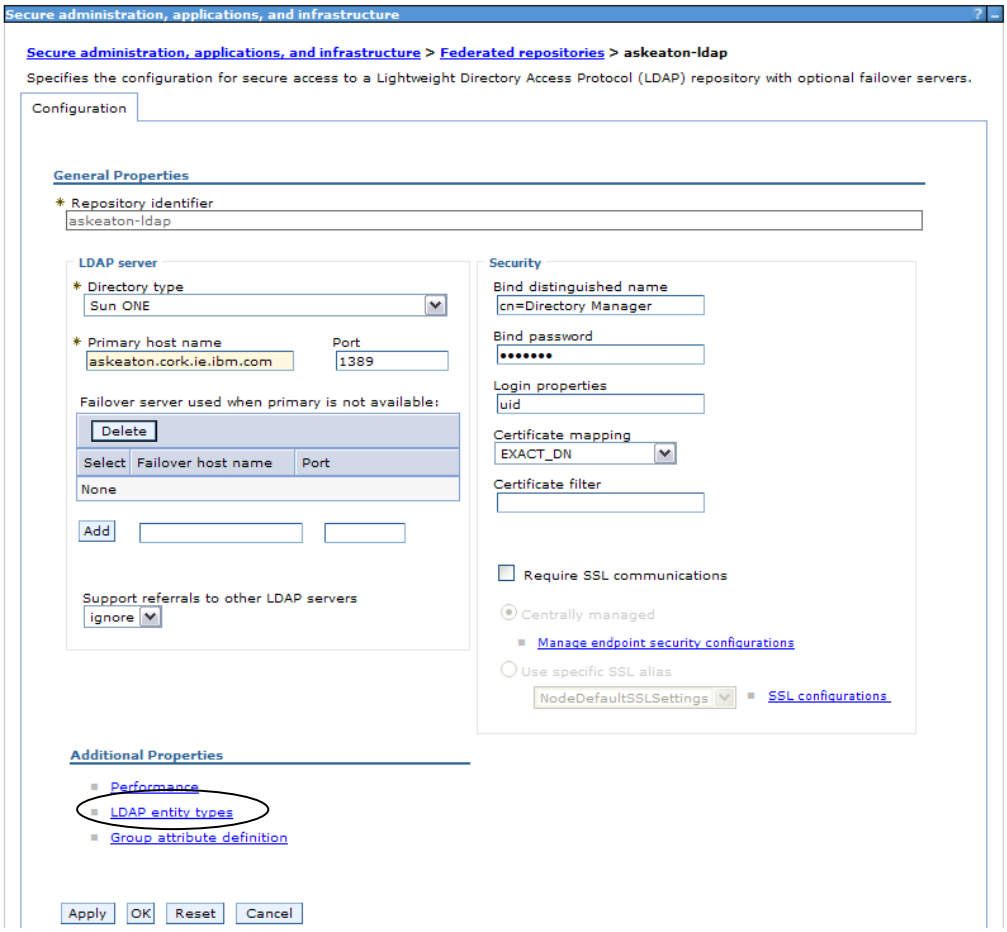

Figure 27: LDAP entity types

3. In the following window, click **Group**.

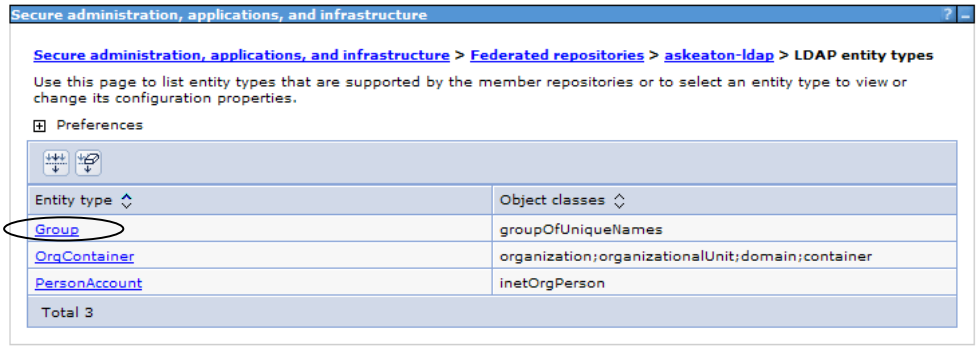

Figure 28: Group

4. In the Group definition, enter the following information and click **Apply**.

```
Object classes:          groupOfUniqueNames
Search bases:            ou=Groups,dc=comnitel,dc=com
```

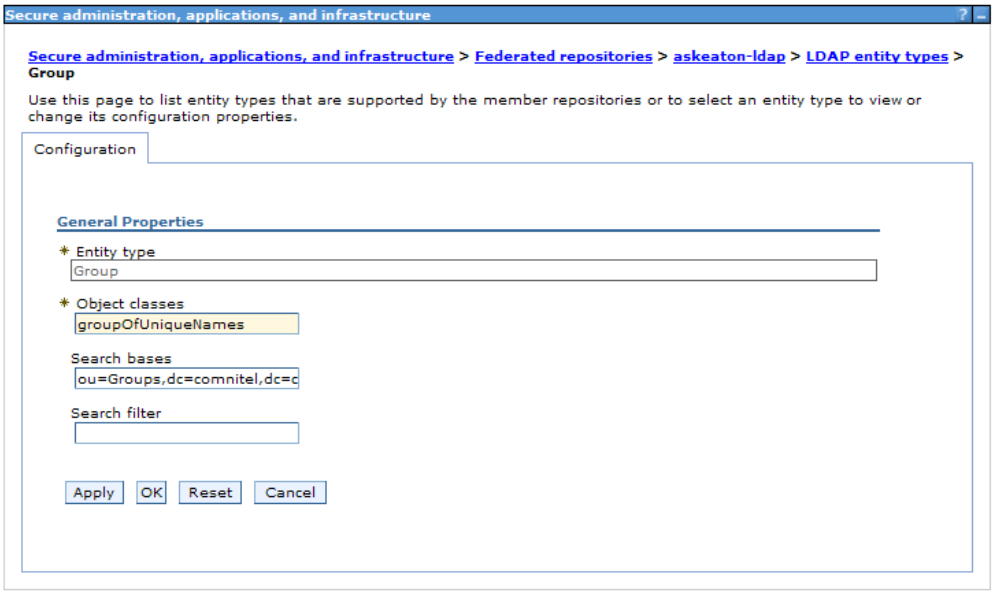

Figure 29: Group definition

5. When the following window opens, click **Save**.

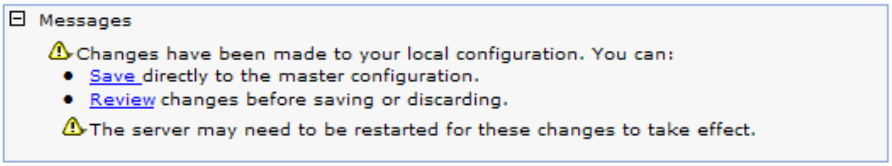

Figure 30: Confirmation message

2.3.4 Enabling single sign-on – Tivoli Business Service Manager

Complete the following steps to enable single sign-on for Tivoli Business Service Manager.

1. Open **Secure administration, applications and infrastructure**, expand **Web security**, and click **single sign-on (SSO)**.

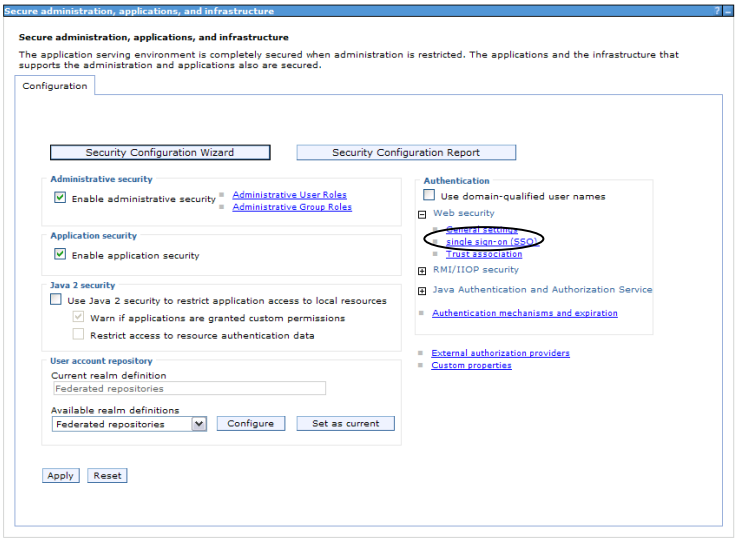

Figure 31: Web security

2. In the **single sign-on (SSO)** window, ensure that **Enabled** is checked and then enter the name of the domain shared by the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager servers.

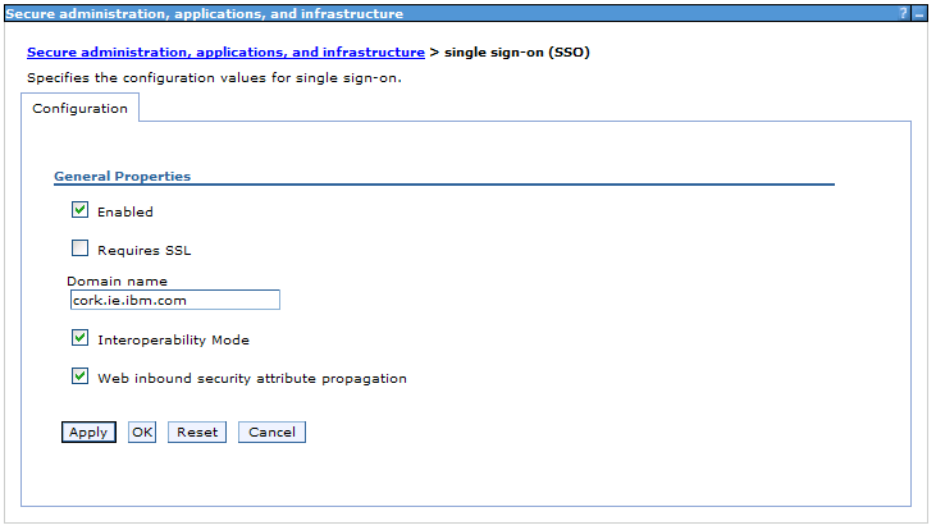

Figure 32: Single sign-on configuration

3. **When** the following window opens, click **Save**.

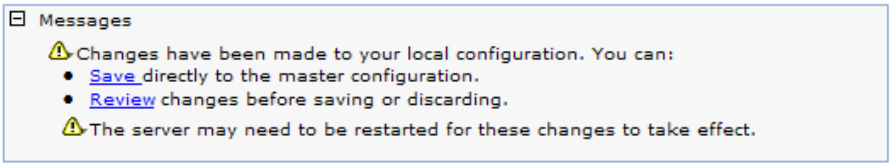

Figure 33: Confirmation message

4. Open **Secure administration, applications and infrastructure** and click **Authentication mechanisms and expiration**.

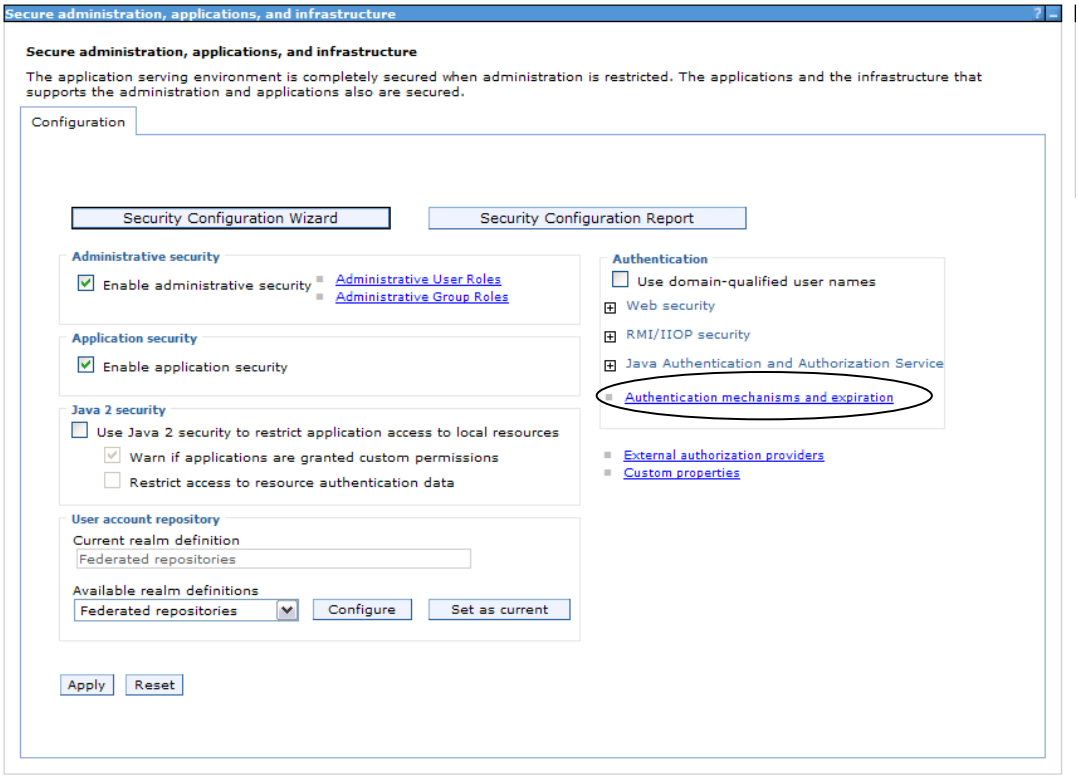

Figure 34: Authentication mechanisms and expiration

5. Enter a new password in the **Cross-cell single sign-on** section, enter a file name, and click the **Export keys** button.

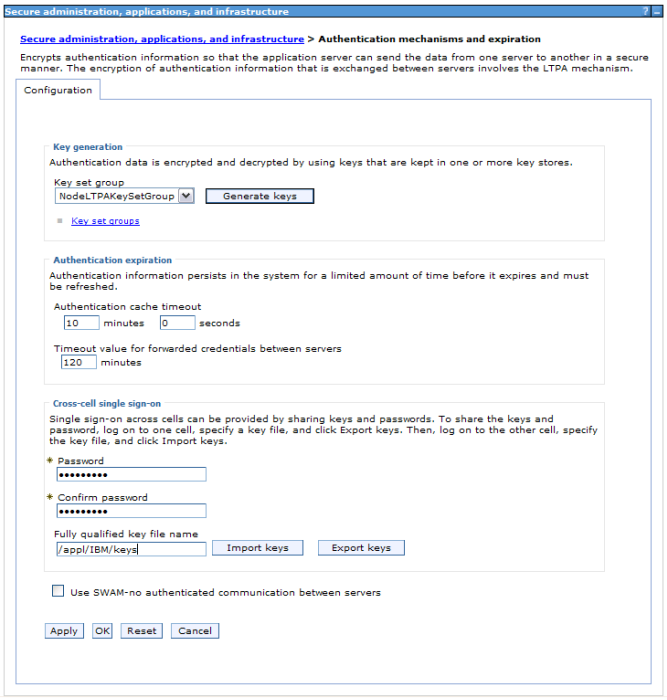

Figure 35: Cross-cell single sign-on

6. The following window is displayed:

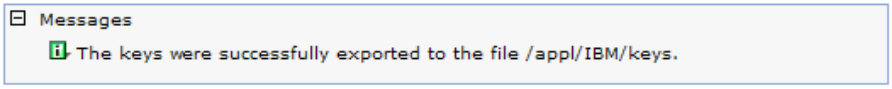

Figure 36: Confirmation message

7. The generated key file must be transferred from the Tivoli Business Service Manager server to the Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager server where it is imported into the WebSphere instance (step 5 in section 2.3.5).

8. Add the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager signer certificate to the Tivoli Business Service Manager (portal or Tivoli Integration Portal) local truststore. Log on to the Tivoli Business Service Manager program, expand **Security**, and click **SSL certificate and key management**.

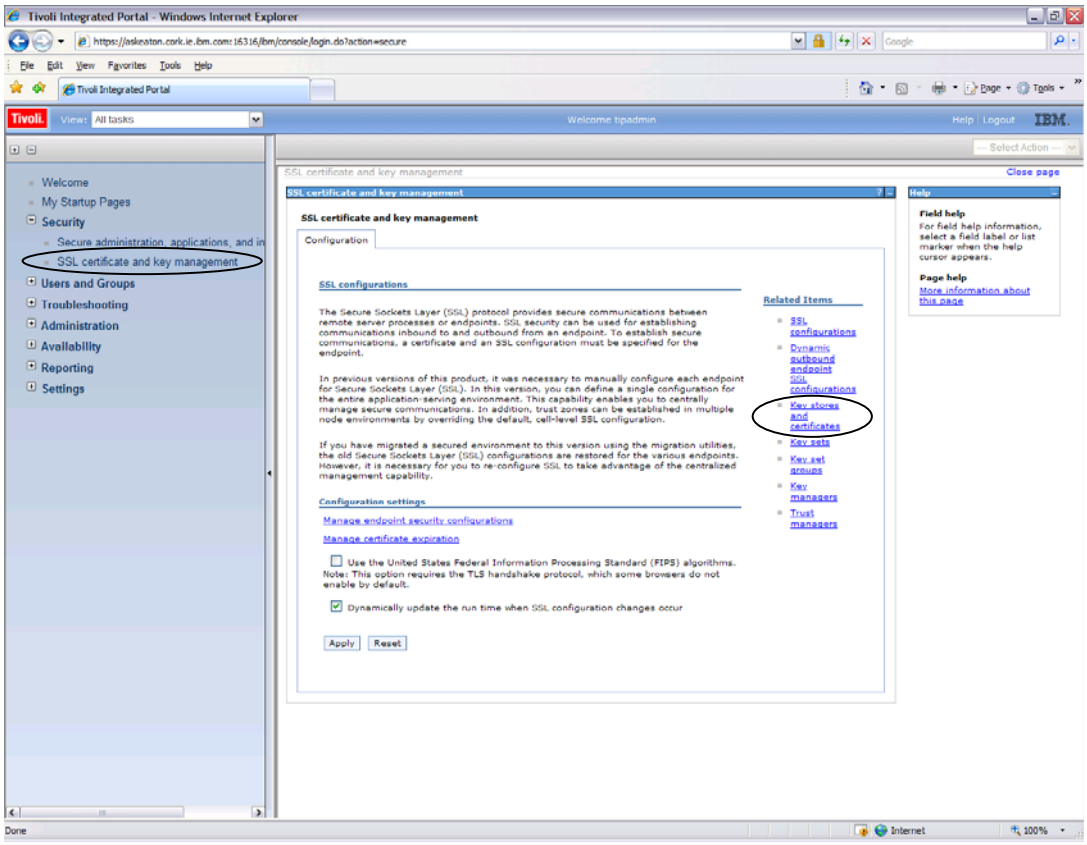

Figure 37: SSL certificate and key management

9. Click **Key stores and certificates**. In the following window, click **NodeDefaultTrustStore**.

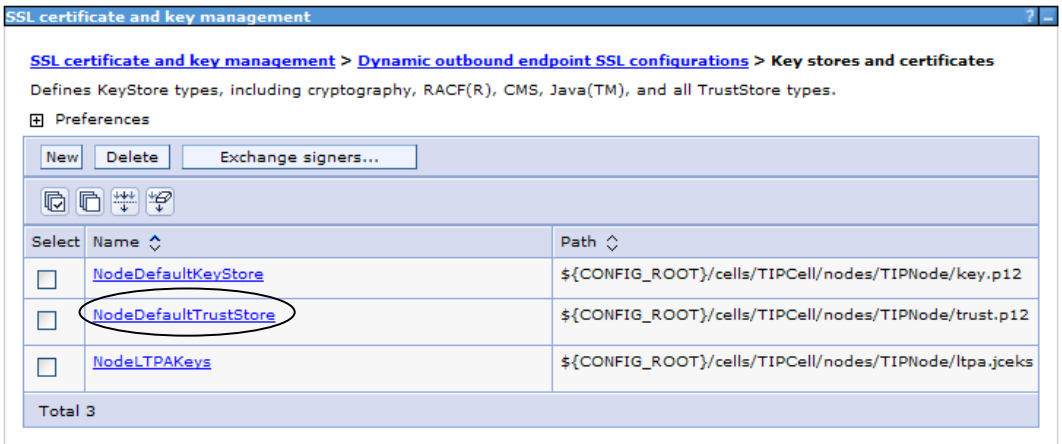

Figure 38: NodeDefaultTrustStore

10. In this window, click **Signer certificates**.

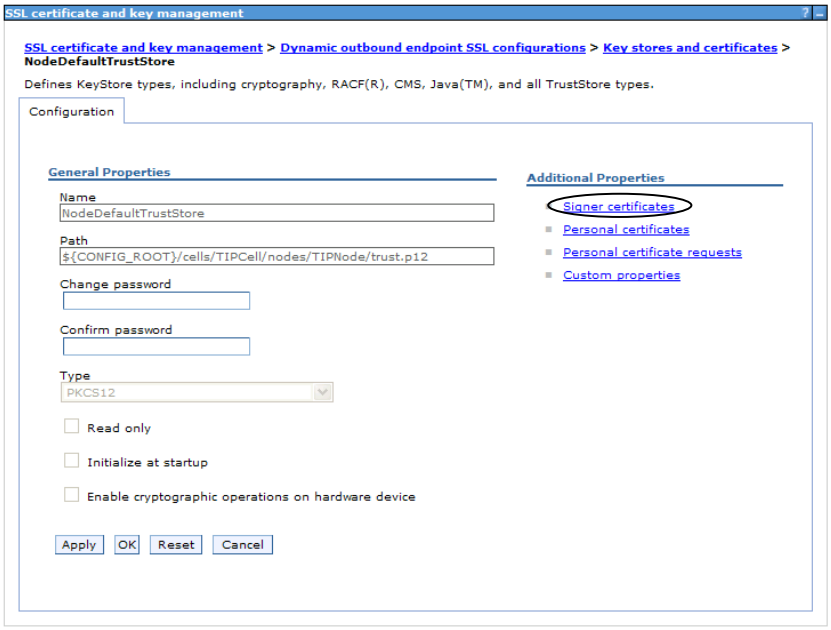

Figure 39: Signer certificates

11. In the Signer **certificates** window, click **Retrieve from port**.

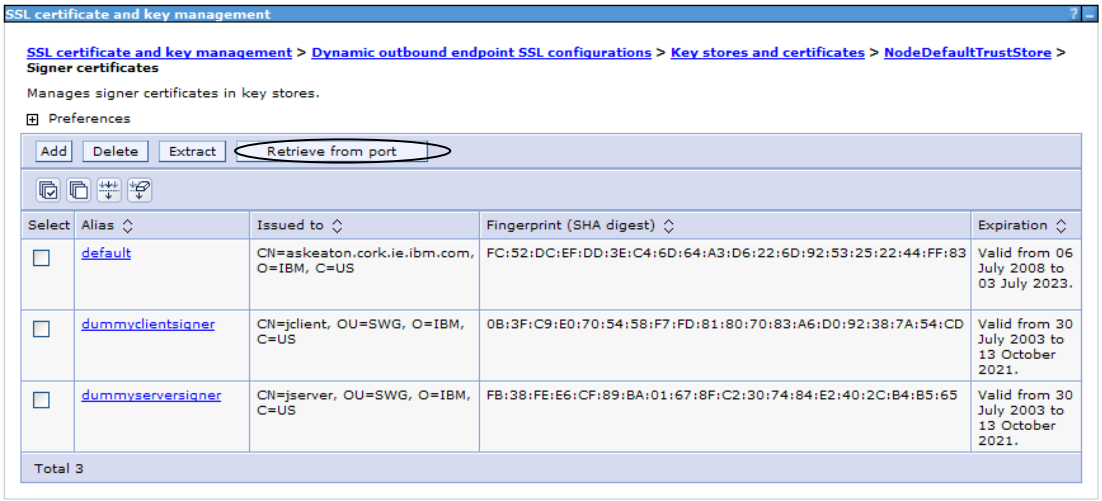

Figure 40: Retrieve from port

12. In the Retrieve **from port** window, enter the host name of the Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager server and set the port, usually to 9043. Enter an alias name for the Tivoli Netcool Service Quality Manager server and click **Retrieve signer information**.

    The port number can be retrieved by searching for `WSPORT` in the following Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager file:

    `$WMCROOT/conf/environment`, for example

```
#> grep WSPORT /appl/sa/conf/environment/default.properties
comnitel.env.WSPORT=9043
#>
```

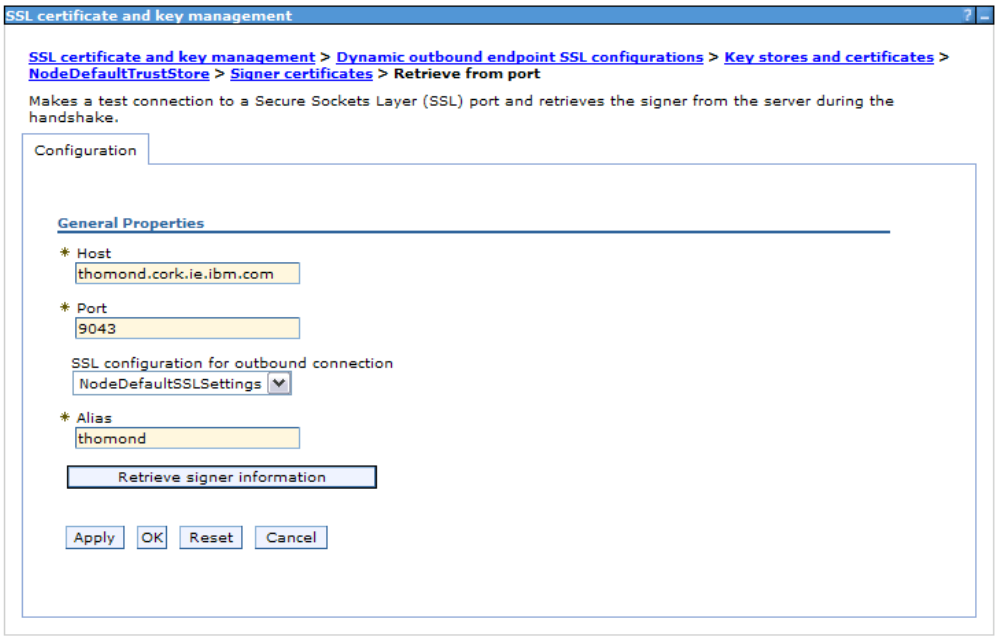

Figure 41: Retrieve signer information

13. Click **Apply** in the following window.

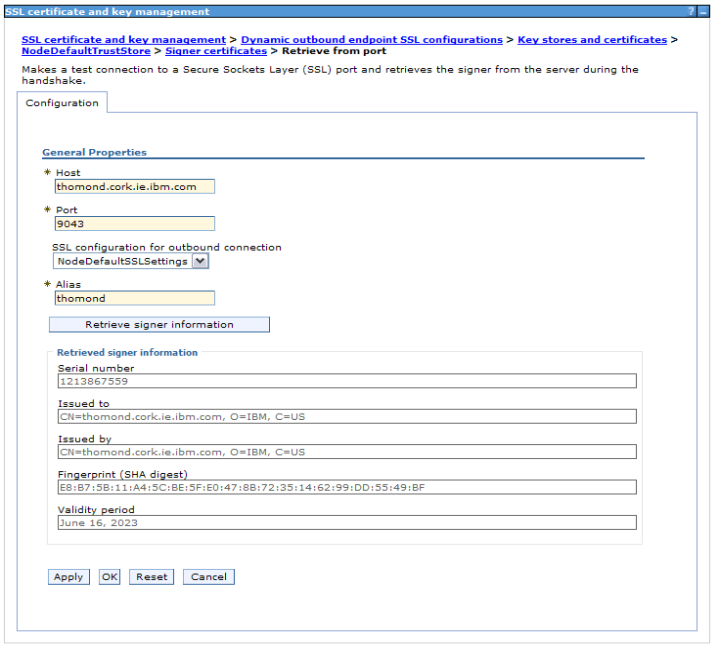

Figure 42: Signer example

14. Click **Save** when the following message is displayed:

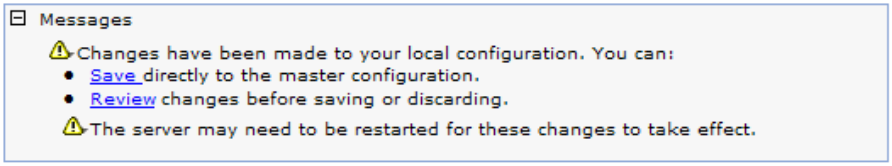

Figure 43: Confirmation message

2.3.5 Enabling single sign-on – Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager

1. The first step of enabling SSO for the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager is to temporarily enable security tasks in the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager ISC console. To temporarily enable security tasks in the ISC console, complete the following steps:

   Create a backup of the following file:

   `<WEBSPHERE_HOME>/AppServer/systemApps/isclite.ear/config/navigation.xml`, for example:

   `/appl/IBM/WebSphere/AppServer/systemApps/isclite.ear/config/navigation.xml`

   Edit the file and remove the comment block, and then restart the ISC console.

   Remove the following lines:

   ```
   <!-- START OF COMMENT BLOCK
   END OF COMMENT BLOCK -->
   ```

   Stop / start SLA Web View WebSphere instance:

   On Solaris systems (as user root):

   ```
   # svcadm disable wp-sa
   # svcadm enable wp-sa
   ```

   On AIX systems (as user root):

   ```
   # /etc/rc.d/init.d/wpsa stop
   # /etc/rc.d/init.d/wpsa start
   ```

2. Log on to the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager Web console as an administrative user (usually ‘swvadm’), expand **Security**, and click **Secure administration, applications and infrastructure**. Expand **Web security** and click **single sign-on (SSO)**.

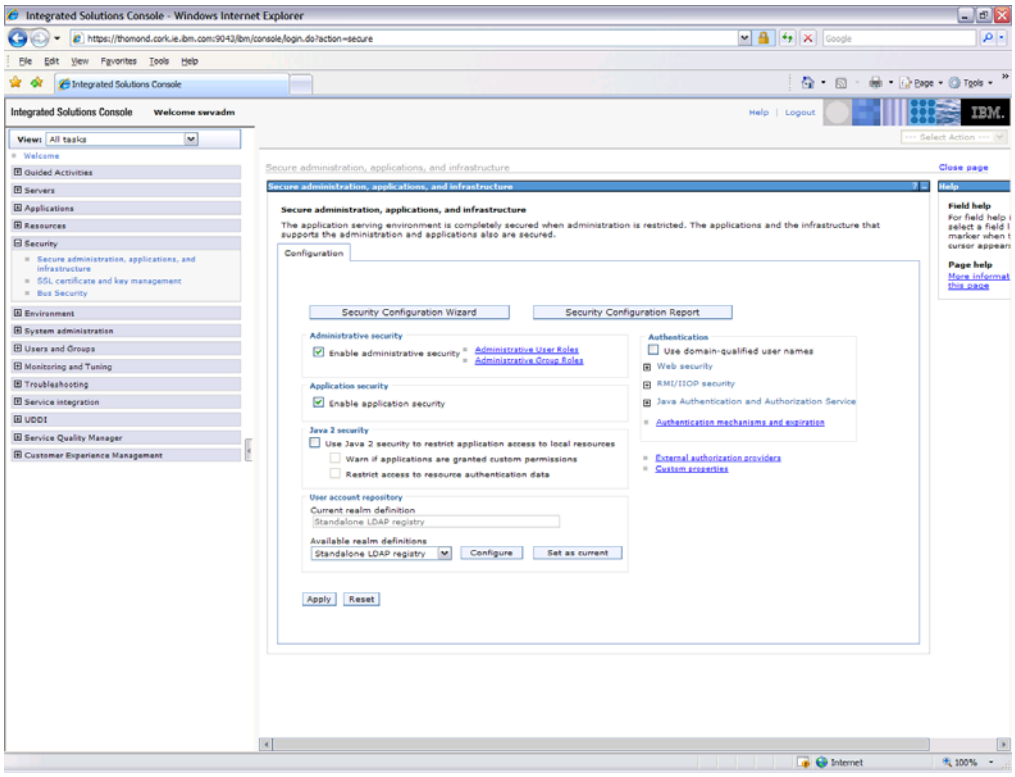

Figure 44: Secure administration, applications, and infrastructure

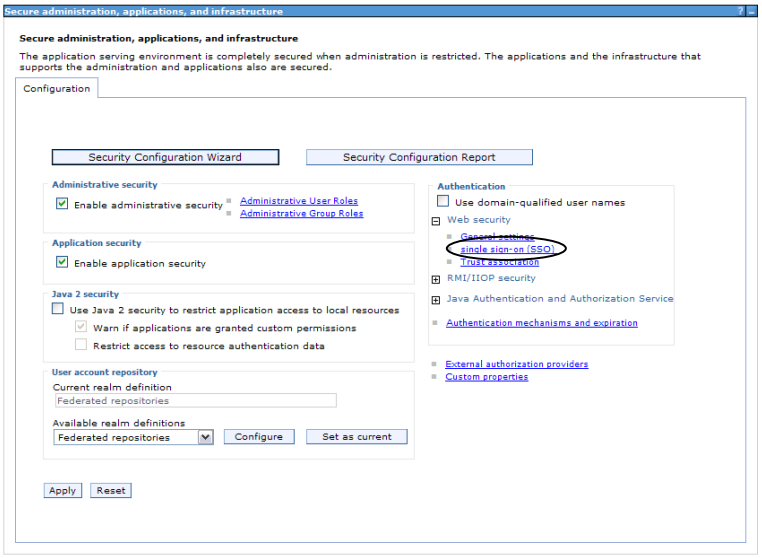

Figure 45: Single sign-on

3. In the SSO window, ensure that **Enabled** is checked and then enter the name of the domain shared by the Tivoli Business Service Manager and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager servers and click **Apply**.

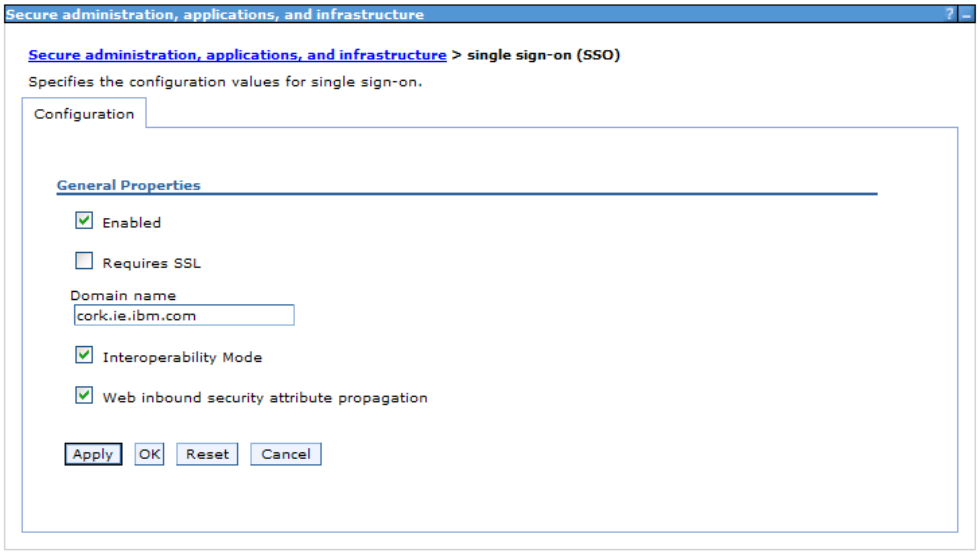

Figure 46: Single sign-on general properties

4. When the following window opens, click **Save**.

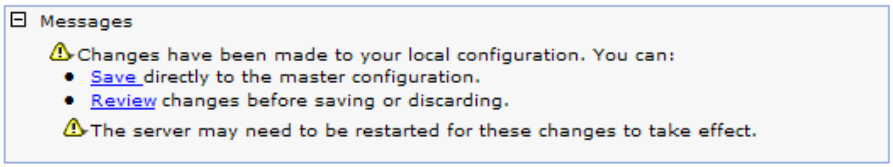

Figure 47: Confirmation message

5. Import LTPA keys: Expand **Security**, and click **Secure administration, applications and infrastructure**.

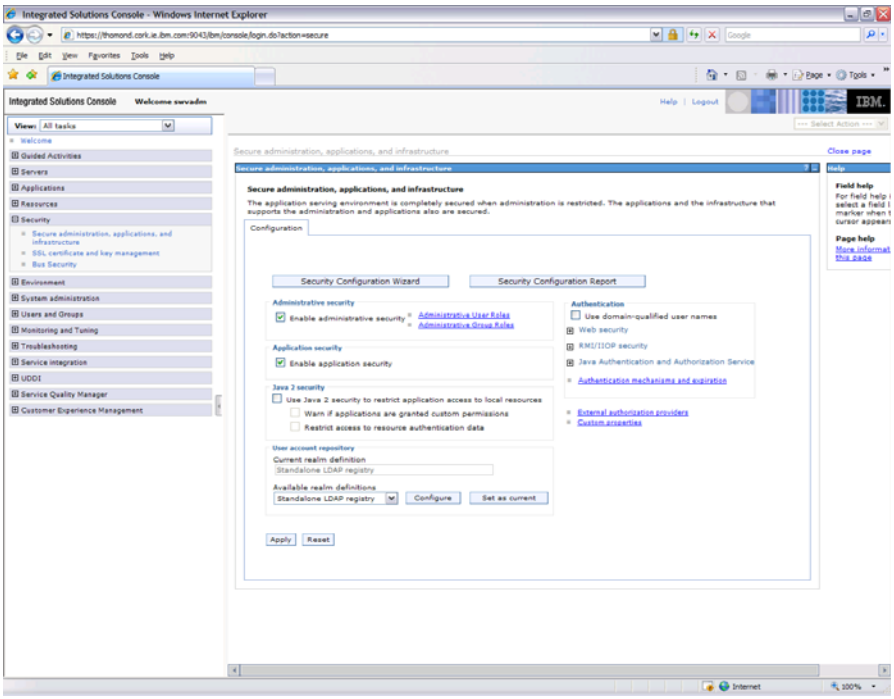

Figure 48: Secure administration, applications, and infrastructure

6. Click **Authentication mechanisms and expiration**.

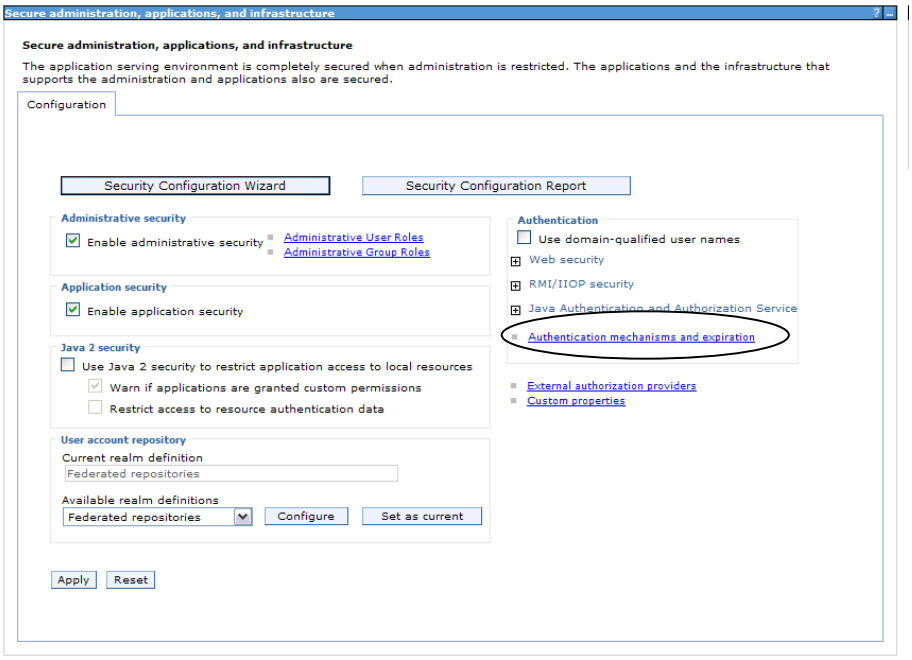

Figure 49: Authentication mechanisms and expiration

7. Enter the password in the **Cross-cell single sign-on** section, enter the file name (already transferred from Tivoli Business Service Manager platform in step 7 of section 2.3.4), and click the **Import keys** button.

Figure 50: Cross-cell single sign-on

8. Click **Apply** and then click **Save** when the following message is displayed:

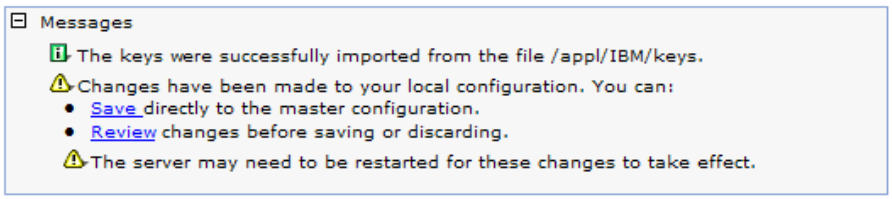

Figure 51: Confirmation message

9. Export the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager LTPA keys to a local file on the Tivoli Netcool Service Quality Manager server.

10. Enter a password in the **Cross-cell single sign-on** section, enter a file name and click the **Export keys** button.

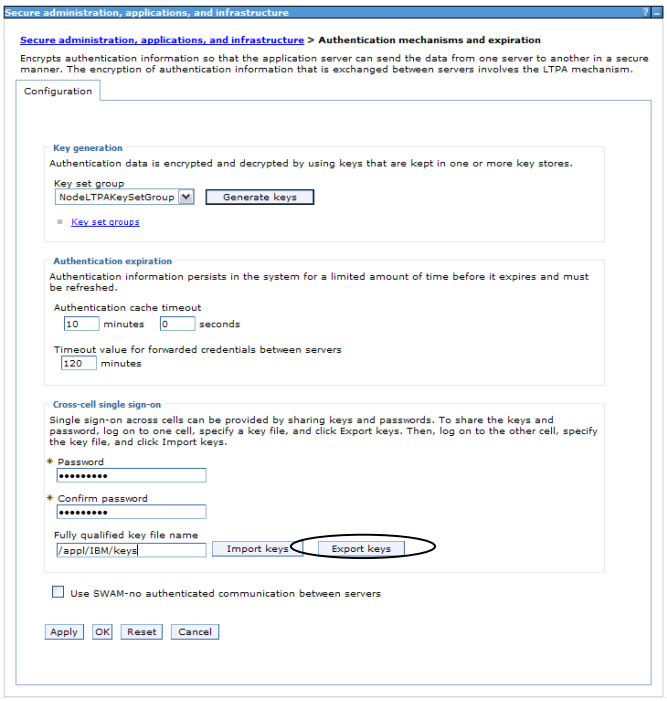

Figure 52: Exporting LTPA keys

11. The following window opens:

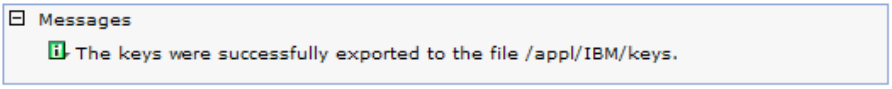

Figure 53: Confirmation message

12. The generated key file must be transferred from the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager server to the Tivoli Business Service Manager server. Repeat the steps to import these keys into the Tivoli Business Service Manager server (follow steps 5 to 8 in this section, but log on to the Tivoli Business Service Manager server instead).

13. Add Tivoli Business Service Manager signer certificate to Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager local truststore. Expand **Security**, and click **SSL certificate and key management**.

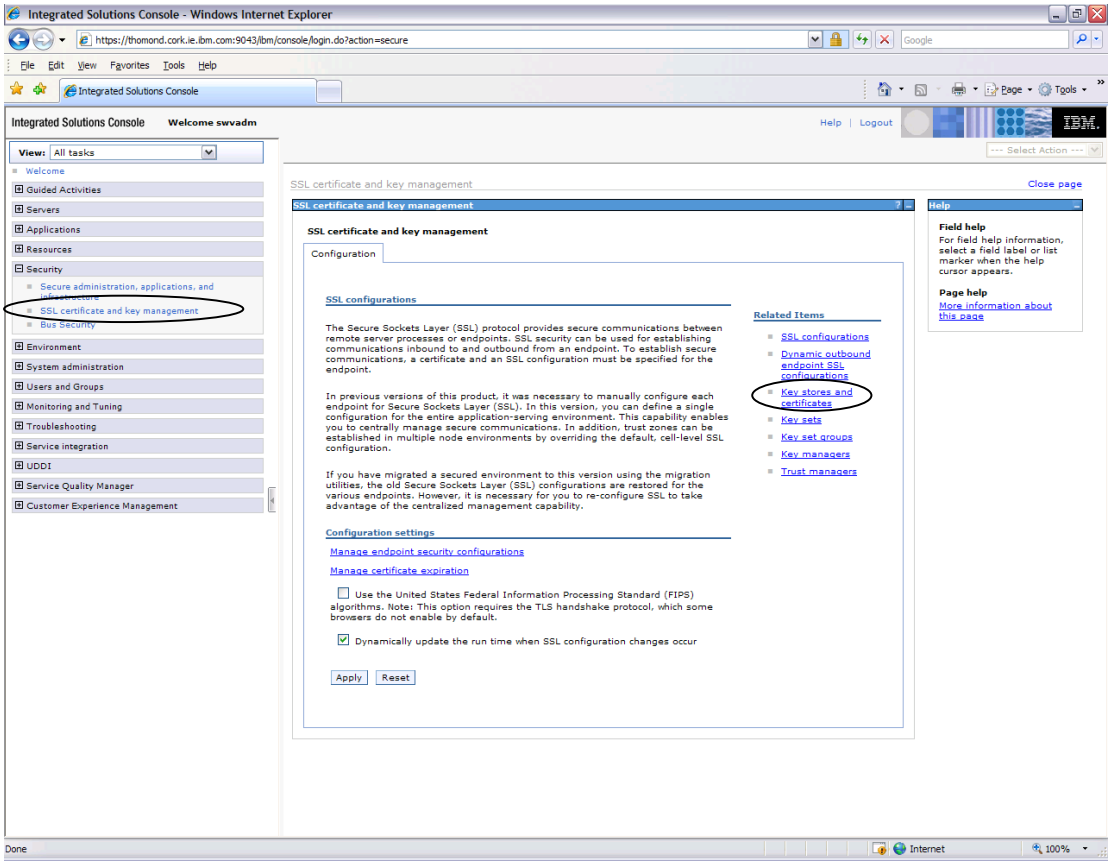

Figure 54: SSL certificate and key management

14. Click **Key** stores **and certificates**. In the following window, click **NodeDefaultTrustStore**.

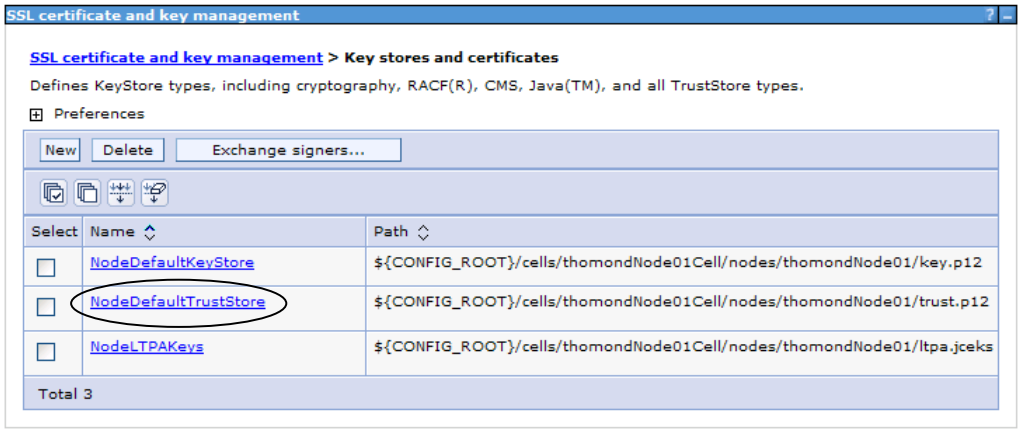

Figure 55: NodeDefaultTrustStore

15. In the following window, click **Signer certificates**.

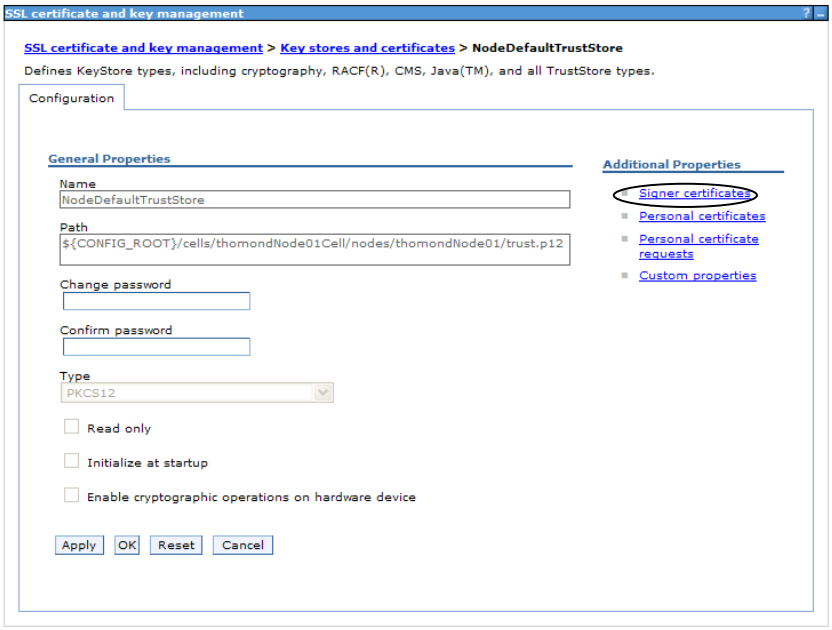

Figure 56: Signer certificates

16. In the Signer **certificates** window, click **Retrieve from port**.

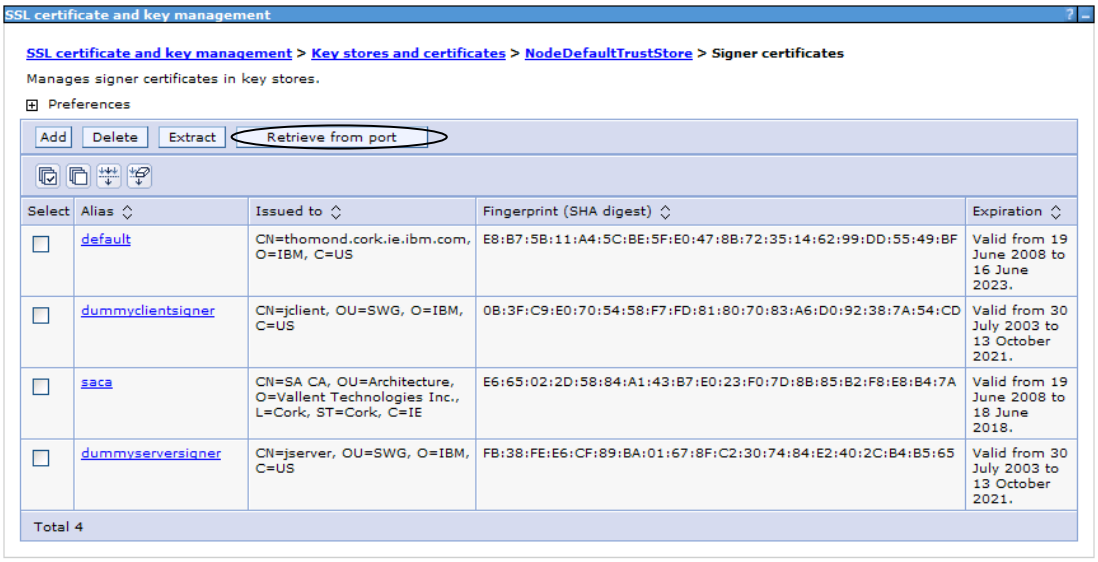

Figure 57: Retrieve from port

17. In the Retrieve **from port** window, enter the host name of the Tivoli Business Service Manager server (Tivoli Integrated Portal Dashboard server) and set the port, usually to 16322. Enter an alias name for the Tivoli Business Service Manager server and click **Retrieve signer information**.

    The port number can be retrieved by searching for "`CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS`" in the `serverindex.xml` file that is located in the following directory:

```
<TBSM INSTALL>/tip/profiles/TIPProfile/config/cells/TIPCell/nodes/TIPNode
```

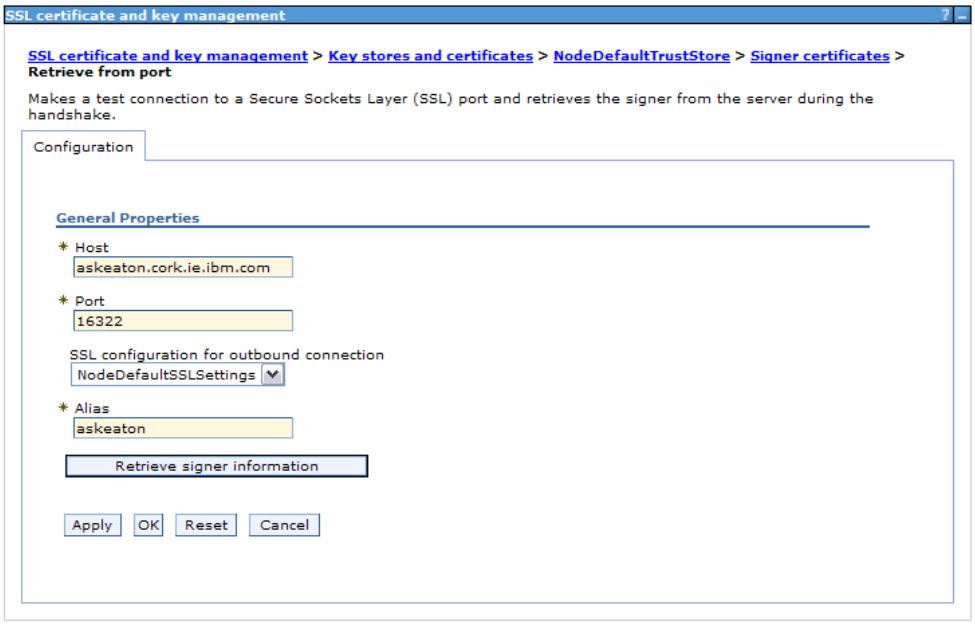

Figure 58: Retrieve signer information

18. Click **Apply** in the following window.

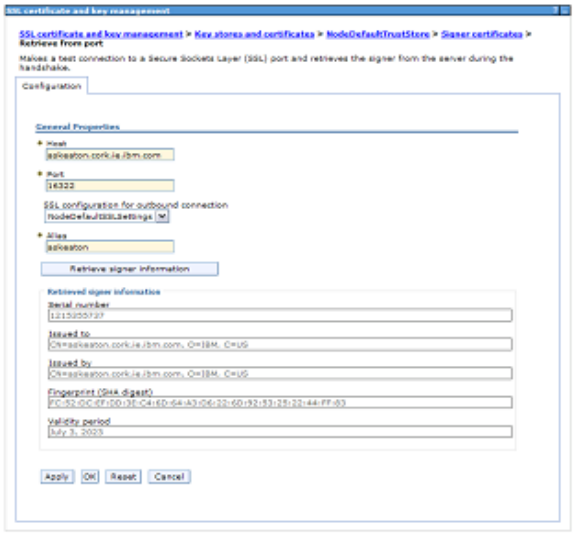

Figure 59: Signer certificate

19. Click **Save** when the following message is displayed:

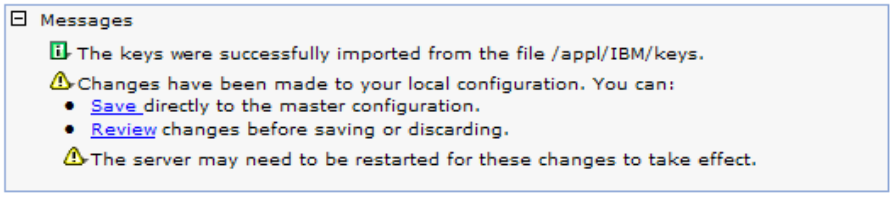

Figure 60: Confirmation message

20. If the Tivoli Business Service Manager has been configured with an OMNIbus system as the user registry (as mentioned in section 2.3.1), then perform the following steps:

    Edit the following file and update the realm value:

    ```
    <WEB-
    SPHERE_HOME>/AppServer/profiles/isc/config/cells/<HOSTNAME>Node01Cell/secur
    ity.xml
    ```

    example:

    ```
    /appl/IBM/WebSphere/AppServer/profiles/isc/config/cells/thomondNode01Cell/s
    ecurity.xml
    ```

    Change the realm value from
    `realm="<HOSTNAME>:1636"`, example `realm="thomond:1636"`
    to
    `realm="TIPRealm"`

21. Ensure that the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager server configuration contains the fully qualified domain name for the environment variable `WSHOST`. Check the following file on the application server:

    ```
    $WMCROOT/conf/environment/default.properties
    ```

    Contains something like the following

    ```
    comnitel.env.WSHOST=thomond.cork.ie.ibm.com
    ```

22. The final step is to disable tasks in the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager ISC console:

    Restore your backup of the following file:

    `<WEBSPHERE_HOME>/AppServer/systemApps/isclite.ear/config/navigation.xml`, for example:

    ```
    /appl/IBM/WebSphere/AppServer/systemApps/isclite.ear/config/navigation.xml
    ```

    The restore results in the following lines being added back into the file:

```
<!-- START OF COMMENT BLOCK
END OF COMMENT BLOCK -->
```

2.3.6 Restart WebSphere instances

To activate all changes, the Tivoli Business Service Manager server (dashboard instance) and Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager server must be shut down and re-started.

Tivoli Business Service Manager:
See the *Tivoli Business Service Manager Administrators Guide - "Operating the TBSM Data and Dashboard servers"* available from the IBM Tivoli Business Service Manager Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager:

On Solaris systems (as user root):

```
# svcadm disable wp-sa
# svcadm enable wp-sa
```

On AIX systems (as user root):

```
# /etc/rc.d/init.d/wpsa stop
# /etc/rc.d/init.d/wpsa start
```

2.4 Setting up Tivoli Business Service Manager roles

Use the following procedure to set up Tivoli Business Service Manager roles for Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager users.

Note: The following screens show an example role configuration. You must decide for your particular installation which Tivoli Integrated Portal roles you want to allow Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager users to have access to. See the "*Configuring users, groups, and roles*" section in the *Tivoli Business Service Manager Administrators Guide* available from the IBM Tivoli Business Service Manager Information Center at:

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

---

1. Log on to Tivoli Business Service Manager as an administrative user, expand **Users and Group Roles**, and click **Administrative User Roles**.

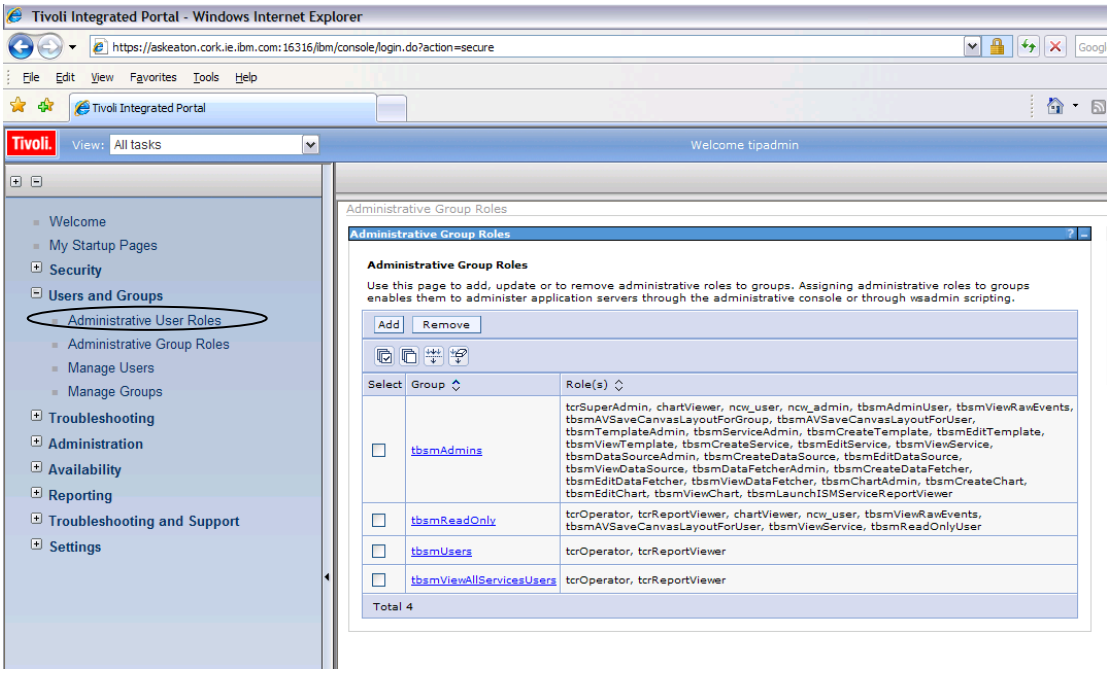

Figure 61: Administrative group roles

2. Click **Add**; enter a Tivoli Netcool Service Quality Manager user name under **User** and multiple-select the Tivoli Integrated Portal roles you want to allow this Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager user to have access to.

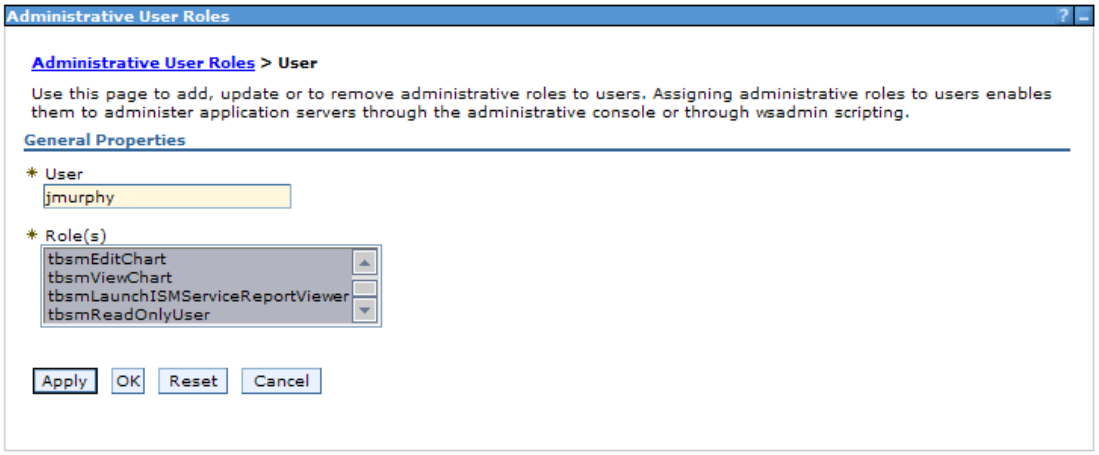

Figure 62: Adding roles for a user

3. Click **OK**.
4. The following window opens. Click **Save**.

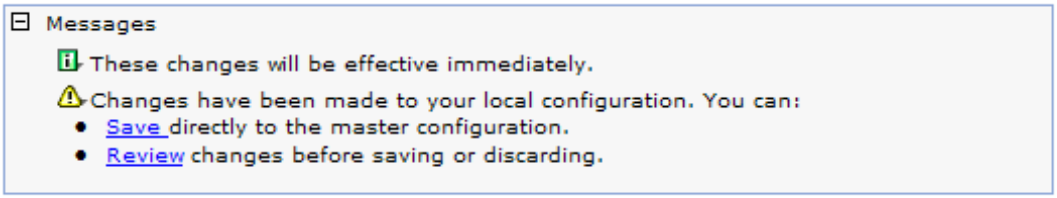

Figure 63: Confirmation message

2.5 Adding Tivoli Business Service Manager to Application Discoverer

A link to the Tivoli Business Service Manager can also be added to the Tivoli Netcool Service Quality Manager Application Discoverer by performing the following steps:

Edit the following file as user `saserver` on the Tivoli Netcool Service Quality Manager core server:

```
$WMCROOT/tomcat/jnlp/list.xml
```

and add the following entry to the `<web-pages>` section:

```
<web-page url="https://<TBSM_Hostname>:<TBSM_Port>/ibm/console/logon.jsp"
title="TBSM Portal"/>
```

for example:

```
<web-page  url="https://blarney.cork.ie.ibm.com:16316/ibm/console/logon.jsp"
title="Tivoli Business Service Manager"/>
```

3 Event integration

This chapter describes how events generated by the IBM® Tivoli® Netcool® Service Quality Manager and Tivoli Netcool Customer Experience Manager can be integrated in Tivoli Netcool/OMNIbus. The events can then be mapped to services configured in the Tivoli Business Service Manager.

3.1 Prerequisites

The Simple Network Management Protocol (SNMP) protocol (SNMP V1 traps or SNMP V3 inform messages) must be allowed (firewall policy) between the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager host and the Tivoli Netcool/OMNIbus SNMP TRAPD probe. The following are the Tivoli Netcool/OMNIbus prerequisites:

- Tivoli Netcool/OMNIbus v7.x, including SNMP probe (mttrapd probe)
- Tivoli Netcool/OMNIbus Knowledge Library v1.x or later

Tivoli Netcool/OMNIbus Knowledge Library

The installation of the Tivoli Netcool/OMNIbus Knowledge Library, version 1.x or later, is a prerequisite to the integration of the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager alarms into Tivoli Netcool/OMNIbus. Tivoli Netcool/Knowledge Library (NcKL) is available for download from Passport Advantage.

The Tivoli Netcool/OMNIbus Knowledge Library is a collection of probe rules files written to a common standard, and provides support for event correlation and causal analysis for the Tivoli Netcool product suite. A set of Tivoli Netcool/OMNIbus Knowledge Library compatible rules files are provided as part of this integration and these files allow Tivoli Netcool/OMNIbus to correctly process Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager SNMP traps.

3.2 SNMP traps

The Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager are capable of generating a number of distinct SNMP traps.

Tivoli Netcool Service Quality Manager can generate the following traps:

- Service-level agreement (SLA) alarms

- Service-level objective (SLO) alarms
- Adapter alarms

Tivoli Netcool Customer Experience Manager can generate the following traps:

- Service Level Objective (SLO) alarms
- Adapter alarms

3.2.1 Tivoli Netcool/OMNIbus Alert.Status and trigger updates

Tivoli Netcool/OMNIbus tracks alert information in a high-performance, in-memory database and presents information of interest to specific users through individually configurable filters and views.

An alert is created when Tivoli Netcool/OMNIbus receives an event, alarm, message, or data item. Each alert comprises fields of information held in a row of the Tivoli Netcool/OMNIbus `Alerts.Status` table.

Tivoli Netcool/OMNIbus automation functions can perform intelligent processing on managed alerts. Triggers form the basis of the Tivoli Netcool/OMNIbus automation subsystem. Triggers automatically fire (execute a trigger action) when Tivoli Netcool/OMNIbus detects an incident associated with a trigger. In a trigger, you can execute structured query language (SQL) commands and call procedures in response to the change. Every trigger belongs to a trigger group, which is a collection of related triggers.

The preferred deployment of Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager expands the Tivoli Netcool/OMNIbus `Alerts.Status` table in the OMNIbus data store.

Table 1: Alerts.Status columns added by Tivoli Netcool Service Quality Manager SLA/SLO

Alert.Status column	*Data type*	*Description*
`TNSQM_SLA`	varchar(127)	The name/label for a SLA
`TNSQM_SQMSLO`	varchar(127)	The name/label for an SQM SLO
`TNSQM_KQI`	varchar(127)	The name of a KQI model, example Acc_Gb_CELL_AttachSR_Rmean
`TNSQM_KQIValue`	varchar(32)	The computed value of the KQI, example 34.5
`TNSQM_ResourceType`	varchar(127)	The name of a resource type, example Enterprise
`TNSQM_Resource`	varchar(127)	The name of a resource instance in URL encoded format
`TNSQM_ResourceName`	varchar(127)	The name of a resource instance, example UPS
`TNSQM_RuleCondition`	varchar(32)	The rules applied for an SLA assessment
`TNSQM_RuleName`	varchar(127)	The rule name for an SLO assessment
`TNSQM_Schedule`	varchar(32)	The schedule when an SLA assessment is applied (for example, peak/offpeak and so on.)
`TNSQM_StartTime`	varchar(127)	The start time of the SLA assessment period

Alert.Status column	*Data type*	*Description*
TNSQM_EndTime	varchar(127)	The end time of the SLA assessment period
TNSQM_AlarmRaiseTime	time	The time at which the alarm was raised
TNSQM_AlarmRaiseString	varchar(32)	The time at which the alarm was raised expressed in readable form.
TNSQM_AdditionalText	varchar(127)	The textual description of the alarm. Currently this alert status is always empty.
TNSQM_Accuracy	varchar(32)	The accuracy of the KQI associated with the contract (percentage)
TNSQM_GI	varchar(32)	The geographical information of this KQI, example AWS/NorthEast
TNSQM_ServiceElement	varchar(127)	The name of the service element which contains the KQI causing the violation
TNSQM_User	varchar(127)	The user that acknowledged the alarm
TNSQM_RollupLevel	varchar(127)	The rollup level of the KQI causing the SLA violation
TNSQM_PrevSeverity	int	The previous severity of the alarm before this alarm arrived
TNSQM_PrevKQIValue	varchar(32)	The previous KQI value before this alarm arrived
TNSQM_Clause	varchar(127)	The name of the evaluated SLA Clause in URL encoded format
TNSQM_ClauseName	varchar(127)	The name of the evaluated SLA Clause
TNSQM_Node	varchar(127)	The hostname of the Tivoli Netcool Service Quality Manager core platform
TNSQM_Port	varchar(32)	The port at which the Tivoli Netcool Service Quality Manager SLA Web View application is available, 9043 by default
TNSQM_Weight	varchar(128)	The KQI weight associated with the KQI value that caused the SLA alarm
TNSQM_WeightUnit	varchar(128)	The unit of the associated KQI weight
TNSQM_RuleID	varchar(128)	The SLO rule ID that resulted in an SLO alarm.

Table 2: Alerts.Status columns added by Tivoli Netcool Customer Experience Manager SLO

Alert.Status column	*Data type*	*Description*
TNCEM_SLO	varchar(127)	The name or label of the Tivoli Netcool Customer Experience Manager SLO.
TNCEM_CustomerID	varchar(127)	The customer ID that is filled if the SLO is associated with a customer
TNCEM_CustomerGroupID	varchar(127)	The customer group ID that is filled if the SLO is associated with a customer group
TNCEM_PartyName	varchar(127)	Reserved for future use.
TNCEM_CustomerGroupName	varchar(127)	The name of the customer group if the SLO is associated to a customer group
TNCEM_CustomerType	varchar(127)	The type of the customer, for example, IMSI, EIP, BESPIN of the customer that is associated with the SLO
TNCEM_CustomerGroupType	varchar(127)	The type of the customer group, for example, IMSI, EIP, BESPIN of the customer that is associated with the SLO
TNCEM_KPIName	varchar(127)	The KPI that the SLO SNMP is associated with
TNCEM_KPIMetricName	varchar(127)	The metric of the associated KPI
TNCEM_KPIValue	varchar(32)	The value of the KPI when it changes state
TNCEM_AggregationPeriod	varchar(127)	The aggregation period of the KPI, for example, hourly, daily, weekly
TNCEM_Threshold	varchar(127)	The threshold that is associated with the SLO (violation, warning or clear)
TNCEM_RaiseTime	varchar(127)	The time at which the SLO SNMP trap was raised (the time on the Tivoli Netcool Customer Experience Manager server)
TNCEM_Time	varchar(32)	The time at which the trap was sent
TNCEM_AlarmType	varchar(32)	The SNMP alarm type, for example, SLO alarm
TNCEM_ProbableCause	varchar(127)	The probable cause of the SNMP trap, for example, threshold crossed
TNCEM_AdditionalText	varchar(127)	This alert is currently not being used but is available for future use
TNCEM_RuleCondition	varchar(127)	The rule that is associated with the KPI
TNCEM_StartTime	varchar(32)	The start time of the SLO assessment period
TNCEM_EndTime	varchar(32)	The end time of the SLO assessment period
TNCEM_SpecificProblem	varchar(127)	The specific problem, for example, SLO clause violated
TNCEM_ServiceName	varchar(127)	This alert status is currently not being used but is available for future use

Alert.Status column	*Data type*	*Description*
TNCEM_AcknowledgementStatus	varchar(127)	This alert status is currently not being used but is available for future use
TNCEM_AcknowledgedBy	varchar(127)	This alert is currently not being used but is available for future use
TNCEM_PrevSeverity	Int	The previous severity of the SLO
TNCEM_PrevKPIValue	varchar(32)	The previous KPI value when the SLO was violated
TNCEM_DeviceName	varchar(127)	This attribute is only filled when the customer or customer group has only one device associated with it. In this case the device name represents the name of the device that the SLO is violated against specifically.
TNCEM_DeviceManufacturer	varchar(127)	This attribute is only filled when the customer or customer group has only one device associated with it. In this case the manufacturer name represents the manufacturer of the device that the SLO is violated against.
TNCEM_User	varchar(127)	This alert status is currently not being used but is available for future use
TNCEM_ContextName	varchar(127)	The context name associated with the SLO
TNCEM_HttpHost	varchar(127)	The hostname of the Tivoli Netcool Customer Experience Manager core platform
TNCEM_HttpPort	varchar(32)	The port at which the Tivoli Netcool Customer Experience Manager web application is available, 9043 by default
TNCEM_KpiUnit	varchar(32)	The unit associated with the KPI model

The following examples show how some of these columns might be populated using a Tivoli Netcool Service Quality Manager SLA violation alarm and Tivoli Netcool Customer Experience Manager SLO violation alarm:

Table 3: Tivoli Netcool Service Quality Manager SLA violation alarm example

Tivoli Netcool Service Quality Manager column	*Example*
TNSQM_SLA	SOC_IPVPN_VPN
TNSQM_KQI	IPVPN_PM_VPN_Latency
TNSQM_KQIValue	38.857
TNSQM_ResourceType	VPN
TNSQM_Resource	DataVPN

TNSQM_RuleCondition	value > 20.0
TNSQM_Schedule	Peak
TNSQM_StartTime	Tue Jan 15 18:30:00 GMT 2008
TNSQM_EndTime	Tue Jan 15 18:45:00 GMT 2008
TNSQM_Accuracy	100
TNSQM_ServiceElement	VPN
TNSQM_RollupLevel	VPN
TNSQM_PrevKQIValue	32.154

Table 4: Tivoli Netcool Customer Experience Manager SLO violation alarm example

Tivoli Netcool Customer Experience Manager column	***Example***
TNCEM_SLO	Test mcid ip address customer
TNCEM_CustomerID	192.168.1.5
TNCEM_CustomerName	EIP Customer 2
TNCEM_CustomerType	EIP
TNCEM_KPIName	EIP:Attach Counters
TNCEM_KPIMetricName	Attach_attempts
TNCEM_KPIValue	63.0
TNCEM_AggregationPeriod	15 minutes
TNCEM_Threshold	0.0
TNCEM_Severity	1
TNCEM_RaiseTime	1273152902
TNCEM_Time	Thu May 06 14:35:02 IST 2010
TNCEM_AlarmType	Quality of Service Alarm
TNCEM_ProbableCause	Threshold Crossed
TNCEM_RuleCondition	Value>0.0

Tivoli Netcool Customer Experience Manager column	*Example*
TNCEM_StartTime	Thu May 06 14:00:00 IST 2010
TNCEM_EndTime	Thu May 06 14:15:00 IST 2010
TNCEM_SpecificProblem	SLO Clause Violated
TNCEM_PrevSeverity	5
TNCEM_PrevKPIValue	0

In addition the probe rules files will populate standard OMNIbus columns like the following:

- Node
- Service
- Customer
- AlertGroup
- AlertKey
- Summary

The default OMNIbus configuration has set sizes for these columns (e.g. 64 characters for the Node field). If very long names are used in Tivoli Netcool Service Quality Manager items like SLA name or SLO name, then the data in some of the OMNIbus columns maybe truncated accordingly.

3.2.1.1 Updating the OMNIbus configuration

To add the new columns to the `alerts.status` table from a command prompt run the accompanying `add_tnsqm.sql` and `add_tncem.sql` scripts using one of the following platform-dependent, case-sensitive commands. The script files are available in the `$WMCROOT/conf/omnibus` directory on the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager platform and should be copied to the TBSM data server (or related OMNIbus server if one is configured).

Operating system	*Required entry*
UNIX	**$OMNIHOME/bin/nco_sql -server <object server name> -user <username> -password <password> < <path_to_file>/<filename>.sql** **Example usage**: **$OMNIHOME/bin/nco_sql –server NCOMS –user root –password password < /appl/add_tnsqm.sql** **$OMNIHOME/bin/nco_sql –server NCOMS –user root –password password < /appl/add_tncem.sql**
Windows	**type <path to file>\<filename>.sql | %NCHOME%\bin\redist\isql -S <object server name> -U <user name> -P <password>**

	Example usage: **type C:\add_tnsqm.sql | %NCHOME%\bin\redist\isql -S NCOMS -U root -P password** **type C:\add_tncem.sql | %NCHOME%\bin\redist\isql -S NCOMS -U root -P password**

Where:

- `$OMNIHOME` represents the installation location of Tivoli Netcool/OMNIbus v7.x on UNIX systems.
- `%OMNIHOME%` represents the installation location of Tivoli Netcool/OMNIbus v7.x on Windows systems.
- `objectserver_name` represents the name assigned to your ObjectServer.
- `username` and `password` are your ObjectServer login details
- `path_to_file` is the directory path to the files extracted in the previous section

Note that is the NCOMS password is not set, then a set of quotes (“”) should be used to indicate a blank password.

The scripts also create trigger groups and triggers. For example, the `tnsqm_update_fields_on_dedup` trigger updates the following fields on deduplication (duplicate event detection) for Tivoli Netcool Service Quality Manager events:

```
Severity;
Summary;
Acknowledged;
TNSQM_KQIValue;
TNSQM_StartTime;
TNSQM_EndTime;
TNSQM_Accuracy;
TNSQM_RuleCondition;
TNSQM_User;
```

also

- `TNSQM_PrevSeverity` is set to the previous severity value.
- `TNSQM_PrevKQIValue` is set to the previous `TNSQM_KQIValue`.

The following output is displayed when the `nco_sql` command is executed:

```
(0 rows affected)
(0 rows affected)
(0 rows affected)
```

3.3 Tivoli Netcool/OMNIbus Knowledge Library rule file configuration

3.3.1 Tivoli Netcool Service Quality Manager events

If Tivoli Netcool/OMNIbus Knowledge Library version 1.x is installed on the Tivoli Netcool/OMNIbus probe platform, and then the Tivoli Netcool Service Quality Manager files are added to the Tivoli Netcool/OMNIbus Knowledge Library configuration as follows.

The rules file can be found at the following Tivoli Netcool Service Quality Manager location:

```
$WMCROOT/conf/omnibus/tnsqm/nckl1/rules
```

For Tivoli Netcool/OMNIbus Knowledge Library version 2.x and 3.x, the rules file can be found at the following Tivoli Netcool Service Quality Manager locations:

```
$WMCROOT/conf/omnibus/tnsqm/nckl2/rules
$WMCROOT/conf/omnibus/tnsqm/nckl3/rules
```

Integration of the Tivoli Netcool Service Quality Manager-specific rules file differs, depending on a customer's deployment of Tivoli Netcool/OMNIbus Knowledge Library probe rules files. The rules files must be incorporated within the rest of the customer's Netcool framework.

For Tivoli Netcool/OMNIbus Knowledge Library version 1.x, this incorporation requires updates to the following files:

```
${NC_RULES_HOME}/snmptrap.rules
${NC_RULES_HOME}/include-snmptrap/PreClass.snmptrap.lookup
```

For Tivoli Netcool/OMNIbus Knowledge Library version 2.x or greater, this incorporation requires updates to the following files:

```
${NC_RULES_HOME}/snmptrap.rules
${NC_RULES_HOME}/include-snmptrap/ibm/ibm-preclass.snmptrap.lookup
```

3.3.1.1 Updating the probe rule file configuration

1. First copy the following files:

   ```
   ibm-TNSQM-MIB.adv.include.snmptrap.rules
   ibm-TNSQM-MIB.include.snmptrap.lookup
   ibm-TNSQM-MIB.include.snmptrap.rules
   ibm-TNSQM-MIB.sev.snmptrap.lookup
   ibm-TNSQM-MIB.user.include.snmptrap.rules
   ```

   For Tivoli Netcool/OMNIbus Knowledge Library v1.x, these files must be transferred to the following location:

   ```
   ${NC_RULES_HOME}/include-snmptrap
   ```

   Whereas, for Tivoli Netcool/OMNIbus Knowledge Library v2.x and Tivoli Netcool/OMNIbus Knowledge Library v3.x, the files must be transferred to the following directory:

```
${NC_RULES_HOME}/include-snmptrap/ibm
```

Note that for NcKL 2.x and 3.x existing Tivoli Netcool Service Quality Manager rules in this directory should be overwritten. Also the existing files are installed as read only when using NcKL3.x so the user will need to change permissions on them before installing the Tivoli Netcool Service Quality Manager 4.1.3 rules files:

```
# cd ${NC_RULES_HOME}/include-snmptrap/ibm
# chmod +w ibm-TNSQM-MIB*
```

2. Add the required statements to the `$NC_RULES_HOME/snmptrap.rules` file.

   Firstly add the following lines to the start of the file

```
# declare the resources array
array resources;
```

3. For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “Lookup table Includes” section add the entry for Tivoli Netcool Service Quality Manager:

```
# Enter lookup table Includes below with the following syntax:

include "$NC_RULES_HOME/include-snmptrap/ibm-TNSQM-MIB.include.snmptrap.lookup"
```

4. For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following line:

```
include "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNSQM-MIB.include.snmptrap.lookup"
```

5. For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “Rules files Includes” section add the entry for Tivoli Netcool Service Quality Manager:

```
# Enter rules file Includes below with the following syntax:
include "$NC_RULES_HOME/include-snmptrap/ibm-TNSQM-MIB.include.snmptrap.rules"
```

6. For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following line:

```
 include "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNSQM-MIB.include.snmptrap.rules"
```

7. For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “Severity lookup” table section add the entry for Tivoli Netcool Service Quality Manager:

```
# Enter "Severity" lookup tables below with the following syntax:

table ibm-TNSQM-MIB_sev = "$NC_RULES_HOME/include-snmptrap/ibm-TNSQM-
MIB.sev.snmptrap.lookup"
default = {"Unknown","Unknown","Unknown"}
```

8. For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following lines:

```
table ibm-TNSQM-MIB_sev = "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNSQM-
MIB.sev.snmptrap.lookup"
default = {"Unknown","Unknown","Unknown"}
```

   The following rule sets are included by the main rules file (`ibm-TNSQM-MIB.include.snmptrap.rules`):

   - `ibm-TNSQM-MIB.adv.include.snmptrap.rules`
   - `ibm-TNSQM-MIB.user.include.snmptrap.rules`

   The `ibm-TNSQM-MIB.adv.include.snmptrap.rules` file contains some standard Netcool Knowledge Library mappings. Make any user customizations within the user include file (`ibm-TNSQM-MIB.user.include.snmptrap.rules`). In future upgrades, you can then choose to retain your existing user include files, removing the need for updating the new files with any current customizations.

9. Add snmptrap.lookup entries.

   Finally in Tivoli Netcool/OMNIbus Knowledge Library 1.x, add the following entries to `${NC_RULES_HOME}/include-snmptrap/PreClass.snmptrap.lookup`

Note: The character between the item name and the number is a single TAB character and not SPACE characters. It is advisable to copy other existing lines in the file and replace the name items accordingly.

Also check the file to ensure that the entries listed here appear only once.

```
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_cleared 4
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_indeterminate   0
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_critical        0
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_major   0
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_minor   0
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_warning 0
SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_unknown 0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_cleared 4
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_indeterminate   0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_critical        0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_major   0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_minor   0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_warning 0
SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_unknown 0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_cleared     4
```

```
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_indeterminate       0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_critical    0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_major       0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_minor       0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_warning     0
SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_unknown     0
```

In Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, the format and the name of the file to be updated differs slightly. For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, modify the following file:

```
${NC_RULES_HOME}/include-snmptrap/ibm/ibm-preclass.snmptrap.lookup
```

In this file add the following items:

```
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_cleared","4"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_indeterminate","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_critical","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_major","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_minor","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_warning","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-slaAlarm_unknown","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_cleared","4"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_indeterminate","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_critical","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_major","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_minor","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_warning","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-sloAlarm_unknown","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_cleared","4"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_indeterminate","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_critical","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_major","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_minor","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_warning","0"},
{"SNMPTRAP-ibm-TNSQM-MIB-adapterAlarm_unknown","0"},
```

After these changes have been made, then the Tivoli Netcool/OMNIbus trap probe must be restarted. See the "*Probe and Gateway Guide*" available from the IBM Tivoli Netcool / OMNIbus Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=/com.ibm.tivoli.nam.doc/welcome_ob.htm

3.3.2 Tivoli Netcool Customer Experience Manager events

Tivoli Netcool Customer Experience Manager trap rules files are installed in a similar manner to Tivoli Netcool Service Quality Manager. If Tivoli Netcool/OMNIbus Knowledge Library version 1.x is installed on the Tivoli Netcool/OMNIbus probe platform, and then the files are added to the Tivoli Netcool/OMNIbus Knowledge Library configuration as follows.

The rules file can be found at the following Tivoli Netcool Customer Experience Manager location:

```
$WMCROOT/conf/omnibus/tncem/nckl1/rules
```

For Tivoli Netcool/OMNIbus Knowledge Library version 2.x and 3.x, the rules file can be found at the following Tivoli Netcool Customer Experience Manager locations:

```
$WMCROOT/conf/omnibus/tncem/nckl2/rules
$WMCROOT/conf/omnibus/tncem/nckl3/rules
```

Integration of the Tivoli Netcool Customer Experience Manager-specific rules file differs, depending on a customer's deployment of Netcool probe rules files. The rules files must be incorporated within the rest of the customer's Netcool framework.

Tivoli Netcool/OMNIbus Knowledge Library version 1.x incorporation requires updates to the following files:

```
${NC_RULES_HOME}/snmptrap.rules
${NC_RULES_HOME}/include-snmptrap/PreClass.snmptrap.lookup
```

Tivoli Netcool/OMNIbus Knowledge Library version 2.x or greater incorporation requires updates to the following files:

```
${NC_RULES_HOME}/snmptrap.rules
${NC_RULES_HOME}/include-snmptrap/ibm/ibm-preclass.snmptrap.lookup
```

3.3.2.1 Updating the probe rule file configuration

1. First copy the following files:

```
ibm-TNCEM-MIB.adv.include.snmptrap.rules
ibm-TNCEM-MIB.include.snmptrap.lookup
ibm-TNCEM-MIB.include.snmptrap.rules
ibm-TNCEM-MIB.sev.snmptrap.lookup
ibm-TNCEM-MIB.user.include.snmptrap.rules
```

   For Tivoli Netcool/OMNIbus Knowledge Library v1.x, these files need to be transferred to the following location:

```
${NC_RULES_HOME}/include-snmptrap
```

   Whereas, for Tivoli Netcool/OMNIbus Knowledge Library v2.x and Tivoli Netcool/OMNIbus Knowledge Library v3.x, the files must be transferred to the following directory:

```
${NC_RULES_HOME}/include-snmptrap/ibm
```

Note that for NcKL 2.x and 3.x existing Tivoli Netcool Service Quality Manager rules in this directory should be overwritten. Also the existing files are installed as read only when using NcKL3.x so the user will need to change permissions on them before installing the Tivoli Netcool Service Quality Manager 4.1.3 rules files:

```
# cd ${NC_RULES_HOME}/include-snmptrap/ibm
# chmod +w ibm-TNCEM-MIB*
```

2. Add the required include statements to the `$NC_RULES_HOME/snmptrap.rules` file.

   - For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “Lookup table Includes” section, add the entry for Tivoli Netcool Customer Experience Manager:

     ```
     # Enter lookup table Includes below with the following syntax:

     include "$NC_RULES_HOME/include-snmptrap/ibm-TNCEM-MIB.include.snmptrap.lookup"
     ```

   - For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following line:

     ```
     include "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNCEM-MIB.include.snmptrap.lookup"
     ```

   - For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “rules files include” section add the entry for Tivoli Netcool Customer Experience Manager:

     ```
     # Enter rules file Includes below with the following syntax:

      include "$NC_RULES_HOME/include-snmptrap/ibm-TNCEM-MIB.include.snmptrap.rules"
     ```

   - For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following line:

     ```
     include "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNCEM-MIB.include.snmptrap.rules"
     ```

   - For Tivoli Netcool/OMNIbus Knowledge Library 1.x, in the “Severity lookup” table include section add the entry for Tivoli Netcool Customer Experience Manager:

     ```
     # Enter "Severity" lookup tables below with the following syntax:

     table ibm-TNCEM-MIB_sev = "$NC_RULES_HOME/include-snmptrap/ibm-TNCEM-
     MIB.sev.snmptrap.lookup"
     default = {"Unknown","Unknown","Unknown"}
     ```

   - For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, add the following lines:

     ```
     table ibm-TNCEM-MIB_sev = "$NC_RULES_HOME/include-snmptrap/ibm/ibm-TNCEM-
     MIB.sev.snmptrap.lookup"
     ```

```
default = {"Unknown","Unknown","Unknown"}
```

The following rule sets are included in the main rules file (`ibm-TNCEM-MIB.include.snmptrap.rules`):

- `ibm-TNCEM-MIB.adv.include.snmptrap.rules`
- `ibm-TNCEM-MIB.user.include.snmptrap.rules`

The `ibm-TNCEM-MIB.adv.include.snmptrap.rules` file contains some standard Netcool Knowledge Library mappings. Make any user customizations within the user include file (`ibm-TNCEM-MIB.user.include.snmptrap.rules`). In future upgrades, you can then choose to retain your existing user include files, removing the need for updating the new files with any current customizations.

3. Add snmptrap.lookup entries.

Finally, in Tivoli Netcool/OMNIbus Knowledge Library 1.x add the following entries to the file:

```
${NC_RULES_HOME}/include-snmptrap/PreClass.snmptrap.lookup
```

Note: The character between the item name and the number is a single TAB character and not SPACE characters. It is advisable to copy other existing lines in the file and replace the name items accordingly. Also check the file to ensure that the entries listed here appear only once.

```
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_cleared           4
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_indeterminate     0
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_critical          0
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_major             0
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_minor             0
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_warning           0
SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_unknown           0
```

In Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, the format and the name of the file to be updated differs slightly. For Tivoli Netcool/OMNIbus Knowledge Library 2.x and 3.x, modify the following file:

```
${NC_RULES_HOME}/include-snmptrap/ibm/ibm-preclass.snmptrap.lookup
```

Add the following items to this file:

```
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_cleared","4"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_indeterminate","0"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_critical","0"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_major","0"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_minor","0"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_warning","0"},
{"SNMPTRAP-ibm-TNCEM-MIB-sloAlarm_unknown","0"},
```

After these changes are made, the Tivoli Netcool/OMNIbus trap probe must be restarted. See the *"Probe and Gateway Guide*" available from the IBM Tivoli Netcool / OMNIbus Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=/com.ibm.tivoli.nam.doc/welcome_ob.htm

3.3.3 Alert Key Details

The Netcool OMNIbus AlertKey field contains a descriptive key which indicates the object instance referenced by the alarm. This field is important for proper correlation of events by the related OMNIbus automations. The AlertKey field is set as follows:

Tivoli Netcool Service Quality Manager SLA event:

```
$slaName + " "  + $kqiName + " " + $customerName + " " + $resourceType + " " + $resource-
Name
```

Tivoli Netcool Service Quality Manager SLO event:

```
$sqmSloRuleID +" " + $sqmSloResourceName
```

Tivoli Netcool Customer Experience Manager SLO event:

```
$cemSloName + " " + $cemKpiName + " " + $cemKpiMetricName + " " + $cemAggregationID + " "
+ $cemContextName
```

If the combination of these fields exceeds the maximum allowed, then the following type of error messages will be logged by the Tivoli Netcool Service Quality Manager oss process:

09:16:36,137 [SnmpPublisher:Queue] WARN @.slm.oss - 0100: Max Alert Key Size exceeded. The size of the alert key in the SLA-trap is 317 and cannot be greater than 255. Please consult Tivoli Netcool Service Quality Manager documentation for further information and support.

In this case the Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager resource names (e.g. SLA name, SLO name) should be adjusted accordingly.

4 Tivoli Netcool Service Quality Management Center menu configuration

IMPORTANT:

This chapter outlines general IBM® Tivoli® Business Service Manager and Tivoli Netcool® WebTop mechanisms for menu configuration and launch integration.

Tivoli Netcool Service Quality Management Center menu and launch configurations are detailed in later chapters of this guide and refer back to specific sections in this chapter. The user should read this chapter first to become familiar with the menu and launch configuration mechanisms.

4.1 Tivoli Business Service Manager menu configuration

The environment variable `TBSM_DATA_SERVER_HOME` is used in this section.

On Windows® Tivoli Business Service Manager systems, system environment variables are set by default. On UNIX® systems, setup scripts are included in the Tivoli Business Service Manager home directory. These scripts set all the system environment variables. You can either run the setup script that applies to the servers that you have installed or when using this documentation, you can substitute your actual directory for the directory given. If you have installed both the Dashboard server and the Data server, you must run both scripts. When you run the scripts, you must source them by preceding their names with a dot character and a space so that the variables are set in your login shell.

The locations of these setup scripts on UNIX systems are as follows:

```
$installdirectory/tbsm/bin/setupTBSMData.sh for the Data server
$installdirectory/tbsm/bin/setupTBSMDash.sh for the Dashboard server
```

where installdirectory is the directory in which you installed the server.

The default directory is /opt/IBM/tivoli and here is an example of sourcing these files:

```
# cd /opt/IBM/tivoli/tbsm/bin
# . setupTBSMData.sh
# . setupTBSMDash.sh
```

To create launch items to support launching from Tivoli Business Service Manager portlets to the Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager products, the following processes are required:

- Create or select the templates and services that the customized launch applies to.
- Create a customized view definition that allows you to map personalized actions.
- Edit customized view definition to add custom launch URL and specifications. These launch actions are added to the right-click menus displayed in the Service Editor or Service Viewer portlets. Changes to the view definition do not affect the right-click menu that is displayed in the Service Tree Navigation portlet.
- If the custom launch URL uses attributes from the service model to pass instance information to the launched Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager application, you will be required to enable the usage of those attributes in the view definition.
- Advanced techniques that involve manual editing of certain XML files, enable custom launch actions to be added to the right-click menus displayed in the Service Tree.

To follow instructions in this guide you must be already logged on to the Tivoli Business Service Manager dashboard server console with a user ID that has a role of tbsmAdminUser so that you can access the Service Administration page.

4.1.1 Creating a custom view definition

Tivoli Business Service Manager 4.2.1 includes various view definitions that allow you to control the visual content that the Service Editor or Service Viewer portlet displays. The view definition also defines the actions as options on the right-click menu. You can review the settings for any of the view definitions that are included in the software, but you cannot use the console to edit them. However, you can easily make a custom view definition based on any other existing definition, which allows edits, so that you can change settings when you want to.

This section describes how to create a **MyRelationships** page, which is a custom view definition based on the Relationships view definition, or the default view that the Service Viewer opens with.
If you need any additional help, see the *IBM Tivoli Business Service Manager Service Configuration Guide* chapter on "*Custom view definitions*" available from the IBM Tivoli Business Service Manager Information Center at:

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

1. From the **Service Navigation** menu, select **Services** and then click a node in the **Service Tree**. The **Service Editor** window is displayed.

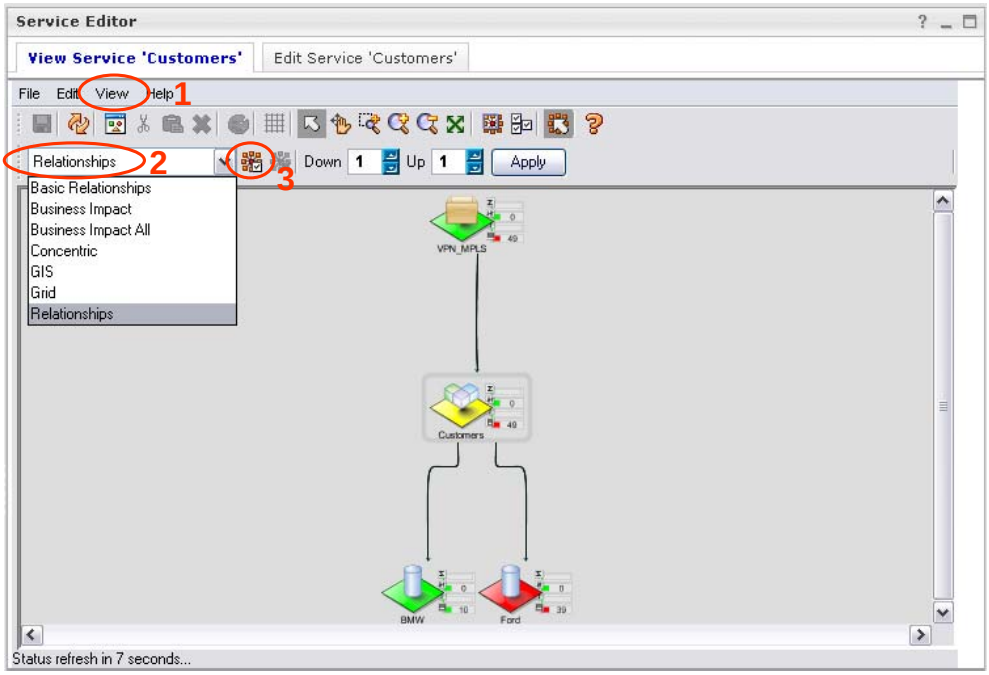

Figure 64: View definitions selection

2. If you do not see the current view definition listed in menu selection field (Item 2**)**, click the **View** menu item (Item 1), scroll over the Toolbars option, and enable the View Definition choice. Relationships is the default view definition, but if it is not selected, use the menu to open the list of available view definitions and select **Relationships**. The Service Viewer reloaded, changing the view shown. When the view change is complete, click the **Edit View Definition** button (Item 3).

3. The **Edit View Definition** window opens showing the setting for the **Relationships** view. Click the **Save as New** button on the bottom of the screen. A window opens where you can type in `MyRelationships` as the name of the new custom view definition you want to create. This new definition includes the same settings as the **Relationships** view.

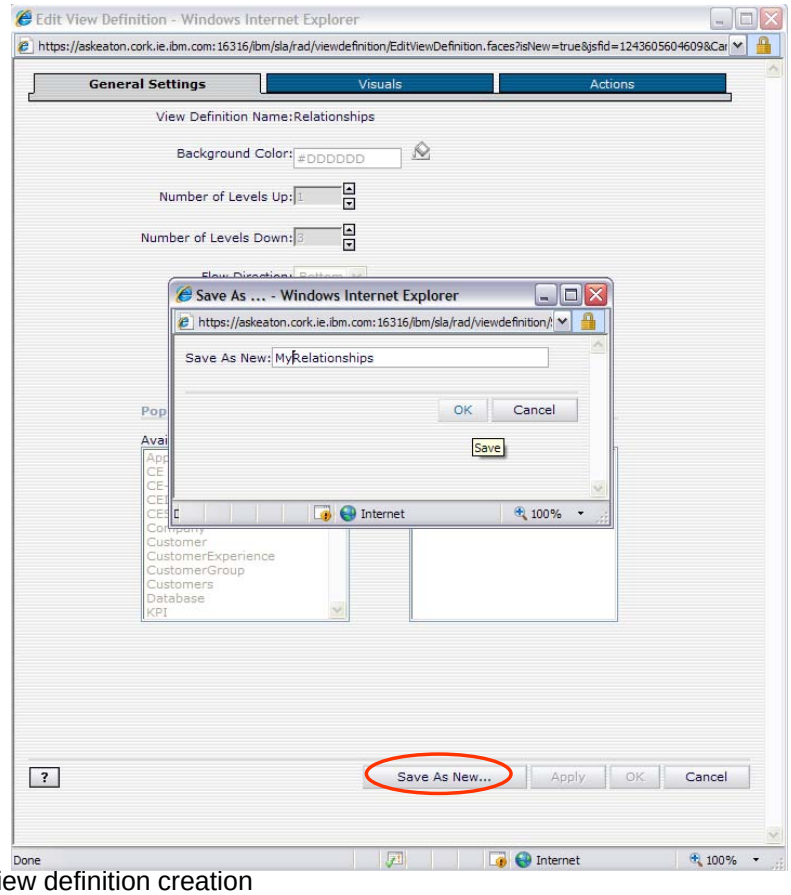

Figure 65: View definition creation

4. When you click **OK**, the **Service Editor** refreshes the visual display in Viewer and uses *MyRelationships* as the view definition. The view definition looks identical to what was shown for *Relationships* because you have not yet changed any settings.

5. View definition settings are kept as XML files in the `$TBSM_DATA_SERVER_HOME/av/xmlconfig` directory. The file name follows a pattern of `ViewDefinition_xxxx.xml`, where `xxxx` is the name you assigned to the view definition.

   When you create MyRelationships view definition, the file `ViewDefinition_MyRelationships.xml` is also created.

4.1.2 Enabling service attribute data for launch actions

In addition to action configuration settings, view definition files also configure which service attributes are available for actions. You can find which service attributes are available for a specific service by viewing the service in the Service Editor portlet and opening the **Edit Service xxxx** tab. Scroll down and select the **Additional** tab to view the attributes. These attributes will contain data that can be used to form part of the launch URL (such as parameter data) or to set conditions to determine whether an action is applicable for a specific service. If an action is not applicable, it can be disabled so the user cannot select it. By default, all the attributes defined in templates are unavailable for actions. You must enable the attributes that you want

to include in your custom launch actions. Enabled attribute data is kept in memory for the client model of the Service View for every service instance, only enable the attributes you want to use. Do not enable every attribute defined in templates.

The following example shows a service ‘Ford’ with some additional attributes that can be used for launch configuration:

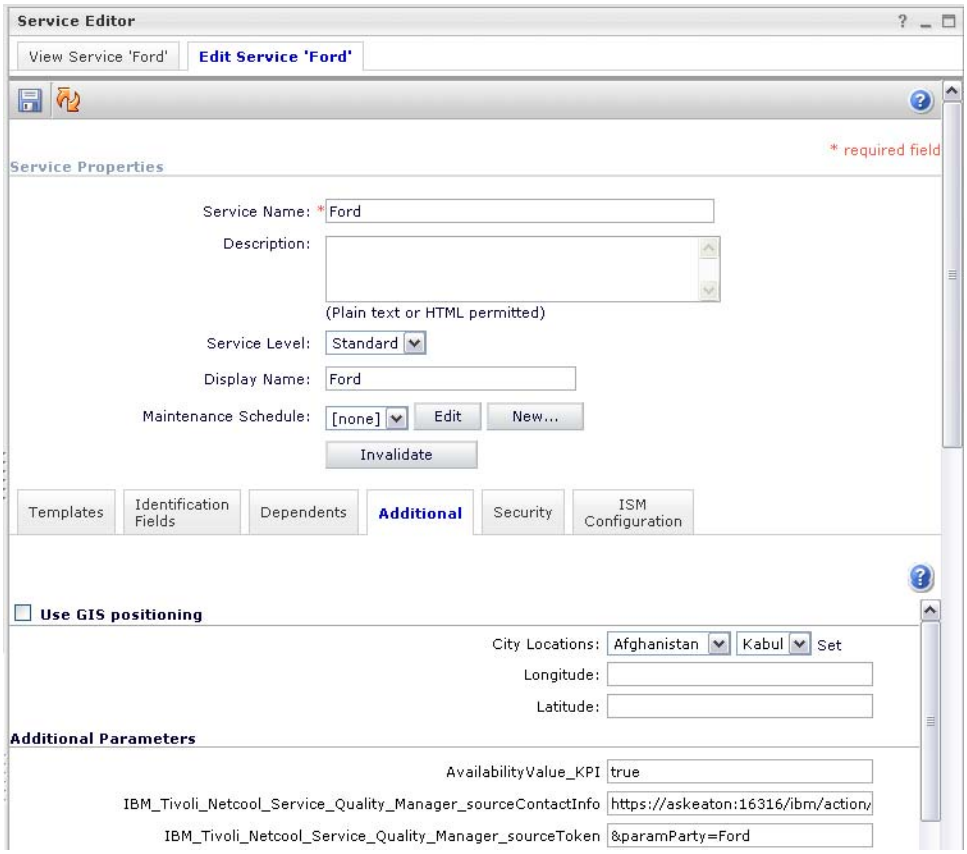

Figure 66: Sample service attributes

This section guides you in enabling service attributes to be used for launch actions. If you need any additional help, see the “*Using additional properties in right-click actions*” section in the “*Custom Settings*” chapter of the *IBM Tivoli Business Service Manager Customization Guide* available from the IBM Tivoli Business Service Manager Information Center at:

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

FieldToPassToModelExpr XML element

The `fieldToPassToModelExpr` XML element is used to identify an attribute that can be used by the view definition. The element form is:

```
<fieldToPassToModelExpr modelField = "AttributeName">AttributeValue
</fieldToPassToModelExpr>
```

Where `AttributeName` is the name of the attribute you want to pass and `AttributeValue` is the value for the attribute.

You can use this format to pass an attribute for all services with a set value such as this:

```
<fieldToPassToModelExpr modelField = "myhost">thomond</fieldToPassToModelExpr
```

Generally, you want the attribute to contain a value from the service you are performing the action on. In this case, the `AttributeName` must match an attribute defined in the service template and the `AttributeValue` must contain the `AttributeName`*e* string. In other words, the `AttributeName` and `AttributeValue` fields must match. Wherever `AttributeName` is used in an action and if the service does not have an `AttributeName` attribute, then a value of null is returned.

Changing or adding `fieldToPassToModelExpr` information in any of the view definition files requires a recycling of the Business Service Manager data server for the change to take effect. So it is best to make all the updates you need at the same time and then recycle the server.

To recycle server see the Tivoli Business Service Manager Administrators Guide - “Operating the TBSM Data and Dashboard servers” available from the IBM Tivoli Business Service Manager Information Center at:

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

4.1.3 Creating launch actions

Using the custom view definition you created in the previous section, you can now edit the associated actions and add additional items to launch Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager views. The actions you change can be associated with a specific template so that only the services that use the template see the actions you add or change. You can also select to have the actions you change reflected in every template.

To start your edit session for actions:

1. Reopen the Service Viewer portlet (open the Service Administration page, select **Services** for the navigation view, and click any service).
2. Select the **MyRelationships** custom view definition.
3. After it has finished reloading, click the **Edit View Definition** button again that shows the editable settings for the **MyRelationships** view.
4. Click the **Actions** tab. The following window is displayed:

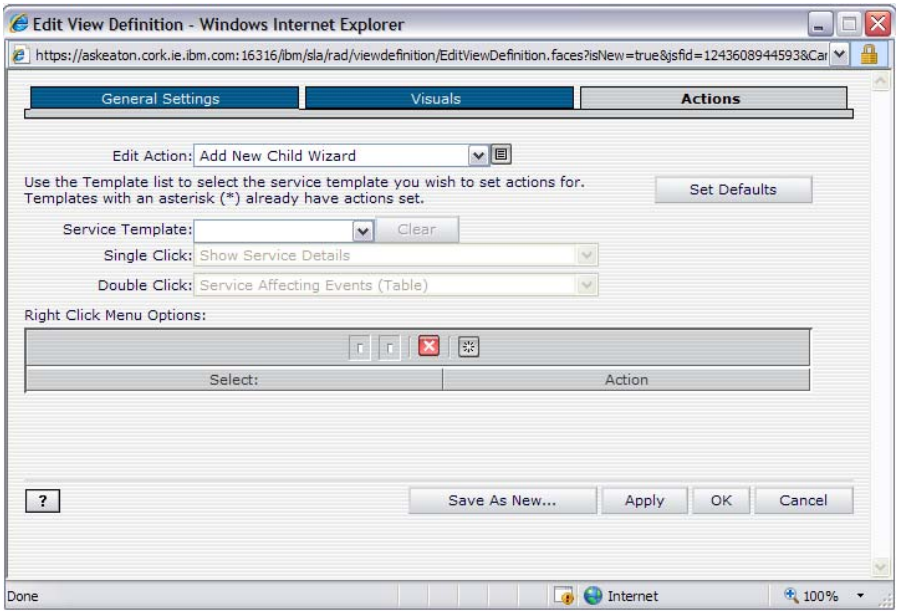

Figure 67: Action creation

5. Select **Add New Child Wizard** in the **Edit Action** field to define a new launch action.
6. Click the **Edit Action** button and define new launch actions with parameters like the ones in the following list:

   Action Name: <Action Name>

   Action Display Name: <Display name for the action to appear in pop-up menu>

   Action Description: <A detailed description for the action>

   Action URL: <The URL to be opened – this can reference attributes>

   Action Frame: <The name of a frame to be opened>

   For example:

   Action Name: ShowServiceQuality

   Action Display Name: Show Service Quality (Tivoli Netcool Service Quality Manager)

   Action Description: Launch Tivoli Netcool Service Quality Manager SLA Web View

   Action URL: __IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo____IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken__

   Action Frame: tnsqmwindow

Note: Detailed examples for Tivoli Netcool Service Quality Management Center integrations are covered in later chapters.

---

7. Indicate either a specific service template to work with, or that you can operate on defaults set for all templates. The pop-up window is updated to show the current actions for your selection. In particular, the right-click menu option table is completed.

8. Click the New button that adds a new action at the bottom of the right-click menu option table. Change the default value of the action to your new launch action.

9. Click OK to save your changes and return to the Service Viewer.

   Most launch scenarios typically pass some data contained in the service you are viewing to the application you are launching. You can make a URL dynamic by using a substitution variable within the URL string that references attribute data from that service.

   You have already changed the view definition file to contain the `fieldToPassToModelExpr` XML tags that defined the service attributes that can be used in action definitions.

   To indicate that you want to substitute the data from a particular attribute at some point in the URL, use a substitution variable reference. This reference is the attribute name with a double underscore appended before and after the name, such as `__attributeName__`. If the attribute is not contained in the selected service or is not enabled in the view definition, 'Null' is substituted in the URL string.

   For example, the Tivoli Netcool Service Quality Manager launch scenario includes the following statements:

   ```
   __ IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo__ and
      __ IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken__
   ```

   See 5.1 for more details.

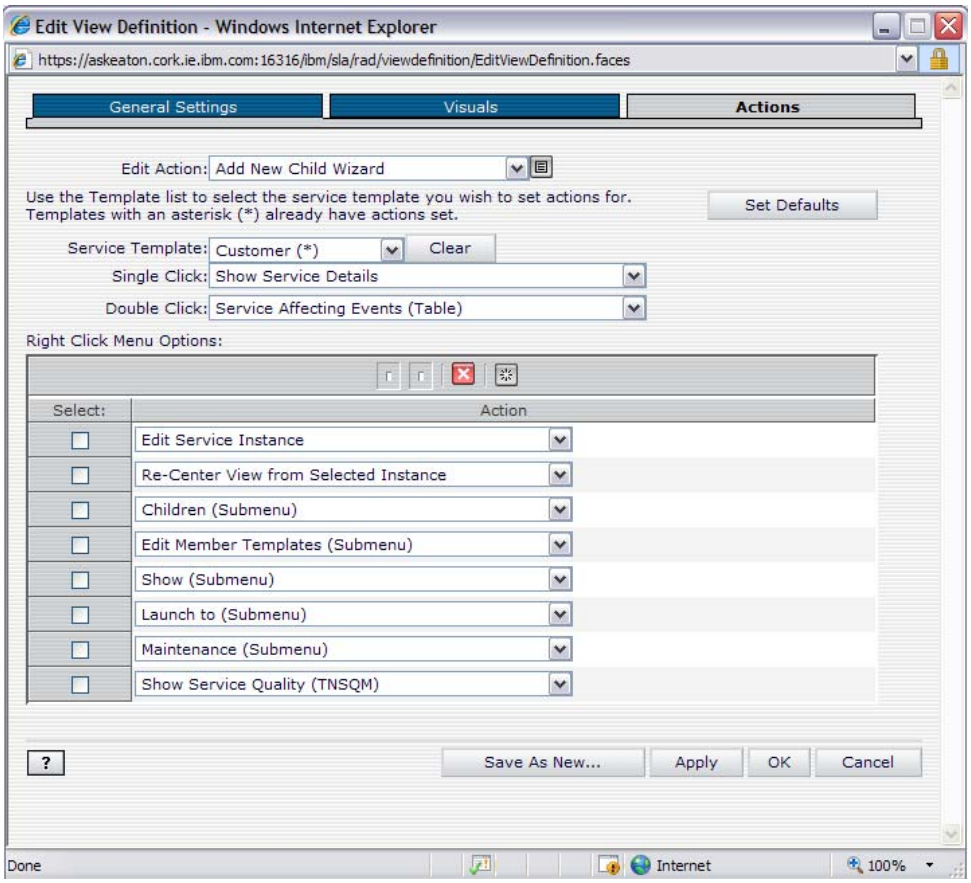

Figure 68: Setting up launch on a specific template

10. If you right-click any Customer service shown in the viewer (BMW in the example), the new action is displayed at the bottom of the menu. If you right-click any other service that is not based on the Customer template (New York in the example), the action is not visible.

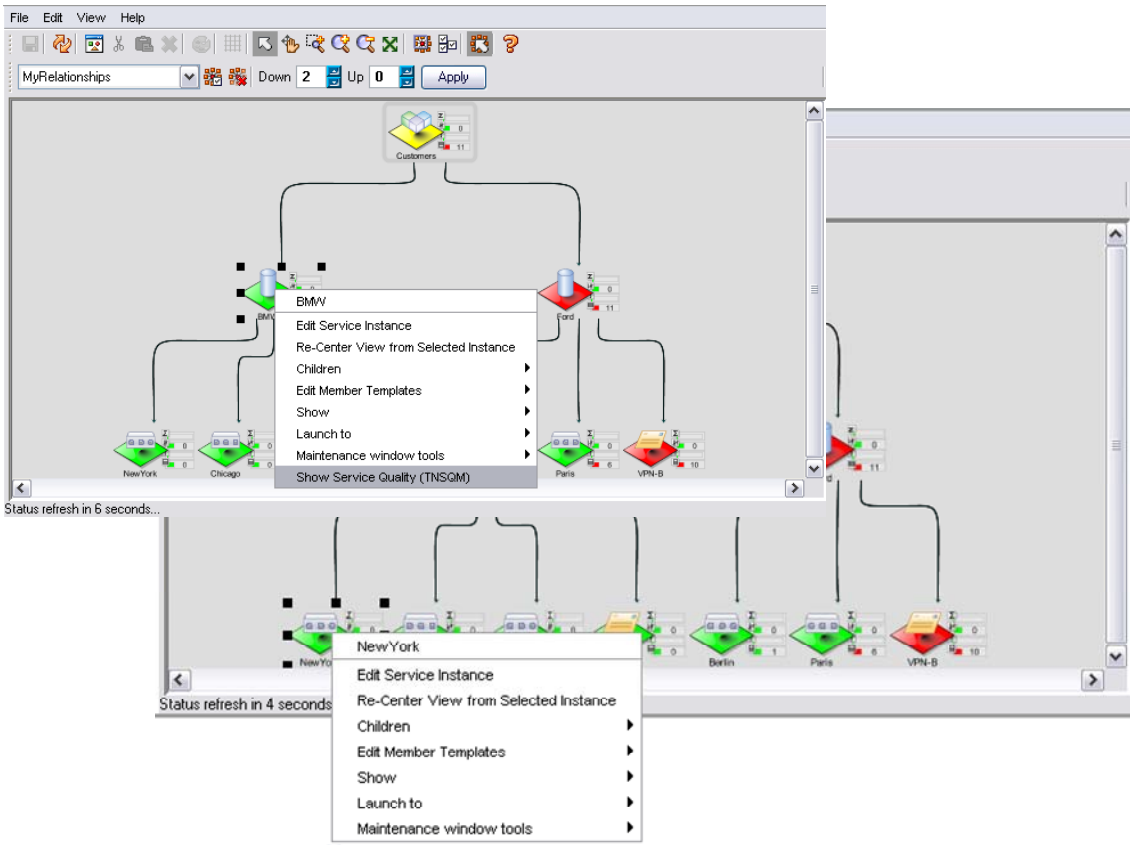

Figure 69: Launch actions shown on selective services

Tip: If you have a launch action with attributes and you see that the URL launch includes a 'NULL' value where you expect an attribute value, check for the following information:

Does the specific service contain the attribute and does it have a non-null value?

Does the view definition file for the view you use have a `fieldToPassToModelExpr` tag that enables the attribute? Is the attribute name identical to your action URL and identical to the attribute name in the template?

Have you restarted the Tivoli Business Service Manager data server after making the changes to the view definition file?

4.1.4 Conditionally enabling and disabling a launch action

In the previous section, you created a launch action for Tivoli Netcool Service Quality Manager and associated it with a specific service template. It is also possible to create such a launch action, associate it with all templates, and then use a conditional expression to enable the launch menu item based on the presence or absence of a particular attribute. You can accomplish this task by directly editing the action definition file.

When you create an action, an XML definition describing the action is created and inserted into an existing file called `canvasOpenURLActions.xml`. This file is located under `TBSM_DATA_SERVER_HOME\av\xmlconfig` directory. You can edit the XML file directly to add tags that enable the actions only when a conditional expression is met.

Note: It is important to back up this file before making the manual changes in this procedure for creating a launch action.

1. First locate the launch action created by searching the file for whatever value you assigned to the actionName to find the XML definition, for example:

```
<openURLAction description=" Show Service Quality (TNSQM)"
    displayName="Show Service Quality (TNSQM)" enableDisableExpression=""
    name="ShowServiceQuality"
permissionCheckerClassName="com.micromuse.sla.map.AVCheckRADInstancePermissionsImpl"
    roleRequired="tbsmViewService" target="tnsqmwindow" visibleIn-
GUI="true">__IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo____
IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken__</openURLAction>
```

2. The `enableDisableExpression` tag can be used to add a conditional expression that determines whether the action is enabled (the user can select it from the right-click menu) or disabled (visible but non-selectable). In this example, change the value of the `enableDisableExpression` attribute to determine if one of the attributes exists in the following specific service instances and then save the file:

```
enableDisableExpression =
"'__IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo__' != 'NULL'"
```

   Any time you manually edit the `canvasOpenURLActions.xml` file (or any of the files in that directory), you must stop and restart the Tivoli Business Service Manager data server for the changes to take effect. See the *Tivoli Business Service Manager Administrators Guide* (“*Operating the TBSM Data and Dashboard servers* section.”) available from the IBM Tivoli Business Service Manager Information Center at:

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

3. Right-click one of your service icons (see example) to see the option enabled.

4.1.5 Extending a custom launch beyond a custom view

In all the preceding examples, you created a custom launch within a custom view definition and used the View Definition Editor to define and edit the new launch action. This technique works well, but has the following limitations:

- The new launch actions are visible only when you obtain the right-click menu from the Service Viewer portlet. If you right-click the same service in the Service Tree within the Service Navigator portlet, the customized launch actions do not show up.
- You cannot insert a new custom launch action in an existing submenu. You must insert the new action at the top level of the right-click menu. The Tivoli Business Service Manager program has a **Launch to** submenu that currently contains the launches to other products or applications. Some users prefer to see all launches in that submenu rather than as separate items that can be interspersed with other non-launch custom actions.
- You must create a copy of any existing view definition your users use. Add the custom launch to each of those copies because your view definitions cannot be edited online. You must switch to those views when launching or changing the default view to automatically use one of the custom views.

You can avoid these limitations by directly editing the XML files that control action behavior in `TBSM_DATA_SERVER_Home\av\xmlconfig` directory. Directly editing the XML files was briefly referenced earlier in this guide when conditional enablement of launch actions was defined. Now you can learn about more changes you can manually make to alter your right-click menus in both the Service Viewer and Service Tree portlets.

Note: It is important to bear in mind that these steps are advanced. All manually changed files must be backed up first. If you introduce an error in your XML file, you might not be able to see some or all of your right-click menu options, so introduce each change independently so that you can troubleshoot any errors.

Before learning about the changes you can make, you must first understand the files affecting launch actions:

- The `canvasOpenURLActions.xml` file contains the XML definitions of each action. Other files refer to actions defined here using the actionName reference.
- The `canvasDynamicSubMenuActions.xml` file defines a submenu and the actions that are included in that submenu.
- The `treeTemplates.xml` file defines right-click menu options available for service instances in the Service Navigation tree view.
- The `ViewDefinition_xxx.xml` files that are associated with a single view definition define which actions are available in right-click menu for services displayed in the Service Viewer portlet.

All the following techniques require that you have first successfully created a launch action in a custom view. The launch action is completely defined in the `canvasOpenURLActions.xml` file and you do not need to update that file any further.

4.1.6 Displaying a new launch action in the Launch to submenu

Displaying a new launch action is one of the simpler changes to make. You can see the new launch action in the **Launch to** submenu shown in both the Service Viewer and Service Navigator portlets.

1. Edit the `canvasDynamicSubMenuActions.xml` file and search for “IntegrationTools” to find the following XML definition:

```
<dynamicSubMenuAction
  name = "IntegrationTools"
  displayName = "Launch to"
  description = "Launch Integrated Products from Selected Instance."
  ……
                  <!-- Old Menu Items -->
  <nextAction name = "ShowManagedSystem"/>
  <nextAction name = "ShowHOPViewLocal"/>
  <nextAction name = "ShowHOPViewRemote"/>
  <nextAction name = "ShowPhysicalTopology"/>
  <nextAction name = "ShowChangeHistory"/>
  <nextAction name = "ShowCIDetails"/>
  <nextAction name = "ShowOpenServiceRequest"/>
  <!-- End: Old Menu Items -->

</dynamicSubMenuAction>
```

2. Add a new `nextAction` tag and use the `actionName` of the new launch action for the name field. Put it relative to the existing `nextAction` tags in the order that you want to see it on the submenu. In this example, you want to move the "Show Service Quality (Tivoli Netcool Service Quality Manager)" launch to the launch submenu. You want to keep the portal-related launches together so you add the Tivoli Netcool Service Quality Manager launch after the current portal launch for managed systems:

```
<!-- Old Menu Items -->
    <nextAction name = "ShowManagedSystem"/>
    <nextAction name = "ShowHOPViewLocal"/>
    <nextAction name = "ShowHOPViewRemote"/>
    <nextAction name = "ShowPhysicalTopology"/>
    <nextAction name = "ShowChangeHistory"/>
    <nextAction name = "ShowCIDetails"/>
    <nextAction name = "ShowOpenServiceRequest"/>
    <nextAction name = "ShowManagedSystem"/>
    <nextAction name = "ShowServiceQuality"/>
 <!-- End: Old Menu Items -->
```

3. The Tivoli Netcool Service Quality Manager launch action uses service attributes, so these attributes that you enabled in the custom view definition (`ViewDefinition_MyRelationships.xml`) must be enabled in all the other view definition files. You can open the custom view definition file, copy the XML statements from that file into the appropriate locations in the other files, as shown here:

```
<fieldToPassToModelExpr
   modelField="IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo">
   IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo
</fieldToPassToModelExpr>
<fieldToPassToModelExpr
   modelField="IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken">
   IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken
</fieldToPassToModelExpr>
```

   After you save your changes, stop and restart the Tivoli Business Service Manager data server. See the Tivoli Business Service Manager Administrators Guide ("Operating the Tivoli Business Service Manager Data and Dashboard servers" section available from the IBM Tivoli Business Service Manager Information Center at:

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

4. Open the service tree and right-click a service instance and then open the Launch to submenu. The new options are displayed. The **Show Service Quality (Tivoli Netcool Service Quality Manager)** launch can be enabled or disabled depending on which service instance you clicked. Test the launches and confirm they are still operational.

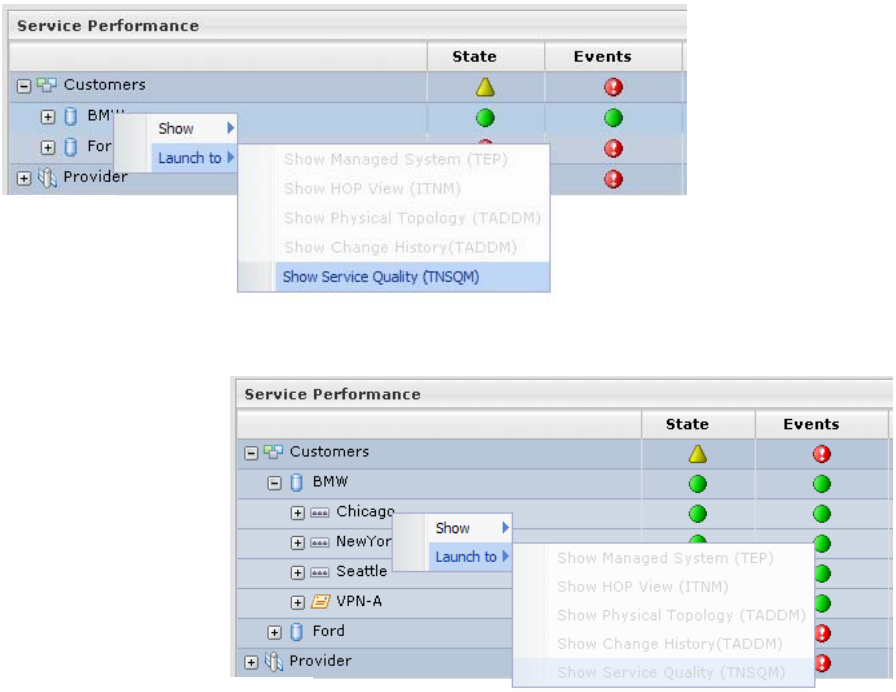

Figure 70: New Launch action available from Service Tree context menu

5. Double-click the service to display the service with the Service Viewer. Right-click the service and then open the **Launch to** submenu. Again verify that the new launch options are displayed and operational if appropriate. Perform this verification for each of the views you changed.

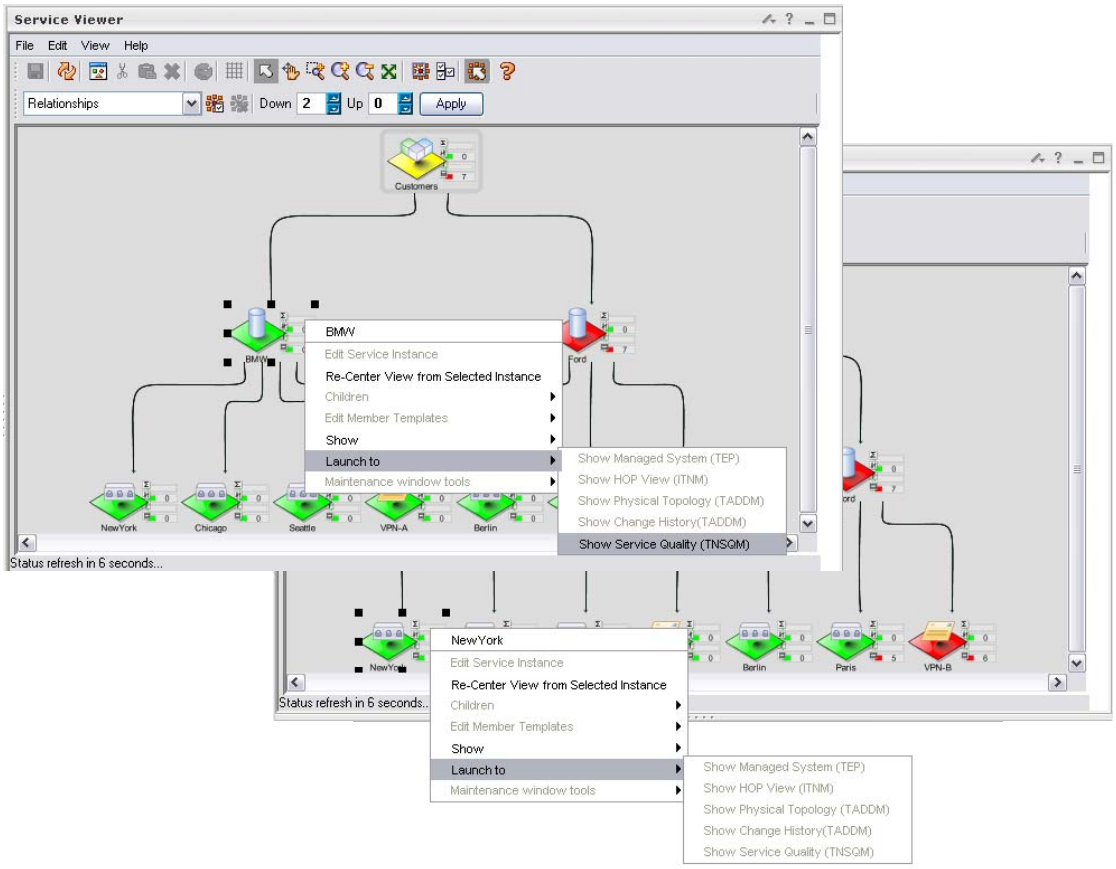

Figure 71: New Launch action available from Service Viewer context menu

4.1.7 Displaying a new launch action in the standard views

It is possible to retain a new launch action on the top level of the right-click menu or keep it restricted to a specific template, but still have it available on the view definitions included with the Tivoli Business Service Manager product (and not a custom view definition).

Steps for Launch actions applicable to all templates

1. Open the custom view definition file (example `ViewDefinition_MyRelationships.xml`) and search for the actionName of the new launch option. Look for this launch option within an XML section like this one:

```
<templateMapping primaryTemplateName="DefaultTag">
      <expandCollapseTemplate>false</expandCollapseTemplate>
      <expandCollapseInitiallyTemplate>true</expandCollapseInitiallyTemplate>
      <groupingField>PrimaryTagName</groupingField>
      <indicatorMapping visualRepresentation="RADPrototype"/>
      <actionMapping actionName="SingleClickedOnService" clickType="~singleClicked"/>
      <actionMapping actionName="ShowRawEventsTableView" clickType="~doubleClicked"/>
      ….
      <actionMapping actionName="ShowServiceQuality" clickType="~popupMenu"/>
```

```
</templateMapping>
```

The `DefaultTag` value for the `primaryTemplateName` indicates these actions are the default for all templates. Copy the `actionMapping` statements for the new launch options

2. Edit each of the standard view definition files (such as Relationships) and find the XML statements for the `DefaultTag templateMapping`. Copy the `actionMapping` statements for the new launch options to the end of the other `actionMapping` statements in this block. The order of the statements is reflective of the visual order of the option in the pop-up menu therefore, position them in the order you want.

Steps to make Launch actions applicable to a specific template

1. Open the custom view definition file and search for the `actionName` of the new launch option. You can find it within an XML section like the following section, where the `primaryTemplateName` reflects the name of the template you associated the launch with:

```
<templateMapping primaryTemplateName="Customer">
  <actionMapping actionName="SingleClickedOnService" clickType="~singleClicked"/>
  <actionMapping actionName="ShowRawEventsTableView" clickType="~doubleClicked"/>
  <actionMapping actionName="ShowServiceInstanceEditor" clickType="~popupMenu"/>
  <actionMapping actionName="InstantiateOneHopServiceMap" clickType="~popupMenu"/>
  <actionMapping actionName="ChooseChildrenTool" clickType="~popupMenu"/>
  <actionMapping actionName="ShowMemberTemplates" clickType="~popupMenu"/>
  <actionMapping actionName="ViewTools" clickType="~popupMenu"/>
  <actionMapping actionName="IntegrationTools" clickType="~popupMenu"/>
  <actionMapping actionName="MaintTools" clickType="~popupMenu"/>
  <actionMapping actionName="ShowServiceQuality" clickType="~popupMenu"/>
</templateMapping>
```

2. If this is your first time creating actions tied to this specific template, you must copy the entire `template-Mapping` definition block. Open each standard view definition file, locate the `DefaultTag templateMap-ping` definition block, and add the new block after the default. If you have already added actions to this specific template, the standard view definition file should already contain the t`emplateMapping` definition block for that template. Add the new `actionMapping` statements to the block in the order you want them shown in the right-click menu.

Common steps

- While you are still in each standard view definition file, add any attributes that you used as substitution variables in the action URL. Then save and close the file.
- Save and close all files. Then stop and restart the Tivoli Business Service Manager data server for the changes to take effect. See the *Tivoli Business Service Manager Administrators Guide* (“Operating the TBSM Data and Dashboard servers” section) available from the IBM Tivoli Business Service Manager Information Center at:

  http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm
- Open the Service Viewer and use one of the standard view definitions (such as Relationships) to view a service instance. Verify that when you right-click the service instance icon, you see the

new launch action on the menu. If the action is tied to a specific template, you must check that it is displayed only on service instances using that template.

4.1.8 Displaying a new launch action in the service navigator

This section describes how to use a new launch action within the Service Navigator portlet when accessing a service in the service tree view. In section 4.1.6 “Displaying a new launch action in the “Launch to” submenu,” you saw that including the new launch action within the **Launch To** submenu provides a launch from the service tree.

Use the following steps to also provide a launch from the service tree for new launch actions that are on the top level on the menu and are not within a submenu. However this technique does not limit an action to a specific template. If your action depends on attribute data that is unavailable on all services, be sure to add conditional `enableDisableExpression` tags to the action definition to check for the presence of the required attributes.

1. Open the `treeTemplate.xml` file and search for the `<treeTemplate name = "ServiceInstance">` XML section. You can find it within an XML section like the following section, that is, within the `treeTemplate` block:

```
<templateTreeMapping primaryTemplateName = "DefaultTag">
  .......
  <actionMapping
   clickType = "~popupMenu"
   actionName = "ViewTools"/>
  <actionMapping
   clickType = "~popupMenu"
   actionName = "IntegrationTools"/>
  <actionMapping
   clickType = "~popupMenu"
   actionName = "MaintTools"/>
</templateTreeMapping>.
```

2. Add a new `actionMapping` tag for the new launch action you want displayed on the menu. Place it relative to the existing items in the order you want it displayed. In this case, you are adding the `ShowServiceQuality` action after the Maintenance submenu.

```
…
 <actionMapping
  clickType = "~popupMenu"
  actionName = "MaintTools"/>
 <actionMapping
  clickType = "~popupMenu"
  actionName = "ShowServiceQuality"/>

</templateTreeMapping>
```

3. Save the file, then stop and restart the Tivoli Business Service Manager data server for the changes to take effect. *See the Tivoli Business Service Manager Administrators Guide* (“Operating the TBSM Data and Dashboard servers”) available from the IBM Tivoli Business Service Manager Information Center at:

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

4. Open the Service Navigator portlet and verify that when you right-click the service instance in the tree, you see the new launch action on the menu:

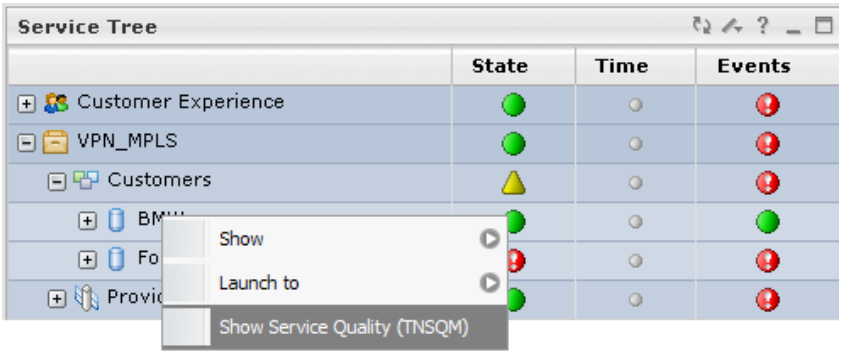

Figure 72: Creating custom launch action available from service tree

4.2 WebTop menu configuration

1. Log in to the Tivoli Business Service Manager system and choose **Administration > Event Management Tools > Tool Creation**.
2. Select the **Create Tool** button:

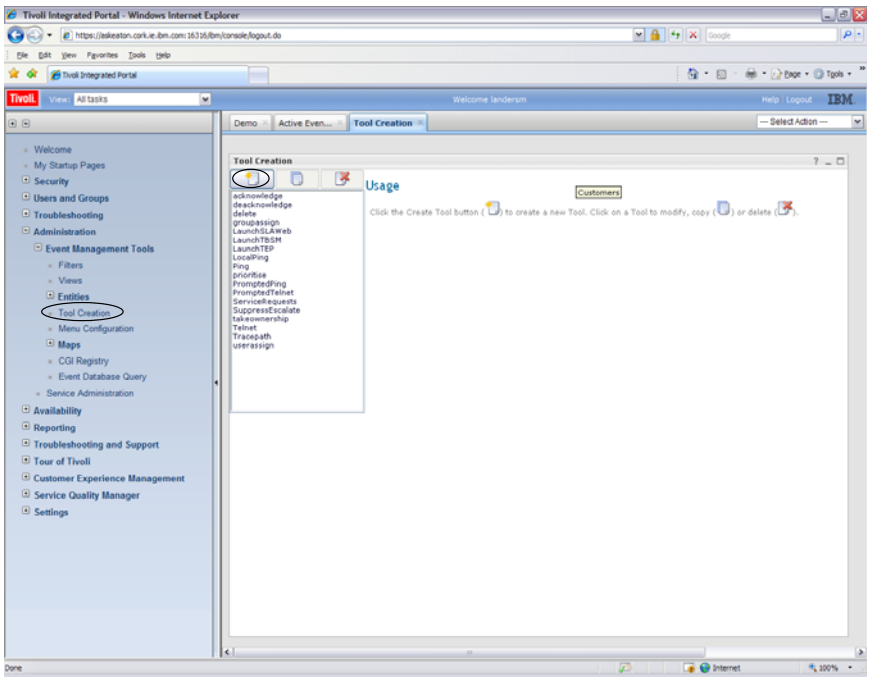

Figure 73: Tool Creation page

3. Fill the fields as required. Specific URL details for Tivoli Netcool Service Quality Management Center integration items are given in later chapters. The following example shows an SLA Web View menu item. Click **Save**.

   Name: `LaunchSLAWeb`

   Type: `Script`

   Script Commands:

```
var node = encodeURIComponent("{@TNSQM_Node}");
var port = encodeURIComponent("{@TNSQM_Port}");
var party = encodeURIComponent("{@Customer}");
var sla = encodeURIComponent("{@TNSQM_SLA}");
var clause = encodeURIComponent("{@TNSQM_ClauseName}");
var resource = encodeURIComponent("{@TNSQM_Resource}");

var url = "https://" + node + ":" + port +
"/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA";

url = url + "&paramParty=" + party + "&paramSLA=" + sla + "&paramClause=" +
clause + "&paramResource=" + resource;

var sqmWindow = window.open(url);
if(sqmWindow.focus) {
   sqmWindow.focus();
}
```

   When the WebTop tool is being created, the access criteria can be set such that the menu item will be greyed out for specific users or events. The following example shows how the access criteria can be set so that the menu item is only available if a Tivoli Netcool Service Quality Manager SLA Violation event is selected.

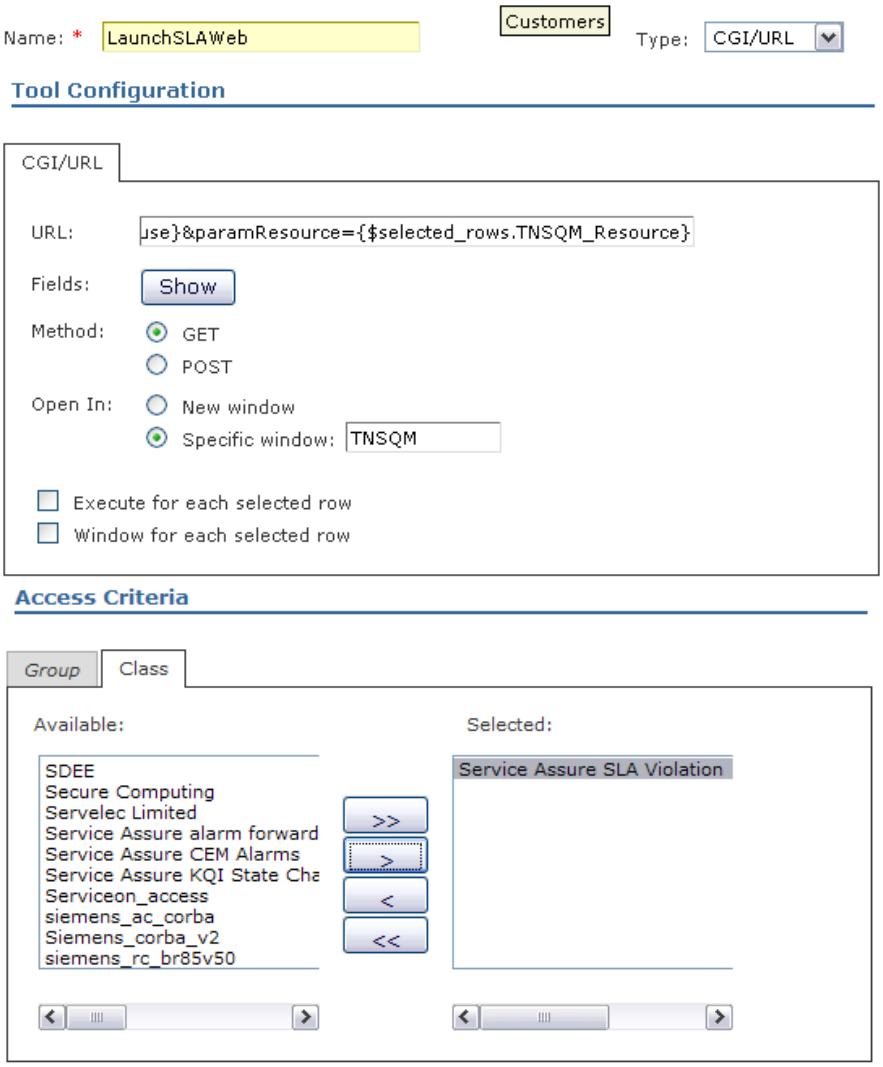

Figure 74: Launch SLA web tool

4. From the tasks list, choose **Administration > Event Management Tools > Menu Configuration**.
5. Choose the **alerts** menu and select **Modify**.

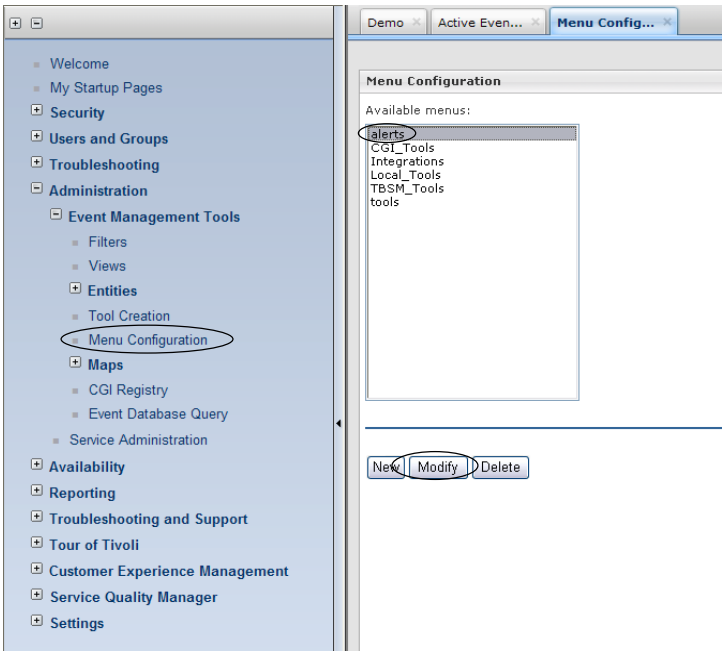

Figure 75: Alerts menu

6. Select **tools** from the drop-down menu under **Available menus**.
7. From the list on the left side, select the new tool (**LaunchSLAWeb** in this example) and click the > arrow. This step adds the new tool to the list of **Current items** on the right.

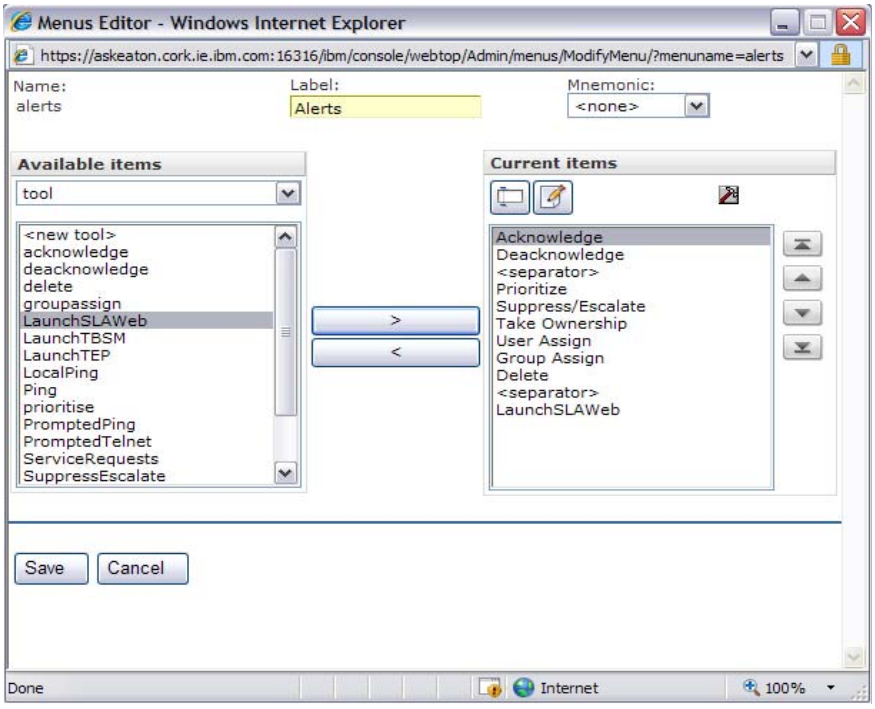

Figure 76: Menu Editor

8. Select the **LaunchSLAWeb** item and click the rename button: 

9. In the dialog box, enter new text, for example **Show Service Quality (Tivoli Netcool Service Quality Manager)** for the Label and click **Save**.

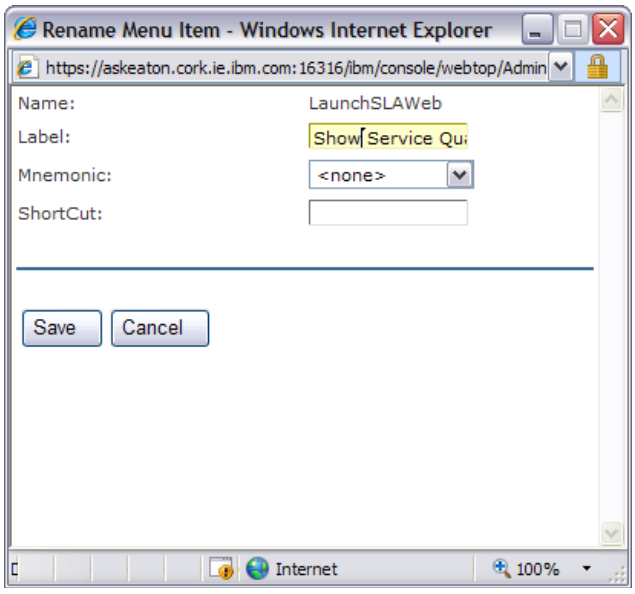

Figure 77: Renaming a menu

10. Click **Save** in the Menu Editor dialog box.

11. Validate the new menu item by opening the WebTop **Active Event List**. Select an appropriate event and select the new menu item (**Show Service Quality (Tivoli Netcool Service Quality Manager)** in this example) from the alerts pop-up menu:

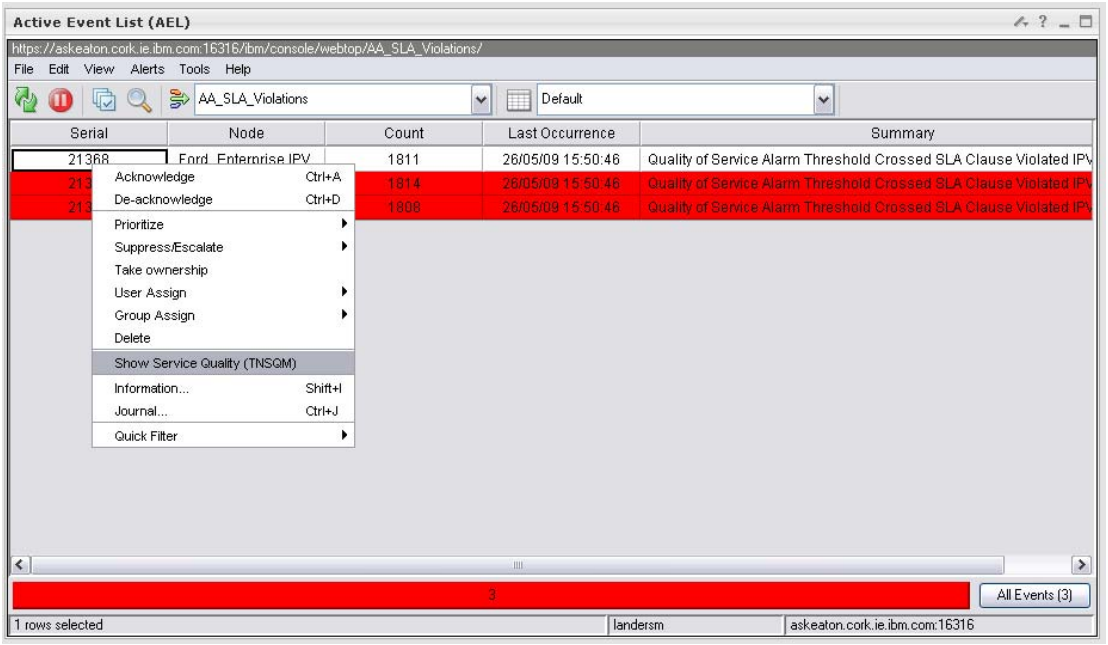

Figure 78: WebTop Active Event List menu

5 Launching SLA Web View

The information in this chapter describes how to configure launch items from IBM® Tivoli® Business Service Manager and Tivoli Netcool® WebTop to the Tivoli Netcool Service Quality Manager SLA Web View application.

5.1 SLA Web view launch parameters

The Tivoli Netcool Service Quality Manager SLA Web View accepts context information in the URL that is used to open the view.

The root URL that must be opened is as follows:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA
```

In addition, the following are the options available when passing context to the URL:

Customer:

```
&paramParty=<Customer>
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA&paramParty=BMW
```

Customer and SLA:

```
&paramParty=<Customer>&paramSLA=<SLA>
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA&paramParty=BMW&paramSLA=BMW_VPN_SLA
```

Customer, SLA, and clause:

```
&paramParty=<Customer>&paramSLA=<SLA>&paramClause=<Clause>
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA&paramParty=BMW&paramSLA=BMW_VPN_SLA&paramClause=Enterprise_Jitter
```

Customer, SLA, clause, and resource:

```
&paramParty=<Customer>&paramSLA=<SLA>&paramClause=<Clause>&paramResource=<Resource>
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA&paramParty=BMW&paramSLA=BMW_VPN_SLA&paramClause=VPN_Jitter&paramResource=DataVPN
```

Note: The SLA Web View can be launched without any context from the root URL:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA
```

If context is being passed based on the preceding definitions, then all items must be passed correctly. For example, if **resource** is being specified, then the related **customer**, **SLA,** and **clause** must also be specified.

5.2 Tivoli Business Service Manager menu configuration

Follow the steps outlined in section 4.1, using the following parameters:

5.2.1 Enabling service attributes for SLA Web View launch in context

In keeping with standard Tivoli Business Service Manager mechanisms for console integration, populate Tivoli Business Service Manager services (where appropriate) with two additional attributes to enable a launch to the Tivoli Netcool Service Quality Manager SLA Web View as follows.

IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo:

In many cases, a `sourceContactInfo` tag identifies the URI (host name and port) of the server that supports a web console, which can be used by Tivoli Business Service Manager as the target host system to launch back to. For SLA Web View, set this URI to:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA
```

IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken:

The `sourceToken` attribute for a resource is the ID that this management software uses to identify an instance in terms that it can understand, for example, the context. For SLA Web View, set this attribute to the values outlined in section 5.1 for example:

```
&paramParty=BMW
```

The following steps must be completed to make the service attributes available for launch from the Tivoli Business Service Manager Service Viewer portlet:

1. If started, shut down the Tivoli Business Service Manager data server. See the *Tivoli Business Service Manager Administrators Guide* (“Operating the TBSM Data and Dashboard servers”) available from the IBM Tivoli Business Service Manager Information Center at:

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

2. Open the `ViewDefinition_MyRelationships.xml` file with the editor of your choice and search for text that includes this `fieldToPassToModelExpr` statement. Find the block of `fieldToPassToModelExpr` XML statements within an outer dataTypeMapping XML element like the following statements:

```
<dataTypeMapping dataTypeName="ServiceInstanceBean">
                    ……
<fieldToPassToModelExpr
                                model-
Field="IBM_Tivoli_Monitoring_Services_sourceContactInfo">
IBM_Tivoli_Monitoring_Services_sourceContactInfo
</fieldToPassToModelExpr
```

```
</dataTypeMapping>
```

3. Add the following statements after the last **f**`ieldToPassToModelExpr` field and before the `</dataTypeMapping>` tag:

```
<fieldToPassToModelExpr modelField=
"IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo">
              IBM_Tivoli_Netcool_Service_Quality_Manager_sourceContactInfo
              </fieldToPassToModelExpr>

<fieldToPassToModelExpr modelField=
"IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken">
IBM_Tivoli_Netcool_Service_Quality_Manager_sourceToken
</fieldToPassToModelExpr>
```

   The `AttributeName` must match exactly the display name of the attribute in the template (the name is case-sensitive).Save and close the view definition file.

4. Start the Tivoli Business Service Manager data server. See the *Tivoli Business Service Manager Administrators Guide* (*Operating the TBSM Data and Dashboard servers* section) available from the IBM Tivoli Business Service Manager Information Center at

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

5.3 WebTop menu configuration

Follow the steps outlined in section 4.2. Complete the fields as shown in the following table and click **Save**.

Name: `LaunchSLAWeb`

Type: `Script`

Script Commands:

```
var node = encodeURIComponent("{@TNSQM_Node}");
var port = encodeURIComponent("{@TNSQM_Port}");
var party = encodeURIComponent("{@Customer}");
var sla = encodeURIComponent("{@TNSQM_SLA}");
var clause = encodeURIComponent("{@TNSQM_ClauseName}");
var resource = encodeURIComponent("{@TNSQM_Resource}");

party = encodeURIComponent(party);

var url = "https://" + node + ":" + port +
"/ibm/console/xLaunch.do?pageID=com.ibm.sa.slaweb.navigationElementA";

url = url + "&paramParty=" + party + "&paramSLA=" + sla + "&paramClause=" +
clause + "&paramResource=" + resource;

var sqmWindow = window.open(url);
if(sqmWindow.focus) {
   sqmWindow.focus();
```

```
}
```

6 Launching Tivoli Netcool Customer Experence Manager

The information in this chapter describes how to configure launch items from IBM® Tivoli® Business Service Manager and Tivoli Netcool® WebTop to the Tivoli Netcool Customer Experience Manager application.

6.1 Tivoli Netcool Customer Experience Manager launch parameters

The Tivoli Netcool Customer Experience Manager accepts context information in the URL that is used to open its views.

The root URL that must be opened is as follows:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellularportlet.navigationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellularportlet.navigationElementA
```

6.1.1 Launching the welcome view:

The user can choose to launch the main Tivoli Netcool Customer Experience Manager welcome page without any context. This is achieved by opening the root URL with an additional parameter:

```
&paramView=Welcome
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellularportlet.navigationElementA&paramView=Welcome
```

6.1.2 Launching analysis views

Additional context information can be passed when opening a Tivoli Netcool Customer Experience Manager analysis view providing entity search metadata is defined appropriately. Authors of Customer Relationship Management (CRM) plug-in modules must provide accompanying customer metadata, which is used by the Tivoli Netcool Customer Experience Manager analysis user interface. See the *IBM Tivoli Netcool Customer Experience Manager Customer Relationship Management Development Guide* for full details.

CRM module authors define `licParameter` hints which are intended for use by the launch-in-context mechanism. CRM information about entities (customer, customer group, device, and so on) is defined by metadata typically defined in the following files:

```
/appl/sa/conf/service/cem/repository/cellular-repository.xml
/appl/sa/conf/service/cem/repository/cellular-customer.xml
```

CRM information is also defined by metadata in associated files in the `/appl/sa/conf/service/cem/repository/entities` directory.

The metadata for a given entity defines various attributes such as properties, key properties, associations, and search parameters. Here are some extracts from a sample customer definition with the `licParameter` hints in bold:

```
<entity name="Customer" extends="AbstractEntity">
     <displayname>label.entity.customer</displayname>
     <smallicon>images/customer.png</smallicon>
     <properties>
         <property name="name" displayname="label.property.customer.name"
                   type="java.lang.String"
                   key="true"
                   isLabel="true">
             <rendering-hint name="ordinal" value="0"/>
         </property>
         .
        .
        .
     <search>
         <param>
             <name>name</name>
             <displayname>label.searchparam.customer.name</displayname>
             <type>java.lang.String</type>
             <rendering-hint name="ordinal" value="1"/>
             <rendering-hint name="licParameter"
                    value="paramCustomerName"/>
         </param>
         <param>
             <name>IMSI</name>
             <displayname>label.property.customer.imsi</displayname>
             <type>java.lang.String</type>
             <rendering-hint name="ordinal" value="2"/>
             <rendering-hint name="licParameter"
                    value="paramCustomerID[paramCustomerType=IMSI]"/>
         </param>
         .
        .
        .
     </search>
</entity>
```

The `licParameter` hint has the following two formats:

(1) Basic mapping: provide the URL parameter name (case sensitive)
Example:

```
<rendering-hint name="licParameter" value="paramCustomerGroupID"/>
```

(2) Constrained mapping: provide the URL parameter name, followed by a comma-separated list of constraints between square brackets. Each constraint is of the form `parameterName=parameterValue`.
Example:

```
<rendering-hint name="licParameter"
                                                    value="paramCus
tomerID[paramCustomerType=IMSI]"/>
```

Launching a customer analysis view:

Using the following `licParameter` rendering hint the user can choose to launch the main Tivoli Netcool Customer Experience Manager analysis view for an individual customer, passing the customer ID and type as context. If the customer cannot be found, the user is redirected to the main Tivoli Netcool Customer Experience Management customer search page.
Example:

```
<rendering-hint name="licParameter"
value="paramCustomerID[paramCustomerType=IMSI]"/>
```

The associated launch URL parameters are as follows:

- &paramCustomerID=<Customer ID>
- &paramCustomerType=IMSI

In this example, both parameters must be specified in the launch URL:

- `paramCustomerType` represents the type of the customer, for example, IMSI, BESPIN, or IP address.
- `paramCustomerID` is the unique ID of the customer for a particular customer type.

Example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cem
cellularportlet.navigationElementA&paramCustomerType=IMSI&paramCustomerID=5555500016
```

Launching a customer group analysis view
Using the following `licParameter` rendering hints the user can choose to launch the main Tivoli Netcool Customer Experience Manager analysis view for a customer group, passing the customer group ID or customer group name as context. If the customer group cannot be found, then the user is redirected to the main Tivoli Netcool Customer Experience Manager customer group search page.
Example:

```
<rendering-hint name="licParameter" value="paramCustomerGroupID"/>
      .
      .
<rendering-hint name="licParameter" value="paramCustomerGroupName"/>
```

The associated launch URL parameters are

```
&paramCustomerGroupName=<Customer Group Name>
```

or

```
&paramCustomerGroupID=<Customer Group ID>
```

In this case either one or both of the parameters can be specified in the launch URL.

- `paramCustomerGroupName` represents the name of the customer group
- `paramCustomerGroupID` is the ID of the customer group

Examples:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cem
cellularportlet.navigationElementA&paramCustomerGroupName=IBM

https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cem
cellularportlet.navigationElementA&paramCustomerGroupID=3
```

Launching a device view

Using the following `licParameter` rendering hints the user can choose to launch the main Tivoli Netcool Customer Experience Manager analysis view for a device, passing device name or manufacturer as context. If the device or manufacturer cannot be found, then the user is redirected to the main Tivoli Netcool Customer Experience Manager device search page.

Example:

```
<rendering-hint name="licParameter" value="paramDeviceName"/>
    .
    .
 <rendering-hint name="licParameter" value="paramDeviceManufacturer"/>
```

The associated launch URL parameters are

```
&paramDeviceName=<Device Name>
```

or

```
&paramDeviceManufacturer=<Device Manufacturer>
```

In this case either one or both of the parameters can be specified in the launch URL.

Example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcel
lularportlet.navigationElementA&paramDeviceName=N95&paramDeviceManufacturer=ACME
```

Note: A CRM plug-in may provide a search capability using a unique identifier and in addition search capabilities on one or more non-unique identifiers. If a unique identifier is specified in a launch URL then the other non-unique identifiers are ignored.

For example if the CRM plug-in supports a unique identifier called IMSI and a non-unique identifier called Customer Name and the following URL is specified:

```
paramCustomerId=12345&paramCustomerType=IMSI&paramCustomerName=John Doe
```

then the customer with IMSI=12345 shall be returned, regardless of their name.

6.1.3 Launching search views

The Tivoli Netcool Customer Experience Manager search views can be opened as default instead of the analysis views. The customer, customer group, or device search views can be opened.
A search view is opened as default by including the `&paramView` parameter in the launch URL:

```
&paramView=<Customer | CustomerGroup | Device>
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cem
cellularportlet.navigationElementA&paramView=Customer
```

In addition appropriate customer, customer group or device context information can be passed to the search view. The context definition is similar to that for the analysis view detailed in section 6.1.2. In this case the `licParameter` rendering hints must be defined within a `search` block in the CRM metadata definition.

For example based on the following customer group CRM search metadata:

```
<search>
          .
          .
    <param>
        <name>name</name>
        <displayname>label.searchparam.customergroup.name</displayname>
        <type>java.lang.String</type>
        <rendering-hint name="ordinal" value="0"/>
        <rendering-hint name="licParameter" value="paramCustomerGroupName"/>
    </param>
    <param advanced="true">
        <name>memberName</name>
        <displayname>label.searchparam.customergroup.memberName</displayname>
        <type>java.lang.String</type>
        <rendering-hint name="ordinal" value="1"/>
    </param>
</search>
```

The following URL opens the customer group search view for the “IBM” customer group:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemc
ellularportlet.navigationElementA&paramView=CustomerGroup&paramCustomerGroupName=IBM
```

6.2 SLO monitor launch parameters

The Tivoli Netcool Customer Experience Manager accepts context information in the URL that is used to open its service-level object (SLO) monitor view. The root URL that must be opened is as follows:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonitorportlet.navig
ationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonit
orportlet.navigationElementA
```

In addition, the following are the options available when passing context to the URL:

SLO name:

```
&paramSLO=<Context/SLO Name>
```

Example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slo
monitorportlet.navigationElementA&paramSLO=contextName/SLO123
```

6.3 Tivoli Business Service Manager menu configuration

Follow the steps outlined in section 4.1, using the following parameters:

Enabling service attributes for analysis view launch in context

As with standard Tivoli Business Service Manager mechanisms for console integration, populate Tivoli Business Service Manager services (where appropriate) with additional attributes to enable a launch to the Tivoli Netcool Customer Experience Manager views.

IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceContactInfo:

In many cases, a `sourceContactInfo` tag identifies the URI (host name and port) of the server that supports a web console, which can be used by Tivoli Business Service Manager as the target host system to launch back to. For Tivoli Netcool Customer Experience Manager, set this URI to:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonitorportlet.navigationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellularportlet.navigationElementA
```

If a launch from Tivoli Business Service Manager to the Tivoli Netcool Customer Experience Manager SLO monitor is required, then set this service attribute to:

```
https://<Node>:<Port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonitorportlet.navigationElementA
```

For example:

```
https://thomond.cork.ie.ibm.com:9043/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonitorportlet.navigationElementA
```

IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceToken:

The `sourceToken` attribute for a resource is the ID that this management software uses to identify an instance in terms that it can understand, for example, the context. For Customer Experience Manager, set this attribute to the values outlined in sections 6.1 and 6.2, for example:

```
&paramView=Device&paramDeviceName=N95&paramDeviceManufacturer=ACME
```

The following steps must be performed to make the service attributes available for launch from the Tivoli Business Service Manager Service Viewer portlet:

1. If started, shut down the Tivoli Business Service Manager data server. See the *Tivoli Business Service Manager Administrators Guide* (“*Operating the TBSM Data and Dashboard servers* section”) available from the IBM Tivoli Business Service Manager Information Center at

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

2. Open the `ViewDefinition_MyRelationships.xml` file with the editor of your choice and search for text that includes this `fieldToPassToModelExpr` statement. Find the block of “`fieldToPassToModelExpr`” XML statements within an outer `dataTypeMapping` XML element like the following statements:

   ```
   <dataTypeMapping dataTypeName="ServiceInstanceBean">
   ……
   <fieldToPassToModelExpr
   modelField="IBM_Tivoli_Monitoring_Services_sourceContactInfo">
   IBM_Tivoli_Monitoring_Services_sourceContactInfo
   </fieldToPassToModelExpr>
       </dataTypeMapping>
   ```

3. Add the following statements after the last `fieldToPassToModelExpr` field and before the `</dataTypeMapping>` tag:

   ```
   <fieldToPassToModelExpr modelField=
   "IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceContactInfo">
       IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceContactInfo
                       </fieldToPassToModelExpr>
   ```

```
<fieldToPassToModelExpr modelField=
"IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceToken">
IBM_Tivoli_Netcool_Customer_Experience_Manager_sourceToken
</fieldToPassToModelExpr>
```

The `AttributeName` must match exactly the display name of the attribute in the template (the name is case-sensitive). Save and close the view definition file.

4. Start the Tivoli Business Service Manager data server. See the *Tivoli Business Service Manager Administrators Guide* ("Operating the TBSM Data and Dashboard servers") available from the IBM Tivoli Business Service Manager Information Center at

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

6.4 WebTop menu configuration

As detailed in section 6.1.2 context information can be passed when opening a Tivoli Netcool Customer Experience Manager analysis view providing entity search metadata is defined appropriately.

To create Netcool WebTop menu items for launching Tivoli Netcool Customer Experience Manager, follow the steps outlined in section 4.2. Complete the fields as shown in following example tables and click **Save**.

The following are examples, based on sample 'rendering hints', defined in the CRM data. These examples might differ depending on the actual CRM implementation. The launch URLs must be altered accordingly.

Note: If copying and pasting the script examples below care must be taken to ensure that no new line delimiters are introduced due to wrapping of the text onto a new line.

Name: `LaunchTNCEMCustomerView`

Rendering Hint (example):
```
<rendering-hint name="licParameter"
value="paramCustomerID[paramCustomerType=IMSI]"/>
```

Type: `Script`

URL(example):

```
var customerId = encodeURIComponent("{@TNCEM_CustomerID}");
var customerType = encodeURIComponent("{@TNCEM_CustomerType}");

var url
="https://<hostname>:<port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellu
larportlet.navigationElementA&paramCustomerID=" + customerId +
"&paramCustomerType=" + customerType;

var cemWindow = window.open(url);
if(cemWindow.focus) {
   cemWindow.focus();
}
```

To add a menu item for launching to a customer group analysis view, add the following syntax:

Name: LaunchTNCEMCustomerGroupView

Rendering Hint (example):

```
<rendering-hint name="licParameter" value="paramCustomerGroupID"/>
<rendering-hint name="licParameter" value="paramCustomerGroupName"/>
```

Type: Script

URL(example):

```
var groupName = encodeURIComponent("{@TNCEM_CustomerGroupName}");
var groupId = encodeURIComponent("{@TNCEM_CustomerGroupID}");

var url
="https://<hostname>:<port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellu
larportlet.navigationElementA&paramCustomerGroupName=" + groupName +
"&paramCustomerGroupID=" + groupId;

var cemWindow = window.open(url);
if(cemWindow.focus) {
   cemWindow.focus();
}
```

To add a menu item for launching to a device analysis view, add the following syntax:

Name: LaunchTNCEMDeviceView

Rendering Hint (example):

```
<rendering-hint name="licParameter"
   value="paramDeviceName"/>

<rendering-hint name="licParameter"
   value="paramDeviceManufacturer"/>
```

Type: Script

URL(example):

```
var deviceName = encodeURIComponent("{@TNCEM_DeviceName}");
var manufacturer = encodeURIComponent("{@TNCEM_DeviceManufacturer}");

var url =
"https://<hostname>:<port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.cemcellul
arportlet.navigationElementA&paramDeviceName=" + deviceName +
"&paramDeviceManufacturer=" + manufacturer;

var cemWindow = window.open(url);
if(cemWindow.focus) {
   cemWindow.focus();
}
```

To add a menu item for launching to the SLO monitor view, add the following syntax:

Name: LaunchTNCEMSLOMonitorView

Type: Script

URL:

```
var sloName = encodeURIComponent("{@TNCEM_SLO}");
var contextName = encodeURIComponent("{@TNCEM_ContextName}");

var url
="https://<hostname>:<port>/ibm/console/xLaunch.do?pageID=com.ibm.sa.cem.slomonit
orportlet.navigationElementA&paramSLO=" + contextName + "/" + sloName;

var cemWindow = window.open(url);
```

```
if(cemWindow.focus) {
   cemWindow.focus();
}
```

Additional Notes:

1. In all cases the <*hostname*> and <*port*> parameters must be set to the values used by the Tivoli Netcool Customer Experience Manager server, for example, https://thomond.cork.ie.ibm.com:9043
2. The "encodeURIComponent" JavaScript function is used in the sample URL scripts to deal with special characters in the event fields, e.g. a group name might contain a '#' character. The "encodeURIComponent" function performs a URL encoding of the parameter value making it usable in a launch URL.

   The test "if(cemwindow.focus)" attempts to bring the launched browser window to the foreground on browsers that support this functionality.
3. If an attempt is made to launch to Tivoli Netcool Customer Experience Manager with an invalid context, for example a customer that does not exist, then an error message appears at the bottom of the screen to say

   Launch In Context failed. See flash log for details.

   The following tech note from Adobe explains how to access the appropriate flash log:

   http://kb2.adobe.com/cps/403/kb403009.html

7 Launching KQI history charts and BusinessObjects reports

The information in this chapter describes how key quality indicator (KQI) history charts and BusinessObjects reports can be displayed in IBM® Tivoli® Netcool® Service Quality Management Center dashboards. The Tivoli Netcool Service Quality Manager release 4.1.3 contains an application that can be installed into an existing Tivoli Business Service Manager environment.

The application provides an embedded chart and supporting components that will access the Tivoli Netcool Service Quality Manager database. KQI data will be retrieved and displayed in a chart on a Tivoli Integrated Portal page. This page can then be linked to existing Tivoli Business Service Manager dashboards.

In addition menu items can be added to both Tivoli Business Service Manager and Tivoli Netcool WebTop that will launch external BusinessObjects reports. Context will be passed from the Tivoli Business Service Manager and Tivoli Netcool WebTop applications to the external BusinessObjects reporting system.

7.1 Installation

7.1.1 Preparing for installation

Copy required files

The following files must be copied from the Tivoli Netcool Service Quality Manager system to a location on the Tivoli Business Service Manager dashboard and data servers. All files must be copied to the same target directory on each server. These files should be copied so that they are readable by the user that installed the original Tivoli Business Service Manager system.

If you have a single server containing both the Tivoli Business Service Manager dashboard and data servers, then copy both sets of files into a single directory on that server.

Tivoli Business Service Manager Data Server:

1. An install script:
    - For UNIX or Linux Tivoli Business Service Manager systems copy the following file:
      `$WMCROOT/admin/core-conf/install/scripts/configure_nsbound`
    - For a Windows Server Tivoli Business Service Manager system copy the following file:
      `$WMCROOT/admin/core-conf/install/scripts/configure_nsbound.bat`

2. Chart design files:
    - `$WMCROOT/birt/reports/kqihistory-chart.rptdesign`
    - `$WMCROOT/birt/reports/slokqihistory-chart.rptdesign`

Tivoli Business Service Manager Dashboard Server:

1. An install script:
    - For UNIX or Linux Tivoli Business Service Manager systems copy the following file:
      `$WMCROOT/admin/core-conf/install/scripts/configure_nsbound`
    - For a Windows Server Tivoli Business Service Manager system copy the following file:
      `$WMCROOT/admin/core-conf/install/scripts/configure_nsbound.bat`

2. A jar file containing supporting code:
    - For a Tivoli Netcool Service Quality Manager system running on an AIX system copy following file:
      `$WMCROOT/birt/plugins/aix64-ppc/com.ibm.tnsqm.reports.kqihistory.odadriver.jar`
    - For a Tivoli Netcool Service Quality Manager system running on a Solaris system copy the following file:
      `$WMCROOT/birt/plugins/solaris_sparc/com.ibm.tnsqm.reports.kqihistory.odadriver.jar`

3. A report launcher web archive file (war file):
    - `$WMCROOT/isc/module/report_launcher.war`

Configuring security

Two signer certificates used by the Tivoli Netcool Service Quality Manager server must be added to the Tivoli Business Service Manager server. The entry specified by WSPORT will already have been installed if single sign-on has been enabled (see section 2.3.4). In this case only the second signer certificate specified by `LDAP-SPORT` in the following procedure needs to be configured. See step 9 for further details.

1. Log on to the Tivoli Business Service Manager program, expand **Security**, and click **SSL certificate and key management**.

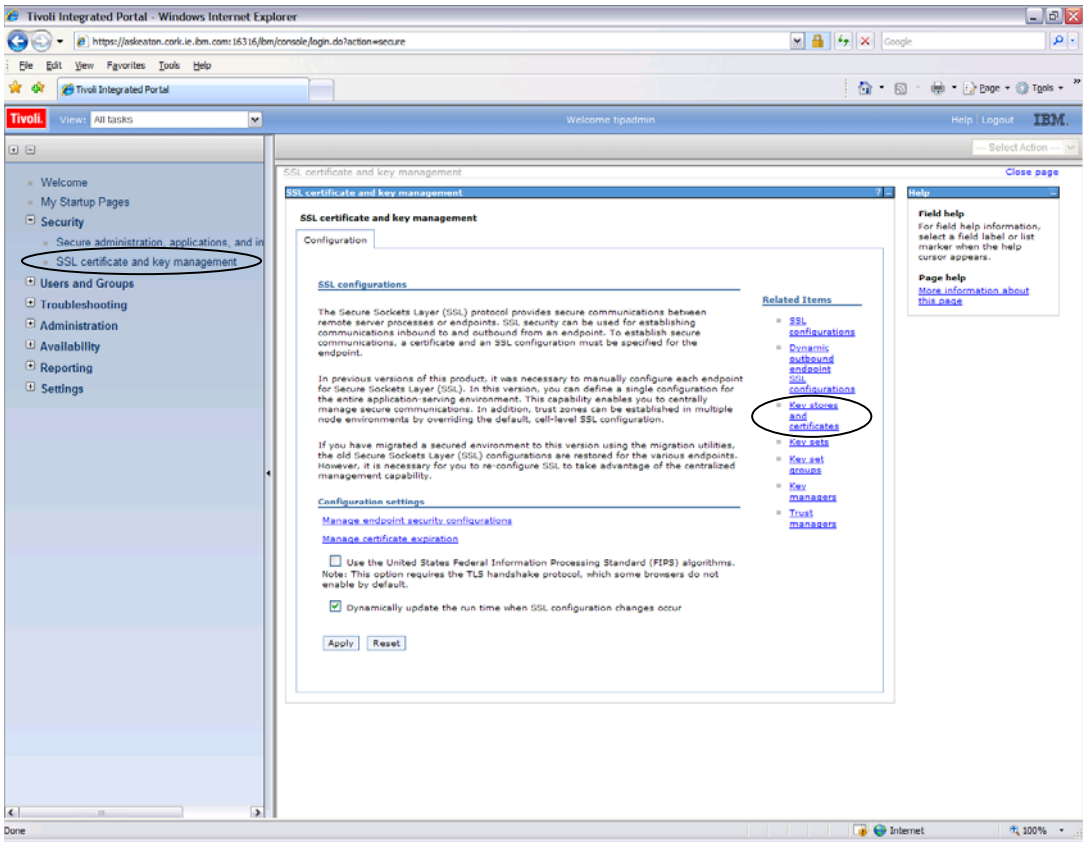

Figure 79: SSL certificate and key management

2. Click **Key stores and certificates**. In the following window, click **NodeDefaultTrustStore**.

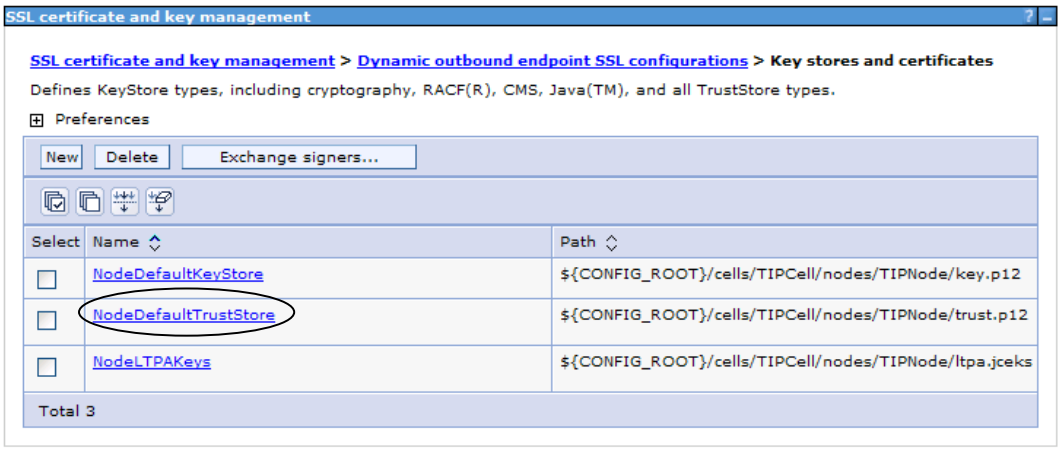

Figure 80: NodeDefaultTrustStore

3. In this window, click **Signer certificates**.

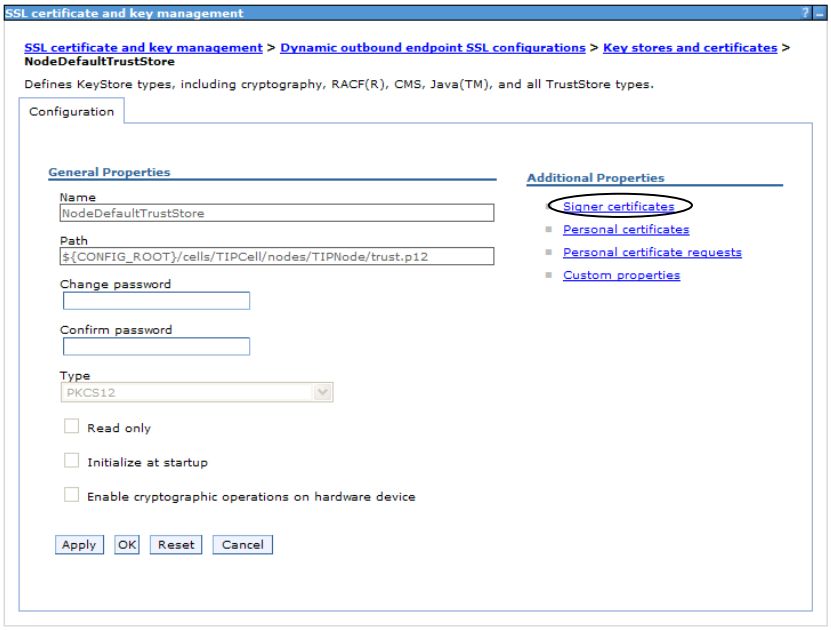

Figure 81: Signer certificates

4. In the **Signer certificates** window, click **Retrieve from port**.

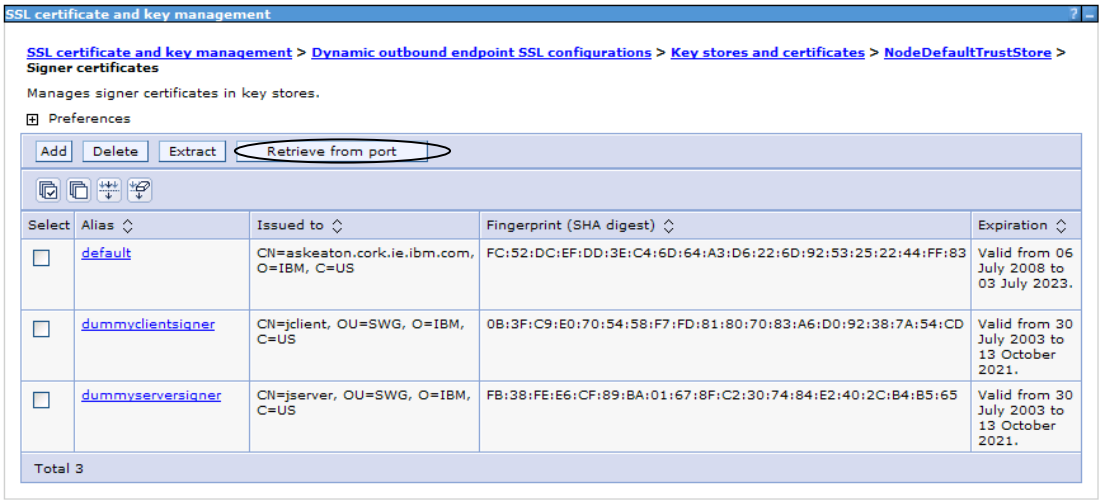

Figure 82: Retrieve from port

5. In the **Retrieve from port** window, enter the host name of the Tivoli Netcool Service Quality Manager or Tivoli Netcool Customer Experience Manager server and set the port, usually to 9043.

   The port number can be retrieved by searching for `WSPORT` in the following Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager file:

   `$WMCROOT/conf/environment`, for example

```
#> grep WSPORT /appl/sa/conf/environment/default.properties
comnitel.env.WSPORT=9043
#>
```

6. Enter an alias name for the Tivoli Netcool Service Quality Manager server and click **Retrieve signer information**.

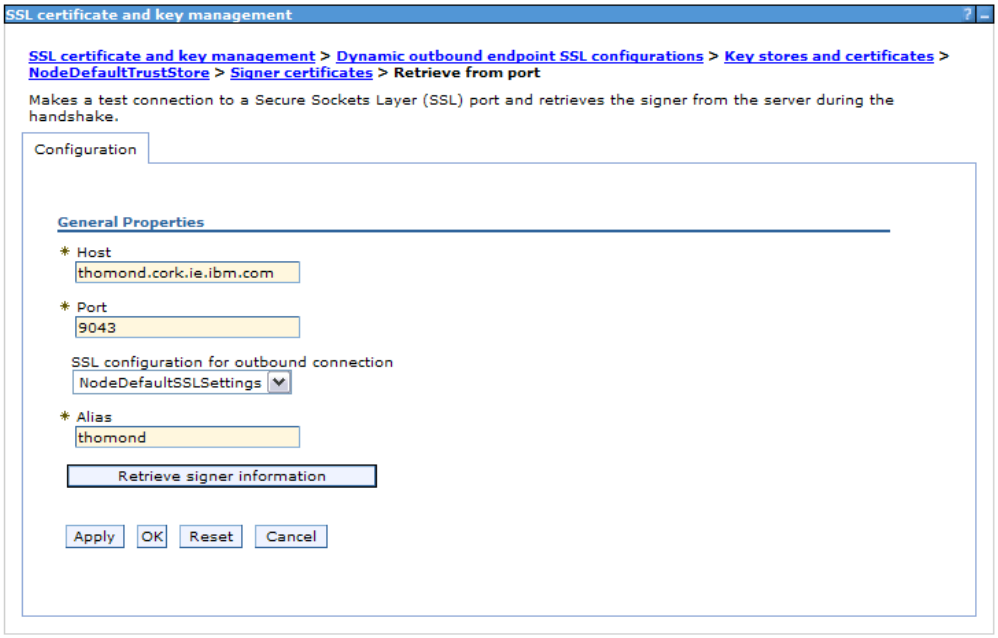

Figure 83: Retrieve signer information

7. Click **Apply** in the following window.

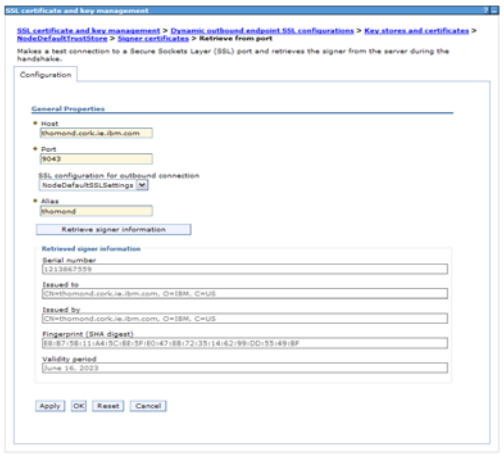

Figure 84: Signer example

8. Click **Save** when the following message is displayed:

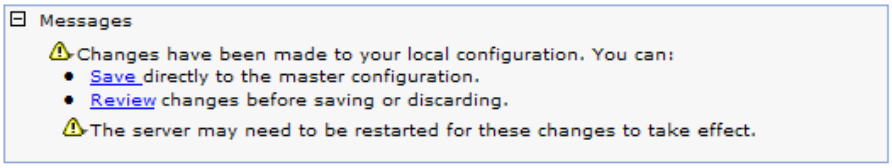

Figure 85: **Confirmation message**

9. Repeat steps 1-8 but for Step 5 use `LDAPSPORT` instead of the `WSPORT`.
   The port number can be retrieved by searching for `LDAPSPORT` in the following Tivoli Netcool Service Quality Manager / Tivoli Netcool Customer Experience Manager file:

   $WMCROOT/conf/environment, for example

   #> grep LDAPSPORT /appl/sa/conf/environment/default.properties
   comnitel.env.LDAPSPORT =1636

   Note that in step 6 a new alias name should be supplied for this entry.

10. To activate all changes, the Tivoli Business Service Manager server (dashboard instance) server must be shut down and restarted.

    Tivoli Business Service Manager:
    See the *Tivoli Business Service Manager Administrators Guide* - "*Operating the TBSM Data and Dashboard servers*" available from the IBM Tivoli Business Service Manager Information Center at

    http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

7.1.2 Installing the KQI history chart and Report Launcher on Tivoli Business Service Manager

The install script must be run as the user that installed the original Tivoli Business Service Manager system. This is a non-root user on UNIX® systems. The installation script will ask the user for several pieces of information. These are:

1. The location of the Tivoli Integrated Portal installation into which to install the chart. This is typically the value of the environment variable TIP_HOME.
2. The Tivoli Integrated Portal profile name. This is typically TIPProfile.
3. The Tivoli Business Service Manager profile name. This is typically TBSMProfile.
4. The Tivoli Integrated Portal Administrator username. This is the username used to administer the Tivoli Integrated Portal installation, for example: tipadmin.
5. The Tivoli Integrated Portal Administrator password. This is the password used to administer the Tivoli Integrated Portal installation.
6. The location of the jar file copied from Step 3 in Section 7.1.1.
7. The location of the chart files copied from Step 2 in Section 7.1.1.

The script will install the charts and report launcher components and restart Tivoli Integrated Portal. The script logs information to files with names like *configure_nsbound.12345.log* in the `$TIP_HOME/logs/tnsqmlogs` directory.

Important: If you have hosted the Tivoli Business Service Manager data and dashboard servers on separate platforms, then you must run the installation script on both platforms.

To start installation on Windows server platform

To install the charts and report launcher components on a Tivoli Business Service Manager Windows® server system open a command prompt and change to the directory to which the batch file (`configure_nsbound.bat`, see Step 1 in Section 7.1.1) was copied. Execute the following command as the user that originally installed Tivoli Business Service Manager:

```
# configure_nsbound.bat
```

To start the installation on a platform other than Windows

To install the charts and report launcher components on a Tivoli Business Service Manager system other than a Windows server open a shell and change to the directory to which the script file (`configure_nsbound`, see Step 1 in Section 7.1.1) was copied.

Note: The script should have execute permissions for the user that originally installed Tivoli Business Service Manager.

Execute the script as the user that originally installed Tivoli Business Service Manager with:

```
# chmod +x configure_nsbound
# ./configure_nsbound
```

Installation information

As part of the installation a directory called `tnsqmlogs` will be created inside the `logs` directory in the Tivoli Integrated Portal installation directory (specified in Step 1, Section 7.1.2). The installation will log information here. The amount of information logged can be changed by editing the property `comnitel.log.level` in `$WMCROOT/conf/logging/default.properties.user` in the Tivoli Netcool Service Quality Manager configuration. See the *IBM Tivoli Netcool Service Quality Manager AIX and Solaris System Administration Guide* for full details of how to do this.

7.1.3 Uploading the charts to portal pages

The KQI history charts delivered with Tivoli Netcool Service Quality Manager can be added to a Tivoli Integrated Portal page. This section describes how to create a new portal page and add a KQI history chart to that page for subsequent launch from other portlets.

Note: Two charts are supplied. Ther first chart (kqihistory-chart.rptdesign) should be used to plot the KQI history for an SLA clause or the KQI history for a resource.

The second chart (slokqihistory-chart.rptdesign) should be used to plot the KQI history associated with a Tivoli Netcool Service Quality Manager service level objective (SLO).

1. As a user with appropriate privileges, log in to the Tivoli Business Service Manager. Select **Page Management** from the left-hand navigation area under **Settings**. The page shown in Figure 86 is displayed.

2. Click the **New Page** button.

3. On this page, select the **Charting** portlet and click **OK**.

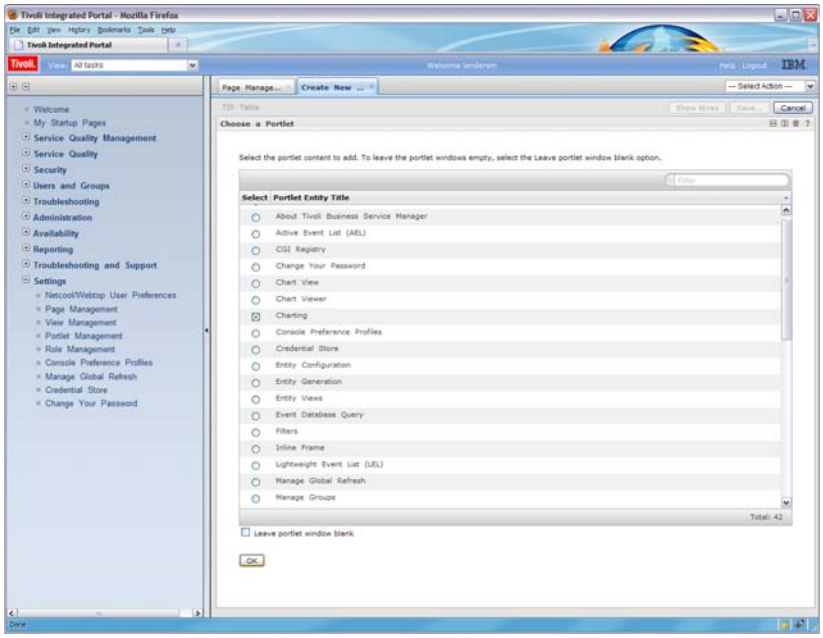

Figure 86: Page Management

4. Select the **Tivoli Charts** icon and then select the **TBSMChartService** and click **Next**.

5. Select **TBSM Custom Charts** from the Groups drop-down list. A list of installed charts should appear. Select **kqihistory-chart** from the list and click **Finish**.

6. Since this KQI history chart is normally opened with context from another portlet, an error dialog similar to the following will appear when the chart is first uploaded to the page. This error can be ignored by clicking **OK.**

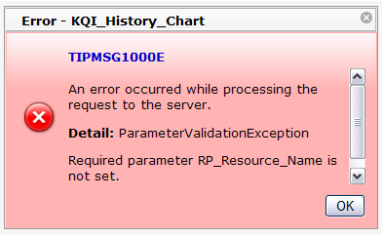

Figure 87: Error dialog

7. Click the Publish button  and choose “Share Preferences” from the drop-down. A dialog will appear showing a “Save Complete” message. Click Close in this dialog.
8. Click Save to save the page to a suitable location.

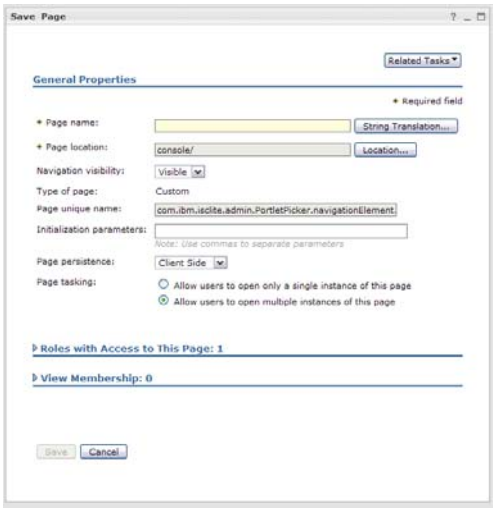

Figure 88: Page properties

Note: The page unique name should be noted as it will be used in a subsequent section to configure a launch menu, for example:

`com.ibm.isclite.admin.PortletPicker.navigationElement.pagelayoutA.modified.1278439001531`

The same error dialog that appeared in step 6 will again be displayed and can be ignored by clicking **OK**.

9. Create a second page by repeating steps two to eight, except that in step 5 you should select **slokqihistory-chart** from the list of available charts. Note that the error dialog detailed in steps 6 and 8 will occur again and can be ignored.

7.1.4 Updating Tivoli Business Service Manager and WebTop menu items

As detailed in section 4.1 new “action” menu items can be added to the standard Tivoli Business Service Manager context sensitive menus. For example when a new action is created for a specific view definition (a Tivoli Business Service Manager service viewer component) then an XML definition describing the action is created and inserted into an existing file called `canvasOpenURLActions.xml`.

In the following section menu items to open a new Tivoli Integrated Portal page containing a KQI history chart and to launch BusinessObjects reports are added. The relevant XML files that control action behavior are located in the following directory:

UNIX: `$TBSM_DATA_SERVER_HOME/av/xmlconfig`

Windows: `%TBSM_DATA_SERVER_HOME%\av\xmlconfig`

IMPORTANT: These techniques are advanced. All manually changed files must be backed up first. If you introduce an error in your XML file, you may not be able to see some or all of your right-click menu options, so introduce each change independently so that you can troubleshoot any errors.

Similarly section 4.2 describes how new menu items can be added to the WebTop Active Event List. The following sections of this chapter detail how WebTop menu items can be added in order to launch KQI history charts and BusinessObjects reports from the Active Event List.

7.2 KQI history chart configuration and usage

7.2.1 Opening KQI history chart from Tivoli Business Service Manager Service Tree

This section describes how to add a new "KQI History" menu item to the existing Tivoli Business Service Manager launch menu. This menu item should itself contain a number of sub-menu items for different time periods:

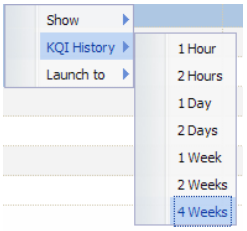

Figure 89: KQI History menu

1. The first step involves editing the `canvasDynamicSubMenuActions.xml` file and adding items corresponding to the launch menu. Edit this file and add the following entries:

Note: If copying and pasting the script examples below care must be taken to ensure that no new line delimiters are introduced due to wrapping of the text onto a new line.

```
 <dynamicSubMenuAction
    name = "KQITools" displayName = "KQI History"
    description = "View KQI information about selected instance."
    roleRequired = "tbsmViewService"
    permissionCheckerClassName =
"com.micromuse.sla.map.AVCheckRADInstancePermissionsImpl">
    <nextAction name = "ShowKQIHistoryOneHour"/>
    <nextAction name = "ShowKQIHistoryTwoHours"/>
    <nextAction name = "ShowKQIHistoryOneDay"/>
    <nextAction name = "ShowKQIHistoryTwoDays"/>
    <nextAction name = "ShowKQIHistoryOneWeek"/>
    <nextAction name = "ShowKQIHistoryTwoWeeks"/>
    <nextAction name = "ShowKQIHistoryFourWeeks"/>
```

```
</dynamicSubMenuAction>
```

2. To make the launch menu visible in the Tivoli Business Service Manager Service Tree portlet update the `treeTemplates.xml` file and add the following entry as described in section 4.1.8.

```
<actionMapping
clickType = "~popupMenu"
actionName = "KQITools"/>
```

3. The next step involves editing the `canvasOpenURLActions.xml` file and adding items to open portal page containing the KQI history chart. Edit this file and add entries like the following for each menu item (such as nextAction) defined in the `canvasDynamicSubMenuActions.xml` file:

```
<openURLAction description="Show KQI history chart (1 hour)."
    displayName="1 Hour"
    enableDisableExpression="'__model_name__' != 'NULL'"
      name="ShowKQIHistoryOneHour"  permissionCheckerClass-
Name="com.micromuse.sla.map.AVCheckRADInstanceP ermissionsImpl"
    roleRequired="ncw_user"
    target="javascript:new parent.TBSM_executeCMSAction(__URL__);"
visibleInGUI="true">
  {
    "portletPageID": "__kqihistory_page_id__",
    "sendToSelf": "false",
    "portletNamespace": "__portletNamespace__",
    "iscNamespace": "__iscNamespace__",
    "launchType": "PORTAL_PAGE",
    "parameters": [
      { "name": "customer_name", "value": "__customer_name__"},
          { "name": "sla_name", "value": "__sla_name__"},
          { "name": "sla_clause_name", "value": "__sla_clause_name__"},
          { "name": "slo_name", "value": "__slo_name__"},
          { "name": "model_name", "value": "__model_name__"},
          { "name": "resource_name", "value": "__resource_name__"},
          { "name": "rollup_level", "value": "__rollup_level__"},
          { "name": "start", "value": "__start__"},
          { "name": "end", "value": "__end__"},
     { "name": "period", "value": "60"},
     { "name": "periodText", "value": "1 hour"},
     { "name": "include_kqi_data", "value": "__include_kqi_data__"},
     { "name": "targetURL", "value": "__targetURL__"}
                 ]
   }
  </openURLAction>
```

The portletPageID (“__kqihistory_page_id__” in the example above) refers to a parameter which is passed from the currently selected item in the Tivoli Business Service Manager service tree or service viewer via substitution variable references.

This value of this parameter in the corresponding service instance should be set to the page unique name according to the pages created in section 7.1.1. It should refer to the page containing the **kqihistory-chart** for an SLA clause or KQI. It should refer to the page containing the **slokqihistory-chart** for an SLO.

1. Stop and start the Tivoli Business Service Manager data server. See the *Tivoli Business Service Manager Administrators Guide* (*Operating the TBSM Data and Dashboard servers* section) available from the IBM Tivoli Business Service Manager Information Center at

   http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

The sample entry opens a new portal page which contains the new KQI history chart. The chart accepts a number of parameters which are passed from the currently selected item in the Tivoli Business Service Manager service tree or service viewer via substitution variable references. See section 4.1 for more details.

Parameter	***Description***
`customer_name` Note 1	The name of the provider party associated with the SLA in the Tivoli Netcool Service Quality Manager system.
`sla_name` Note 1	The SLA name in the Tivoli Netcool Service Quality Manager system.
`sla_clause_name` Note 1	The SLA clause name in the Tivoli Netcool Service Quality Manager system.
`slo_name` Note 1	The SLO name in the Tivoli Netcool Service Quality Manager system.
`model_name` Note 1	The KQI model name (not the KQI friendly name, for example: AttachDur_Gb_CellArea_PP instead of “Average Attach Duration”).
`resource_name`	A semi-colon separated resource list, for example: for a simple resource type this could be “SGSN_34”, for a hierarchical resource type this could be “USA;West;Atlanta;Cell_123”.
`rollup_level (optional)`	The rollup level, for example: for a hierarchical resource type like Location (Nation / Region / Market / Area), this could be “Market”. For a composite resource type where more than one dimension is being specified, then a comma separated list should be specified, for example: “Enterprise, SGSN”. If this parameter is not specified, then the default rollup level defined in the KQI model will be used.
`start (optional)` Note 2	A start time for the KQI history chart, specifed as DD-MM-YYYY HH:MM.
`end (optional)` Note 2	An end time for the KQI history chart, specifed as DD-MM-YYYY HH:MM.
`period (optional)` Note 2	A time period for the KQI history chart (in minutes)
`periodText (optional)`	An optional string that will be displayed in the chart indicating the period for which the chart is displaying data, for example:. “last 2 hours”.
`include_kqi_data (optional)`	Include un-assessed KQI values in the chart (only relevant if a full customer_name, sla_name and sla_clause_name has been specified

	– see note 1 below). This parameter can be set to “true” to include the un-assessed KQI values or `false` to exclude them.
`targetURL (optional)` [Note 3]	A URL that can be launched from the KQI history chart

Note: The KQI history chart can be opened using one of three methods:

(1) SLA Clause Name

In this case the associated party name and SLA name must be specified along with the SLA clause name and KQI model_name The SLO name should be set to “DUMMY_PARAM”.

(2) SLO Definition

In this case the SLO name and KQI model_name must be specified. The party name, SLA name and SLA clause name should be set to “DUMMY_PARAM”.

(3) KQI Model Definition

In this case only the KQI model name should be populated. The party name, SLA name, SLA clause name and SLO name should be set to “DUMMY_PARAM”.

Note: The time period for the chart can be specified using one of two methods:

(1) Start/End Time

In this case the start and end fields should be specified. The period parameter should be set to “DUMMY_PARAM”.

(2) Time Period

In this case a specified period in minutes must be specified, for example: “60” for the last 60 minutes. The start and end parameters should be set to “DUMMY_PARAM”.

Note: Setting targetURL to launch default Business Objects report

In order to launch the default Business Objects report for a resource directly from the KQI history chart, then set the targetURL additional attribute in your service model as follows:

https://<TIP_hostname>:<TIP_port>/ibm/report_launcher/TNSQMReportServlet?model_name=<KQI_MODEL_NAME>&resource_name=<TNSQM_RESOURCE_NAME>&rollup_level=<TNSQM_ROLLUP_LEVEL>

For example targetURL could be set to the following to launch the default Business Objects report for the resource "Cheap Calls Ltd. - MVNO" and the KQI "MSPdpActSR_Gb_Enterprise_PP":

https://brureez1.cork.ie.ibm.com:16316/ibm/report_launcher/TNSQMReportServlet?model_name=MSPdpActSR_Gb_Enterprise_PP&resource_name=Cheap Calls Ltd. - MVNO&rollup_level=CallType

7.2.2 Opening KQI history chart from WebTop Active Event List

As detailed in section 4.2 a menu item can be added to the WebTop Active Event List which will allow the user to select an event and launch a KQI history chart for the context specified by the event. The KQI history chart can be opened from both SLA events and SLO events generated by the Tivoli Netcool Service Quality Manger.

Follow the steps outlined in section 4.2. Fill the fields as in the following table and click **Save**. Note that the NavigationNode needs to contain a reference to the portal pages containing the KQI history charts as described in section 7.1.1, for example:

Note: If copying and pasting the script example below care must be taken to ensure that no new line deliminators are introduced due to wrapping of the text onto a new line.

Name: `LaunchKQIHistory1Hour`

Type: `Script`

Script Command:

```
var navigation_node = null;
var customer_name = null;
var sla_name = null;
var sla_clause_name = null;
var slo_name = "{@TNSQM_SQMSLO}";

if (!slo_name) {
navigation_node =
"com.ibm.isclite.admin.PortletPicker.navigationElement.pagelayoutA.modified.12819
48848802";
customer_name = "{@Customer}";
sla_name = "{@TNSQM_SLA}";
sla_clause_name = "{@TNSQM_ClauseName}";
slo_name = "DUMMY_PARAM";
} else {
navigation_node =
"com.ibm.isclite.admin.PortletPicker.navigationElement.pagelayoutA.modified.12820
33551036";
customer_name = "DUMMY_PARAM";
sla_name = "DUMMY_PARAM";
```

```
sla_clause_name = "DUMMY_PARAM";
}

var model_name = "{@TNSQM_KQI}";
var resource_name = "{@TNSQM_ResourceName}";
var rollup_level= "{@TNSQM_RollupLevel}";
var period = "60";
var periodText = "last hour";

var m1 = encodeURIComponent(model_name);
var r1 = encodeURIComponent(resource_name);
var l1 = encodeURIComponent(rollup_level);

var targetURL =
"https://brureez1.cork.ie.ibm.com:16316/ibm/report_launcher/TNSQMReportServlet?mo
del_name=" + m1 + "&resource_name=" + r1 + "&rollup_level=" + l1 + "&period=" +
period;

var eventObject =
   {
'name': 'http://ibm.com/isclite#launchPage',
'NavigationNode': navigation_node,
'pageInstanceRef': 'null',
'switchPage': 'true',
'customer_name': customer_name,
'sla_name': sla_name,
'sla_clause_name': sla_clause_name,
'slo_name': slo_name,
'resource_name' : resource_name,
'model_name': model_name,
'rollup_level': rollup_level,
'period': period,
'periodText': periodText,
'targetURL': targetURL
   };

    {$appletparam.portletNamespace}sendPortletEvent( eventObject );
```

Repeat this process for each item you want to add to the KQI history menu in WebTop, altering the `period` and `periodText` variable for each menu item.

7.2.3 Opening KQI history chart directly from Tivoli Integrated Portal

The chart can also be opened directly from the Tivoli Integrated Portal menus. In this case the user must supply all required parameters. Click the page you created from section 7.1.2. An error like the one below will appear due to the lack of required parameters.

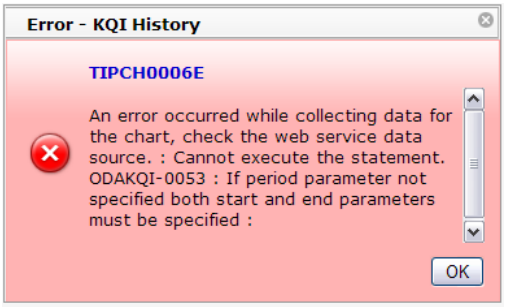

Figure 90: Chart error dialog

1. Click **OK** and then expand the chart controls by clicking the button highlighted below.

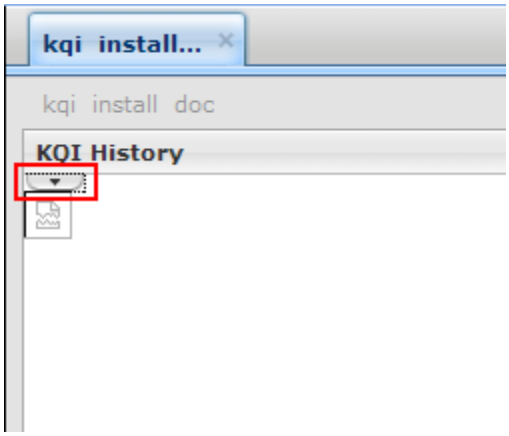

Figure 91: Chart menu

2. Click the **Preferences** button highlighted below.

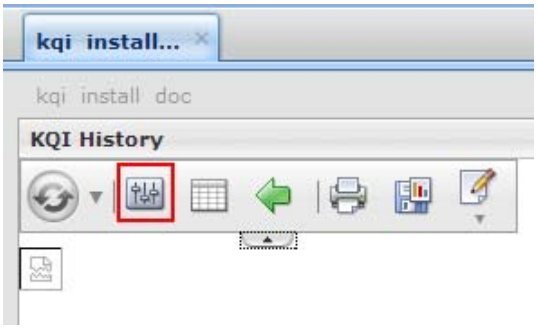

Figure 92: Preferences button

3. A window like the one below will appear. Select the **Parameters** tab, enter the required parameters (see Section 7.2.1 for an overview of each parameter) and click **OK**.

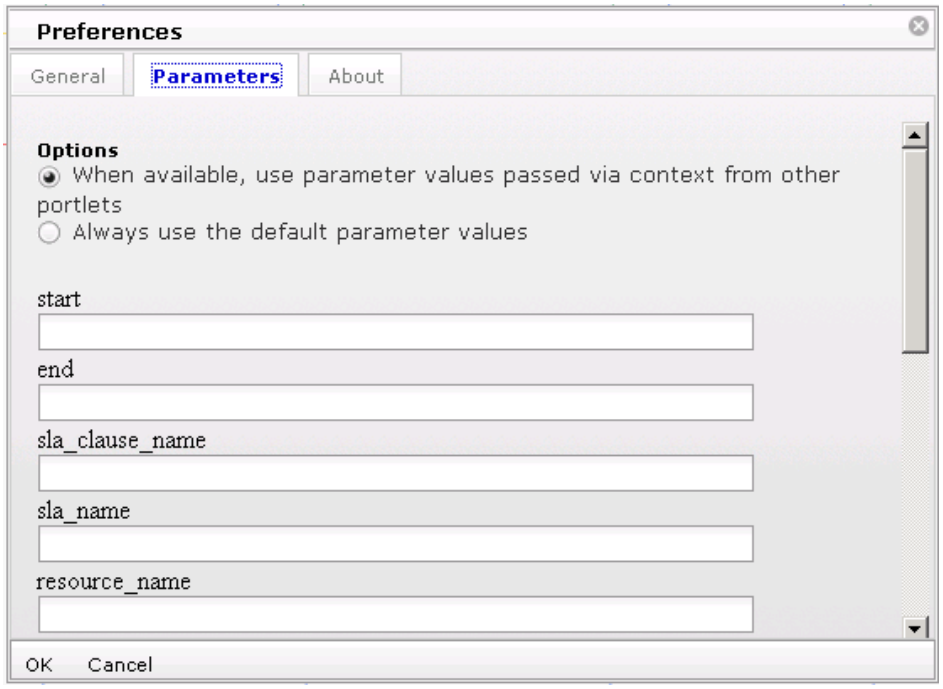

Figure 93: Chart parameters

7.3 Uninstalling the KQI history chart and Report Launcher on Tivoli Business Service Manager

The uninstall script must be run as the user that installed the original Tivoli Business Service Manager system. This is a non-root user on UNIX systems. The uninstallation script will ask the user for several pieces of information. These are:

1) The location of the Tivoli Integrated Portal installation into which to install the chart. This is typically the value of the environment variable `TIP_HOME`.
2) The Tivoli Integrated Portal profile name. This is typically `TIPProfile`.
3) The Tivoli Business Service Manager profile name. This is typically `TBSMProfile`.
4) The Tivoli Integrated Portal Administrator username. This is the username used to administer the Tivoli Integrated Portal installation, for example: tipadmin.
5) The Tivoli Integrated Portal Administrator password. This is the password used to administer the Tivoli Integrated Portal installation.

The script will uninstall the charts and report launcher components and restart Tivoli Integrated Portal. The script logs information to files with names like *configure_nsbound.12345.log* in the `$TIP_HOME/logs/tnsqm` directory.

Important: If you have hosted the Tivoli Business Service Manager data and dashboard servers on separate platforms, then you must run the uninstallation script on both platforms.

To start uninstallation on Windows server platform

To uninstall the charts and report launcher components on a Tivoli Business Service Manager Windows server system open a command prompt and change to the directory to which the batch file (`configure_nsbound.bat`, see Step 1 in Section 7.1.1) was copied. Execute the following command as the user that originally installed Tivoli Business Service Manager :

```
# configure_nsbound.bat -remove
```

To start the uninstallation on a platform other than Windows

To uninstall the charts and report launcher components on a Tivoli Business Service Manager system other than a Windows server open a shell and change to the directory to which the script file (`configure_nsbound`, see Step 1 in Section 7.1.1) was copied. Execute it as the user that originally installed Tivoli Business Service Manager with:

```
# ./configure_nsbound -remove
```

Installation information

As part of the uninstallation a directory called `tnsqmlogs` will be updated inside the `logs` directory in the Tivoli Integrated Portal installation directory (specified in Step 1, Section 7.1.2). The uninstall will log information here. The amount of information logged can be changed by editing the property `comnitel.log.level` in `$WMCROOT/conf/logging/default.properties.user` in the Tivoli Netcool Service Quality Manager configuration. See the *IBM Tivoli Netcool Service Quality Manager AIX and Solaris System Administration Guide* for full details of how to do this.

Once the uninstallation is complete, then any Tivoli Business Service Manager pages referencing these charts should be updated or deleted.

7.4 Additional Notes

SLO Rule Processing

If an SLO is created with two or more rules with equal priority which are evaluated against the same set of resources, then when a batch of input data is processed, two or more data points will exist for each resource (a data point will exist for each rule per resource). This means that when the SLO history chart is opened, multiple data points will be displayed in the chart for each time period where the SLO was evaluated.

Changing saserver LDAP password

If the saserver LDAP password is changed on the Tivoli Netcool Service Quality Manager core server (via the **update_ldap_password** command), then the password change must be manually propogated to the report launcher component on the Tivoli Business Service Manager dashboard server. This is achieved via the following steps:

1. Display the new encrypted saserver LDAP password on the Tivoli Netcool Service Quality Manager core server by running the following command as user saserver:

```
# grep credentials ${WMCROOT}/conf/ldap/default.properties
```

A line like the following will be displayed:

```
java.naming.security.credentials=@AES@:54F37930938A0557E7A7EFCF3D010DBC
```

2. On the Tivoli Business Service Manager dashboard server edit the **configure_nsbound** (or **configure_nsbound.bat** script for a Windows platform). See section 7.1 for details of the location of this file. Replace the encrypted password with the new value. Search for a line like the following line in the file and replace the value with the new value displayed in step 1.

   ```
   SQMLDAP_PASSWD=@AES@:1E87D72B20881ED1E492C4880B61175F
   ```

   Save the updated **configure_nsbound** file (or **configure_nsbound.bat** for a Windows platform).

3. Uninstall and re-install the KQI history charts and report launcher components as described in this chapter, i.e. run the following commands:

   UNIX:
   ```
   # configure_nsbound –remove
   # configure_nsbound
   ```
   Windows:
   ```
   # configure_nsbound.bat –remove
   # configure_nsbound.bat
   ```

   See sections 7.1 and 7.3 for further details.

7.5 Business Objects Report Configuration

7.5.1 Launching a BusinessObjects report from Tivoli Business Service Manager service tree

This section describes how to add a new menu item to the existing Tivoli Business Service Manager launch menu:

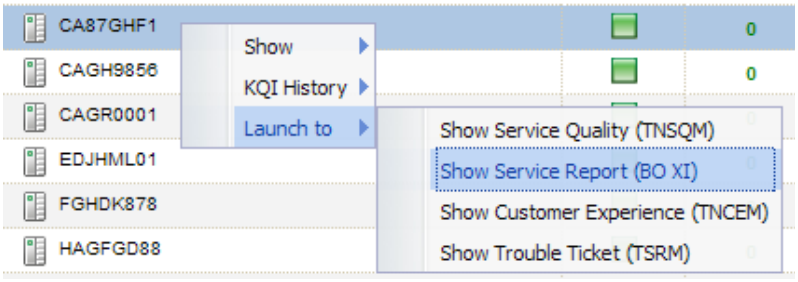

Figure 94: Launch BusinessObjects Menu

1. The first step involves editing the `canvasDynamicSubMenuActions.xml` file and adding the item corresponding to the launch menu. Edit this file and add the following "ShowServiceReport" entry to the "Launch to" submenu:

```
<dynamicSubMenuAction
  name = "IntegrationTools"
  displayName = "Launch to"
  .
  .
  .

  <!-- Old Menu Items -->
  <nextAction name = "ShowServiceReport"/>
  <!-- End: Old Menu Items -->

</dynamicSubMenuAction>
```

2. The next step involves editing the `canvasOpenURLActions.xml` file and adding the item to launch the BusinessObjects report. Edit this file and add and entry like the following for the menu item (such as: nextAction) defined in the `canvasDynamicSubMenuActions.xml` file:

Note: If copying and pasting the script example below care must be taken to ensure that no new line deliminators are introduced due to wrapping of the text onto a new line

```
<openURLAction description="Show Service Report" displayName="Show Service
Report (BO XI)" enableDisableExpression="" name="ShowServiceReport" permis-
sionCheckerClass-
```

```
Name="com.micromuse.sla.map.AVCheckRADInstancePermissionsImpl" roleRe-
quired="tbsmViewService" target="javascript:new par-
ent.TBSM_executeCMSAction(__URL__);" visibleInGUI="true">
       {
         "uri": "
dojo.registerModulePath('com.ibm.tivoli.unitas','/ibm/report_launcher/js/mod
ules/com/ibm/tivoli/unitas');dojo.require('com.ibm.tivoli.unitas.js.widget.r
eportSelectorDialog.ReportSelectorDialog');var dialogArgs = { dialogWidth:
'400',dialogHeight: '450',model_name: '__model_name__',resource_name:
'__resource_name__',rollup_level: '__rollup_level__',start: '__start__',end:
'__end__',
frameSrc:'/ibm/report_launcher/boreports/boReports.jsp',autoHeight:10};var
popup = new
com.ibm.tivoli.unitas.js.widget.reportSelectorDialog.ReportSelectorDialog(di
alogArgs);popup.show();", "sendToSelf": "false", "launchType": "JavaScript"
       }
  </openURLAction>
```

The report launcher accepts a number of parameters which are passed from the currently selected item in the Tivoli Business Service Manager service tree or service viewer via substitution variable references. These references are the attribute name with a double underscore appended before and after the name, such as `__attributeName__`. See section 4.1 for more details.

In this example, the KQI name used by the report launcher is passed from the Tivoli Business Service Manager service instance via the "__resource_name__" additional attribute and the KQI model name via the "__model_name__" additional attribute. These must be changed according to your particular service configuration.

Parameter	***Description***
`model_name`	The KQI model name (not the KQI friendly name, for example: AttachDur_Gb_CellArea_PP instead of "Average Attach Duration").
`resource_name (optional)`	A semi-colon separated resource list, for example: for a simple resource type this could be "SGSN_34", for a hierarchical resource type this could be "USA;West;Atlanta;Cell_123".
`start (optional)`	A start time for the KQI history chart, the date format used must match that of the Business Objects server.
`end (optional)`	An end time for the KQI history chart, the date format used must match that of the Business Objects server.

7.5.2 Opening a BusinessObjects report from WebTop Active Event List

As detailed in section 4.2 a menu item can be added to the WebTop Active Event List which allows you to select an event and launch a BusinessObjects report for the context specified by the event. The BusinessObjects report can be opened from both SLA events and SLO events generated by the Tivoli Netcool Service Quality Manger. The following is an example of a menu item that passes start and end times to the Business Objects report. In this example, the end time is set to the current time and the start time is set to one hour previously. Similar menu items can be added for other durations, for example, 1 day, 1 week and so on, by adjusting the

start time variable in the script. To change the start time variable in the script replace the 3600000 milliseconds value.

Follow the steps outlined in section 4.2. Fill the fields as in the following sample and click **Save**.

Note: If copying and pasting the script example below care must be taken to ensure that no new line deliminators are introduced due to wrapping of the text onto a new line

Name: LaunchBOReport1Hour

Type: Script

Script Commands:

```
dojo.require('dojo.string');
var endDate = new Date();
var startDate = new Date();
startDate.setTime(endDate.getTime() - 3600000);

var start = dojo.string.pad(startDate.getDate(), 2) + "/" + dojo.string.pad((sta
rtDate.getMonth() + 1), 2) + "/" + startDate.getFullYear() + " " + dojo.string.p
ad(startDate.getHours(), 2) + ":" + dojo.string.pad(startDate.getMinutes(), 2) + ":"
+ dojo.string.pad(startDate.getSeconds(), 2);
var end = dojo.string.pad(endDate.getDate(), 2) + "/" + dojo.string.pad((endDate
.getMonth() + 1), 2) + "/" + endDate.getFullYear() + " " + dojo.string.pad(endDa
te.getHours(), 2) + ":" + dojo.string.pad(endDate.getMinutes(), 2) + ":" +
dojo.string.pad(endDate.getSeconds(), 2);

var model_name = "{@TNSQM_KQI}";
var resource_name = "{@TNSQM_ResourceName}";
var rollup_level = "{@TNSQM_RollupLevel}";

var tableArray = dojo.query(".isc-portlet-bkg-normal");
var elementHideId = "unitas.dialog.hide";
tableArray[0].id=elementHideId;
dojo.registerModulePath('com.ibm.tivoli.unitas','/ibm/report_launcher/js/modules
/com/ibm/tivoli/unitas');
dojo.require('com.ibm.tivoli.unitas.js.widget.reportSelectorDialog.ReportSelecto
rDialog');
var dialogArgs = { dialogWidth: '400',dialogHeight: '400',model_name:model_name,
re-
source_name:resource_name,rollup_level:rollup_level,start:start,end:end,frameSrc:'/ib
m/report_launcher/boreports/boReports.j
sp',autoHeight:16,elementsToHide:[elementHideId]};
var popup = new com.ibm.tivoli.unitas.js.widget.reportSelectorDialog.ReportSelec
torDialog(dialogArgs);
popup.show();
```

Note: In the example, the dates are defined in European format (dd/mm/yyyy HH:mm:ss). If required, these can be defined in US format (mm/dd/yyyy HH:mm:ss).

8 Launching Resource Viewer

8.1 Preparing for installation

Complete the following steps to install the Resource Viewer on Tivoli Business Service Manager.

8.1.1 Copy required files

The following files must be copied from the IBM® Tivoli® Netcool® Service Quality Manager system to a location on the Tivoli Business Service Manager Dashboard server. All files must be copied to the same target directory on the server. These files must be copied so that the user that installed the original Tivoli Business Service Manager system has read access.

Tivoli Business Service Manager Dashboard Server:

1. An install script:

   ```
   $WMCROOT/admin/core-conf/install/scripts/configure_nsbound
   ```

2. The resource viewer launcher web archive file (war file):
   ```
   $WMCROOT/isc/module/resource_viewer.war
   ```

8.1.2 Gather required information

When installing the Resource Viewer, the installation script prompts you for the values of several configuration variables. These are used to populate servlet initialization parameters in the application's web deployment descriptor. Before running the installation script, determine the appropriate values for these variables.

The prompts are as follows:

- Enter the SLA KQI History chart page unique name

  This is the unique page name assigned to the service-level agreement (SLA) key quality indictator (KQI) History Chart. See Section 7.1.3, step 8, for details on where this unique name is defined. This value is saved to the application's deployment descriptor as the value of the initialization parameter `sla.kqi.history.navnode`.

- Enterthe SLO KQI History chart page unique name

  This is the unique page name assigned to the service-level objective (SLO) KQI History Chart. See Section 7.1.3, step 8, for details on where this unique name is defined. This value is saved to the application's deployment descriptor as the value of the initialization parameter `slo.kqi.history.navnode`.

- Enter the Report Launcher context root

  This is the context root of the Report Launcher web application. Unless the application's context root has been manually changed to a value other than the default, accept the default

value, `/ibm/report_launcher`. This value is saved to the application's deployment descriptor as the value of the initialization parameter `report.context.root`.

- Enter the Report Launcher target URL

  This is the URL at which the ReportServlet has been deployed as part of the Report Launcher installation. The URL is used by the Resource Viewer Portlet to open the Report Launcher dialog, and as such must have the format given below.

  ```
  <proto-
  col>://<host>:<port>/<contextpath>/<servletname>?model_name={0}&amp;r
  esource_name={1}&amp;rollup_level={2}
  ```

  The installation script will suggest a default value using the default values configured by the Report Launcher installation script, `configure_nsbound`, e.g.

  ```
  https://<hostname>:16316/ibm/report_launcher/TNSQMReportServlet?model
  _name={0}&amp;resource_name={1}&amp;rollup_level={2}
  ```

  This value is saved to the application's deployment descriptor as the value of the initialization parameter `report.target.url`.

- Enter the AEL Alarm date format

  This parameter describes the date format used to represent dates in Active Event List events. The default provided by the installation script is `EEE MMM d HH:mm:ss z yyyy`. This value is saved to the application's deployment descriptor as the value of the initialization parameter `alarm.date.format`.

8.2 Installing the Resource Viewer on Tivoli Business Service Manager

The install script must be run as the user that installed the original Tivoli Business Service Manager system. This is a non-root user on UNIX® systems. The installation script will ask the user for several pieces of information. These are:

1. The location of the Tivoli Integrated Portal installation into which to install the chart. This is typically the value of the environment variable `TIP_HOME`.
2. The Tivoli Integrated Portal profile name. This is typically `TIPProfile`.
3. The Tivoli Business Service Manager profile name. This is typically `TBSMProfile`.
4. The Tivoli Integrated Portal administrator username. This is the username used to administer the Tivoli Integrated Portal installation, for example: `tipadmin`.
5. The Tivoli Integrated Portal Administrator password. This is the password used to administer the Tivoli Integrated Portal installation.
6. The various prompts described in section 8.1.1.

The script will install the Resource Viewer component and restart Tivoli Integrated Portal. The script logs information to files with names like `configure_nsbound.12345.log` in the `$TIP_HOME/logs/tnsqmlogs` directory.

To install the Resource Viewer component on a Tivoli Business Service Manager system, open a shell and change to the directory to which the script file (`configure_nsbound`, see Step 1 in Section 8.1.1) was copied.

Note: The script must have execute permissions for the user that originally installed Tivoli Business Service Manager.

Execute the script as the user that originally installed Tivoli Business Service Manager with:

```
# chmod +x configure_nsbound
# ./configure_nsbound -install_resource_viewer
```

8.2.1 Installation information

As part of the installation a directory called `tnsqmlogs` will be created inside the `logs` directory in the Tivoli Integrated Portal installation directory (specified in Step 1, Section 8.1.2). The installation will log information here. The amount of information logged can be changed by editing the property `comnitel.log.level` in `$WMCROOT/conf/logging/default.properties.user` in the Tivoli Netcool Service Quality Manager configuration. For more information, see the *IBM Tivoli Netcool Service Quality Manager AIX and Solaris System Administration Guide*.

8.3 Configuring Resource Viewer launch from WebTop Active Event List

As detailed in section 4.2 of this document, a menu item can be added to the WebTop Active Event List which allows you to select an event and launch a view containing associated resources for the selected SLA Clause or SLO event.

Table 5: Parameters required by the Resource Viewer Portlet

Parameter	Description
model_name	KQI Model name. This parameter is always passed.
`sla_name`	SLA name. This parameter is passed when launching in the context of an SLA.
`sla_clause_name`	SLA clause name. This parameter is passed when launching in the context of an SLA.
`slo_name`	SLO name. This parameter is passed when launching in the context of an SLA.
`startTime`	Event start time. Used only for launches from the WebTop Active Event list.
`endTime`	Event end time. Used only for launches from the WebTop Active Event list.

showLatest	When set to “true”, will only show latest assessment values associated with a resource. When unset or set to “false”, the parameters startTime and endTime must be defined.
include_kqi_data	This parameter is passed from the resource viewer to SLA/SLO KQI History charts when launching a chart from a resource. For a description of this parameter, see Section 7.2.1.

To launch from the active event list for the period associated with a given event, follow the steps outlined in the document referenced above, defining the launch action as follow. Fill the fields as in the following table and click “**Save**.”

Note: If copying and pasting the script example below care must be taken to ensure that no new line delimi-nators are introduced due to wrapping of the text onto a new line

Name	LaunchResourceViewer
Type	Script

Script	var model_name = "{@TNSQM_KQI}";
	var startTime = encodeURIComponent("{@TNSQM_StartTime}");
	var endTime = encodeURIComponent("{@TNSQM_EndTime}");
	
	var slo_name = "{@TNSQM_SQMSLO}";
	var customer_name = null;
	var sla_name = null;
	var sla_clause_name = null;
	var showLatest = "false";
	var include_kqi_data = "false";
	
	if (!slo_name) {
	  customer_name = "{@Customer}";
	  sla_name = "{@TNSQM_SLA}";
	  sla_clause_name = "{@TNSQM_Clause}";
	
	  customer_name = encodeURIComponent(customer_name);
	  sla_name = encodeURIComponent(sla_name);
	  sla_clause_name = encodeURIComponent(sla_clause_name);
	} else {
	  slo_name = encodeURIComponent(slo_name);
	}
	
	model_name = encodeURIComponent(model_name);
	var eventObject =
	{

	'name': 'http://ibm.com/isclite#launchPage', 'NavigationNode': "com.ibm.sa.sqm.tbsm.resourceviewer.navigationElement.FirstPo rtlet", 'pageInstanceRef': 'null', 'switchPage': 'true', 'customer_name': customer_name, 'sla_name': sla_name, 'sla_clause_name': sla_clause_name, 'slo_name': slo_name, 'model_name': model_name, 'startTime': startTime, 'endTime': endTime, 'include_kqi_data': include_kqi_data, 'showLatest': showLatest }; {$appletparam.portletNamespace}sendPortletEvent(eventObject);

To launch from the active event list and display only the most recent clause assessment values, set the parameter `showLatest` to `"true"`, as detailed in the following example:

Note: If copying and pasting the script example below care must be taken to ensure that no new line delimiters are introduced due to wrapping of the text onto a new line

Name	LaunchResourceViewerLatest
Type	Script

Script	var model_name = "{@TNSQM_KQI}";
	var slo_name = "{@TNSQM_SQMSLO}";
	var customer_name = null;
	var sla_name = null;
	var sla_clause_name = null;
	var showLatest = "true";
	
	if (!slo_name) {
	customer_name = "{@Customer}";
	sla_name = "{@TNSQM_SLA}";
	sla_clause_name = "{@TNSQM_Clause}";
	
	customer_name = encodeURIComponent(customer_name);
	sla_name = encodeURIComponent(sla_name);
	sla_clause_name = encodeURIComponent(sla_clause_name);
	} else {
	slo_name = encodeURIComponent(slo_name);
	}
	
	model_name = encodeURIComponent(model_name);
	var eventObject =
	{
	'name': 'http://ibm.com/isclite#launchPage',
	'NavigationNode':
	"com.ibm.sa.sqm.tbsm.resourceviewer.navigationElement.FirstPo

```
rtlet",
'pageInstanceRef': 'null',
'switchPage': 'true',
'customer_name': customer_name,
'sla_name': sla_name,
'sla_clause_name': sla_clause_name,
'slo_name': slo_name,
'model_name': model_name,
'showLatest': showLatest
};

{$appletparam.portletNamespace}sendPortletEvent(eventObject);
```

8.4 Configuring Resource Viewer launch from TBSM Service Tree

For further information pertaining to the addition of menu item actions to the TBSM Service Tree, see section 4.2 of this guide. Edit the file **canvasOpenURLActions.xml** file, adding an item to open portal page containing the Resource Viewer.

```
<openURLAction description="Launch Resource Viewer"
        displayName="Launch Resource Viewer"
        enableDisableExpression="'__model_name__' != 'NULL'"
          name="LaunchresourceViewer"   permissionCheckerClass-
    Name="com.micromuse.sla.map.AVCheckRADInstanceP ermissionsImpl"
        roleRequired="ncw_user"
        target="javascript:new parent.TBSM_executeCMSAction(__URL__);"
    visibleInGUI="true">
      {
        "portletPageID":
"com.ibm.sa.sqm.tbsm.resourceviewer.navigationElement.FirstPortlet",
        "sendToSelf": "false",
        "portletNamespace": "__portletNamespace__",
        "iscNamespace": "__iscNamespace__",
        "launchType": "PORTAL_PAGE",
        "parameters": [
          { "name": "customer_name", "value": "__customer_name__"},
         { "name": "sla_name", "value": "__sla_name__"},
         { "name": "sla_clause_name", "value": "__sla_clause_name__"},
         { "name": "slo_name", "value": "__slo_name__"},
         { "name": "model_name", "value": "__model_name__"},
         { "name": "showLatest", "value": "true"},
          { "name": "include_kqi_data", "value": "true"}

       ]
       }
    </openURLAction>
```

8.5 Uninstalling the Resource Viewer on Tivoli Business Service Manager

8.5.1 Overview

The uninstall script must be run as the user that installed the original Tivoli Business Service Manager system. This is a non-root user on UNIX systems. The uninstall script will ask the user for several pieces of information. These are:

1. The location of the Tivoli Integrated Portal installation into which to install the chart. This is typically the value of the environment variable `TIP_HOME`.
2. The Tivoli Integrated Portal profile name. This is typically `TIPProfile`.
3. The Tivoli Business Service Manager profile name. This is typically `TBSMProfile`.
4. The Tivoli Integrated Portal Administrator username. This is the username used to administer the Tivoli Integrated Portal installation, for example: tipadmin.
5. The Tivoli Integrated Portal Administrator password. This is the password used to administer the Tivoli Integrated Portal installation.

The script will uninstall the resource viewer component and restart Tivoli Integrated Portal. The script logs information to files with names like *configure_nsbound.12345.log* in the `$TIP_HOME/logs/tnsqm` directory.

8.5.2 Procedure

To uninstall the Resource Viewer component on a Tivoli Business Service Manager system, open a shell and change to the directory to which the script file (`configure_nsbound`, see Step 1 in Section 7.1.1) was copied. Execute it as the user that originally installed Tivoli Business Service Manager with:

```
# ./configure_nsbound -remove_resource_viewer
```

Installation information

As part of the uninstallation a directory called `tnsqmlogs` will be updated inside the `logs` directory in the Tivoli Integrated Portal installation directory (specified in Step 1, Section 7.1.2). The uninstall will log information here. The amount of information logged can be changed by editing the property `comnitel.log.level` in `$WMCROOT/conf/logging/default.properties.user` in the Tivoli Netcool Service Quality Manager configuration. See the *IBM Tivoli Netcool Service Quality Manager AIX and Solaris System Administration Guide* for full details of how to do this.

9 Displaying Tivoli Netcool Service Quality Manager metrics in Tivoli Business Service Manager dashboards

This chapter describes the steps needed to customize a IBM® Tivoli® Business Service Manager service tree to include Service Quality Manager metrics such as key quality indicator (KQI) values from IBM Tivoli Netcool® Service Quality Manager.

The metrics will be retrieved from Tivoli Netcool Service Quality Manager using Tivoli Business Service Manager data fetchers. Data fetchers can be configured to query a data source at intervals and then provide the data returned from the query to Tivoli Business Service Manager for use in determining the status of a service.

The incoming rules and the numeric formula rules in Tivoli Business Service Manager will filter and format the data retrieved from data fetchers. Finally, the service tree in Tivoli Business Service Manager will map the filtered and formatted data to individual services in the service tree.

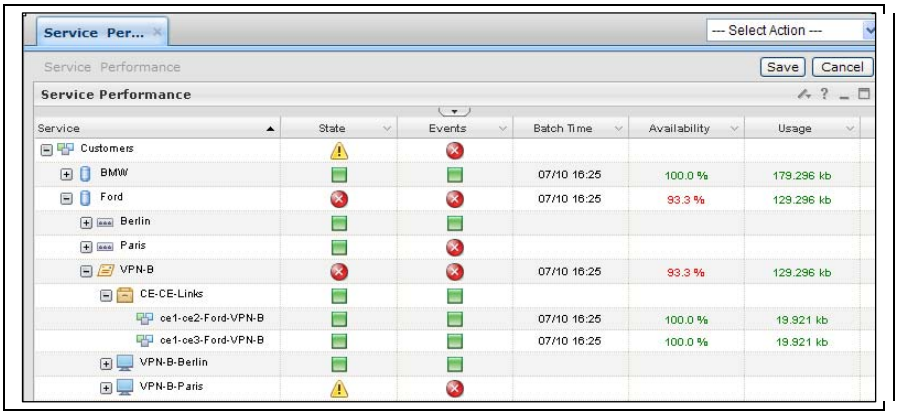

Figure 95: Tivoli Netcool Service Quality Manager metrics (availability and usage) in a service tree

Tivoli Netcool Service Quality Manager metrics can be included in Tivoli Business Service Manager service trees by performing the following tasks:

1. Create a data source.

2. Create a data fetcher.
3. Create an incoming rule for a service template.
4. Create a numeric formula rule for a service template.
5. Configure a service tree.

9.1 Creating a data source

A data source provides connection information to an external source of data (for example, a relational database) that contains information which affects the status of services in your service model.

The SQL type and the connection information must be specified for a data source. In the case of a Tivoli Netcool Service Quality Manager metric, Oracle is the SQL type and the database connection information such as username, password, hostname, port and SID will be specified.

Example:

SQL Type:	Oracle
Data Source Name:	sadb
Username:	saserver
Password:	Saserver01
Hostname:	thomond.cork.ie.ibm.com
Port:	1521
SID:	sadb

9.2 Creating a data fetcher

Data fetchers query a data source periodically and then provide the data returned from the query to Tivoli Business Service Manager for use in determining the status of a service.

The query interval and the query expression shall be specified for a data fetcher. In the case of Tivoli Netcool Service Quality Manager metrics, the query which returns the latest KQI values for a particular resource type will be specified.

Example:

```
SELECT resourcetype.userlabel, kqimode.modelname, kqivalue.value, kqivalue.endtime
FROM sa_hst_kqivalue kqivalue, sa_hst_kqimodel kqimode, nc_enterprise resourcetype
WHERE kqivalue.modelpkuid = kqimode.modelpkuid
AND kqimode.modelname IN (
SELECT modelname
  FROM (
    SELECT modelname, resourcetype_fk FROM sa_kqi_simplemodel
    UNION
    SELECT modelname, resourcetype_fk FROM sa_kqi_combmodel
  )
  WHERE resourcetype_fk = (SELECT pkuid FROM sa_res_restype WHERE userlabel = 'En-
terprise')
)
AND kqivalue.resid1 = resourcetype.enterprise_id
```

```
AND kqimode.MODIFYORDELDATE is null
AND kqivalue.endtime = (
  SELECT max(kqivalue2.endtime)
  FROM sa_hst_kqivalue kqivalue2
  WHERE kqivalue2.modelpkuid = kqivalue.modelpkuid
  AND kqivalue2.resid1 = kqivalue.resid1
)
```

This is the query for the latest KQI values for resource type ‘Enterprise’.
Here is a sample of the output of this query:

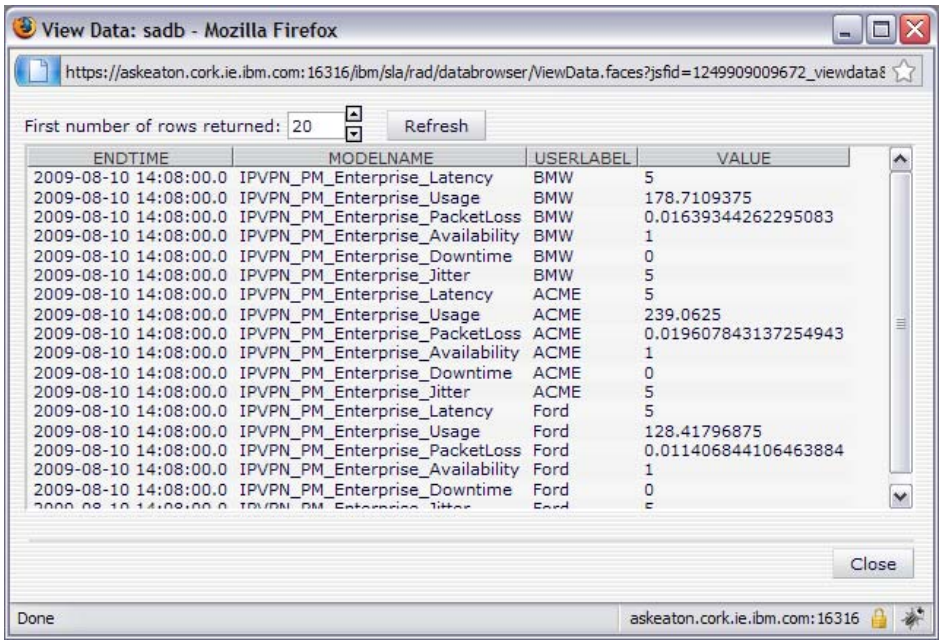

Figure 96: Sample data fetcher output

In order to obtain the latest KQI values for different type of resource then replace ‘nc_enterprise’ with another resource type table name and ‘Enterprise’ with the new resource type name.

For instance, use ‘nc_vpnlink’ as resource type table name and ‘VpnLink’ as resource type name in order to obtain the latest KQI values for ‘VpnLink’ resource type.

The following query returns a list of available resource type name and resource type table name pairs:

```
SELECT restype.userlabel, rollupLabels.instance_tablename
FROM SA_RES_RESTYPE restype, SA_RES_ROLLUP_LABELS rollupLabels
WHERE restype.userlabel = rollupLabels.name
```

The following is an example Tivoli Business Service Manager radshell command to create a data fetcher for a Tivoli Netcool Service Quality Manager ‘Enterprise’ resource type:

```
createDataFetcher("VPNEnterprise_Metrics",
                  60000,
                  300000,
```

```
                    5,
                    -1,
                    -1,
                    "sadb",
                    "SELECT resourcetype.userlabel, kqimode.modelname,
kqivalue.value, TO_CHAR(kqivalue.endtime, 'MM/DD HH24:Mi') AS endtime  FR
OM sa_hst_kqivalue kqivalue, sa_hst_kqimodel kqimode, nc_enterprise resourcetype
WHERE kqivalue.modelpkuid = kqimode.modelpkuid  AND kqimode.
modelname IN (  SELECT modelname  FROM (  SELECT modelname, resourcetype_fk FROM
sa_kqi_simplemodel  UNION  SELECT modelname, resourcetype_fk
FROM sa_kqi_combmodel  )  WHERE resourcetype_fk = (SELECT pkuid FROM sa_res_restype
WHERE userlabel = 'Enterprise')  )  AND kqivalue.resid1 =
resourcetype.enterprise_id  AND kqimode.MODIFYORDELDATE is null  AND
kqivalue.endtime = (  SELECT max(kqivalue2.endtime)  FROM sa_hst_kqivalue
 kqivalue2  WHERE kqivalue2.modelpkuid = kqivalue.modelpkuid  AND kqivalue2.resid1
= kqivalue.resid1  )",
                    false,
                    false,
                    "");
```

In this example the query runs every minute. Note that in this query, the ‘endtime’ value is formatted using the “TO_CHAR” SQL syntax.

See Tivoli Business Service Manager documentation for full radshell command syntax. This is available from the IBM Tivoli Business Service Manager Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

9.3 Creating an incoming status rule for a service template

Incoming status rules are sets of conditions that allow Tivoli Business Service Manager to obtain general or detailed status parameters from field values in incoming ObjectServer events or other data such as data fetchers.

The data feed and the data filtering information shall be specified for an incoming status rule. In the case of a Tivoli Netcool Service Quality Manager metric, a data fetcher will be used as a data feed and a resource name and KQI name will be used as data filtering information.

Based on the previous data fetcher example (section 9.2), we can create an incoming status rule based on a numeric value:

Rule Name:	JitterValueRule
Data Feed:	VPNEnterprise_Metrics
Available Instance Name Fields:	USERLABEL
Available Filter Fields:	MODELNAME
Filter Expression:	MODELNAME = IPVPN_PM_Enterprise_Jitter
Output Expression:	VALUE

This configuration uses a data fetcher which returns the latest KQI values for the ‘Enterprise’ resource type, and filters the values by the model name ‘IPVPN_PM_Enterprise_Jitter’.

The following is an example of a Tivoli Business Service Manager radshell command to create such an incoming status rule for a template called 'Company':

```
addNewRawAttribute("Company",
                   "JitterValueRule",
                   new String[] { "Default Class(0)" },
                   new String[] { "USERLABEL" },
                   1,
                   "VPNEnterprise_Metrics" );

addRawAttributeThresholdSet("Company",
                            "JitterValueRule",
                            "VALUE",
                            null,
                            new String[] { "MODELNAME" },
                            new String[] { "=" },
                            new String[] { "IPVPN_PM_Enterprise_Jitter" },
                            0 );
```

In this example the column "USERLABEL" returned by the data fetcher is used to match against the service instance name in Tivoli Business Service Manager. For example, if the data fetcher returns rows with USERLABEL values of 'ACME' and 'XYZ', then instances of the Company template must exist with names 'ACME' and 'XYZ'.

See Tivoli Business Service Manager documentation for full radshell command syntax. This is available from the IBM Tivoli Business Service Manager Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

9.4 Create a numeric formula rule for a service template

Tivoli Business Service Manager uses numerical formula rules to combine rule-output values of different types within the same service instance. These output values can be generated by incoming numerical status rules or by numerical aggregation rules.

The expression shall be specified for a numerical formula rule. In the case of Tivoli Netcool Service Quality Manager metric, an expression will be specified to format an output value.

Example based on previous incoming status rule (section 9.3):

Rule Name:	JitterValue
Expression:	float(int(JitterValueRule.Value*1000)/1000)

This configuration formats the value returned by 'JitterValueRule' to three decimal places.

The following is an example of a Tivoli Business Service Manager radshell command to create such a numeric formula rule for a template called 'Company':

```
addInternalAttributeToTemplate("Company",
                               "JitterValue",
                               "float(int(JitterValueRule.Value*1000)/1000)",
```

```
                                    null,
                                    null,
                                    null,
                                    null );
```

See Tivoli Business Service Manager documentation for full radshell command syntax. This is available from the IBM Tivoli Business Service Manager Information Center at

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

9.5 Configure a service tree

Tivoli Business Service Manager lets you modify and add the columns in custom trees in both Service Navigation and Service Tree portlets.

New columns shall be added and rules will be mapped to the columns for a service tree. In the case of Tivoli Netcool Service Quality Manager metrics, columns for the Tivoli Netcool Service Quality Manager metrics will be added to a tree template and the columns will then be mapped to numeric formula rules.

You can also format the display value with the ‘Edit Policy’ option associated with the tree template editor.

Tree template policy example:

```
VALUE = value;
if (columnName like '.*Jitter.*') {
if (value > 15) {VALUE = '<font color="red">' + value + ' ms' +  '</font>';}
if (value > 10) {VALUE = '<font color="#FF6600">' + value + ' ms' + '</font>';}
if (value <= 10){VALUE = '<font color="green">' + value + ' ms' + '</font>';}
}
```

This configuration appends the unit ‘ms’ to the value in ‘Jitter’ columns and changes the font color depending on the value of the columns.

9.6 Examples

This section provides concrete examples on how to include Tivoli Netcool Service Quality Manager metrics for the IPVPN service in the Tivoli Business Service Manager service tree with the Tivoli Business Service Manager graphical user interface.

The IPVPN service module is installed on the Tivoli Netcool Service Quality Manager server, and service templates and service instances are configured in Tivoli Business Service Manager dashboards.

The required service templates are:

- Enterprise : a service template which is associated with Enterprise resource type
- VPN: a service template which is associates with VPN resource type

References are made to these templates in the following examples, so they should be created if they do not already exist. See Tivoli Business Service Manager documentation for examples of how templates and services can be created. This is available from the IBM Tivoli Business Service Manager Information Center at:

http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/index.jsp?topic=/com.ibm.tivoli.itbsm.doc/welcome.htm

9.6.1 Example 1: IPVPN Jitter metric for Enterprise resource type

In this example, a service tree with the Enterprise resource will be customized in order to include a Tivoli Netcool Service Quality Manager metric, in this case the “IPVPN_Enterprise_Jitter” key quality indicator from the IPVPN service module. It will result in the following portlet being displayed.

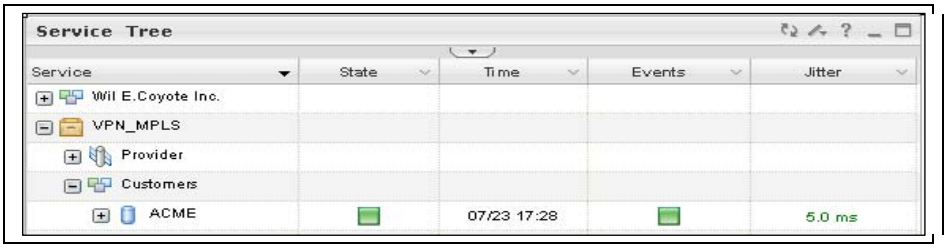

Figure 97: IPVPN Enterprise Jitter metric example

Task 1: Creating a data source

Create a data source which points to the Tivoli Netcool Service Quality Manager Oracle database.

1. Select **Administration→ Service Administration**.
2. In the **Service Navigation** portlet, select **Data** from a drop-down menu.
3. In the **Service Navigation** portlet, select **Create New Data Source**.
4. In the **New DataSource** tab, enter the following:

SQL Type:	Oracle
Data Source Name:	sadb
Username:	<Username>, for example:. saserver
Password:	<Password>, for example: saserver01

Hostname:	<Hostname>, for example: thomond.cork.ie.ibm.com
Port:	1521
SID:	sadb
Disable Data Source Fail Over:	Tick the check box to disable data source failover

5. Test connection to validate the connection.
6. If the connection is successful, click **Save** in the **New DataSource** tab.
7. A new entry is displayed in a list of data sources.

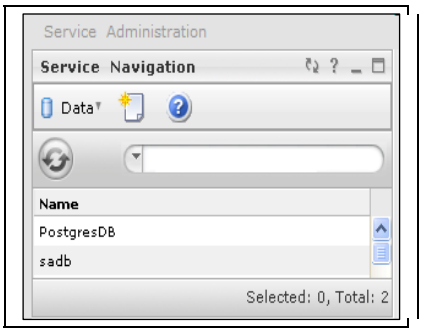

Figure 98: Tivoli Business Service Manager data source

Task 2: Creating a data fetcher

Create a data fetcher which retrieves the latest KQI values for the 'Enterprise' resource type.

1. Select **Administration'→ Service Administration**.
2. In the **Service Navigation** portlet, select **Data Fetcher'**from a drop-down menu.
3. In the **Service Navigation** portlet, select **Create New Data Fetcher**.
4. In the **New Data Fetcher** tab, enter the following:

Data Fetcher Name:	VPNEnterprise_Metrics
Type:	SQL
Minimum Interval Between Fetches:	60
Maximum Interval Between Fetches:	300
Fetcher Interval Multiplier:	5
Data Source:	sadb
SQL Query:	

```
SELECT resourcetype.userlabel, kqimode.modelname, kqivalue.value, kqivalue.endtime
FROM sa_hst_kqivalue kqivalue, sa_hst_kqimodel kqimode, nc_enterprise resourcetype
WHERE kqivalue.modelpkuid = kqimode.modelpkuid
AND kqimode.modelname IN (
  SELECT modelname
  FROM (
    SELECT modelname, resourcetype_fk FROM sa_kqi_simplemodel
    UNION
    SELECT modelname, resourcetype_fk FROM sa_kqi_combmodel
  )
  WHERE resourcetype_fk = (SELECT pkuid FROM sa_res_restype WHERE userlabel = 'En-
terprise')
)
AND kqivalue.resid1 = resourcetype.enterprise_id
AND kqimode.MODIFYORDELDATE is null
AND kqivalue.endtime = (
  SELECT max(kqivalue2.endtime)
  FROM sa_hst_kqivalue kqivalue2
  WHERE kqivalue2.modelpkuid = kqivalue.modelpkuid
  AND kqivalue2.resid1 = kqivalue.resid1
)
```

5. Select **View** from **View Data** to validate the query.
6. If the retrieval of data is successful, click **Save** in the **New Data Fetcher** tab.
7. A new entry is displayed in a list of data fetchers.

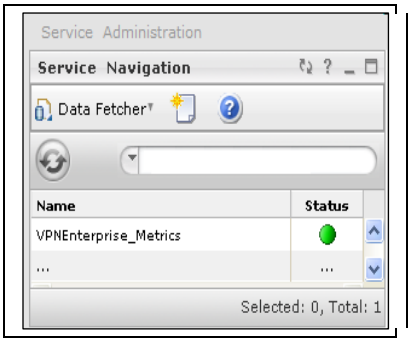

Figure 99: Tivoli Business Service Manager data fetcher

Task 3: Create an incoming status rule

Create an incoming status rule with a value for the ‘IPVPN_PM_Enterprise_Jitter’ KQI based on the data fetcher created in the previous task.

1. Select **Administration → Service Administration**.
2. In the **Service Navigation** portlet, select **Templates** from a drop-down menu.
3. Select the **Enterprise** template (if one does not exist, then it must be created).
4. In the **Service Editor** portlet, select the **Edit template** tab.
5. In **Rules** tab, select  **Incoming Status Rule**. This will open **Select Incoming Status Rule Type** window.
6. In the **Select Incoming Status Rule Type** window, select the following:

   Rule type: Based on a Numeric Value

7. In the **Edit Incoming Status Rule** window, enter the following:

Rule Name:	JitterValueRule
Data Feed:	VPNEnerprise_Metrics
Available Instance Name Fields:	USERLABEL
Available Filter Fields:	MODELNAME
Filter Expression:	MODELNAME = IPVPN_PM_Enterprise_Jitter
Output Expression:	VALUE

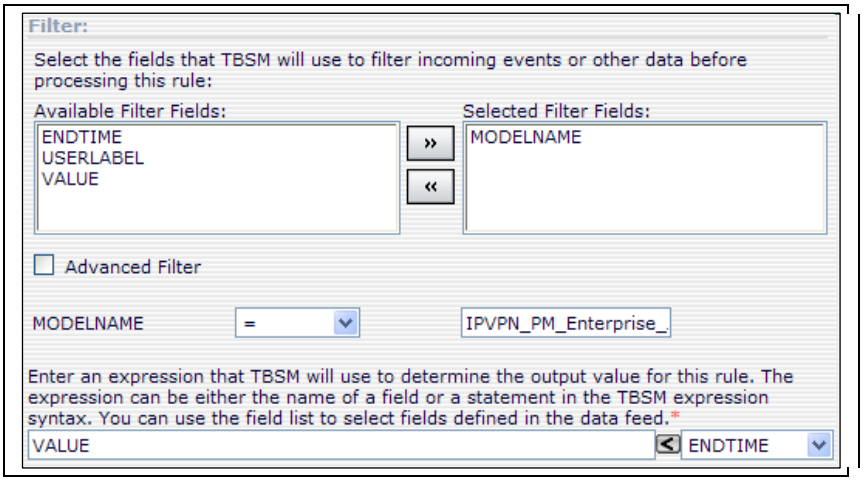

Figure 100: Tivoli Business Service Manager incoming rule configuration

8. Select **Preview data…** to preview the data. This will open **View Data** window.
9. Validate the preview data contains entities with MODELNAME **'IPVPN_PM_Enterprise_Jitter'** only and click **Close**.
10. Click **OK** in the **Edit Incoming Status Rule** window to save your rule.
11. A new entry is displayed in a list of rules.

Figure 101: Tivoli Business Service Manager incoming status rule

12. Click the **Save** button to save your updated template.

Task 4: Creating a numerical formula rule

Create a numerical formula rule which formats a value given by the incoming status rule created in the previous task.

1. Select **Administration → Service Administration**.
2. In the **Service Navigation** portlet, select **Templates** from a drop-down menu.
3. Select the **Enterprise** template.
4. In the **Service Editor** portlet, select the **Edit template** tab.
5. In the **Rules** tab, select **Create Numerical Formula Rule**.
6. In the **Edit Numerical Formula Rule** window, enter the following:

   Rule Name: JitterValue
   Expression: float (int(JitterValueRule.Value*1000)/1000)

7. Click **OK** to save the rule.
8. A new entry is displayed in a list of rules.

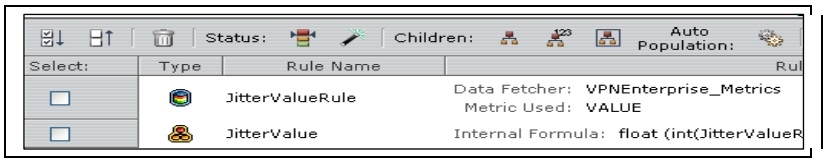

Figure 102: Tivoli Business Service Manager numeric formula

9. Click the **Save** button to save your updated template.

Task 5: Customizing a service tree

Customize a service tree of your choice to include 'Jitter' value for services associated with the 'Enterprise' resource type.

1. Select **Administration → Service Administration**.
2. In the **Service Navigation** portlet, select **Services** from the drop-down menu.
3. In the **Service Navigation** portlet, select **Tree Template Editor**.
4. In the **Tree Template Editor** window**,** select a template of your choice (a new template can be created if required)
5. In the **Column Configuration** section**,** click **Add new Tree Column,** and enter the following:

Column Name: Jitter

6. In the **Service Template Selection** section**,** add the **Enterprise** template into **Selected Templates** from **Available Templates**.
7. In the **Service Template Rule mapping** section, select a template **Enterprise** for **Active Template**, select the following in the **'@JitterValue'** row.

   Column Display Name: Jitter

8. An entry is displated in a list of attributes.

Figure 103: Tivoli Business Service Manager a service tree column and rule mapping

9. Click the **Edit policy** to add an edit policy, enter the following:

```
VALUE = value;
if (columnName like '.*Jitter.*') {
if (value > 15) {VALUE = '<font color="red">' + value + ' ms' +  '</font>';}
if (value > 10) {VALUE = '<font color="#FF6600">' + value + ' ms' + '</font>';}
if (value <= 10){VALUE = '<font color="green">' + value + ' ms' + '</font>';}
}
```

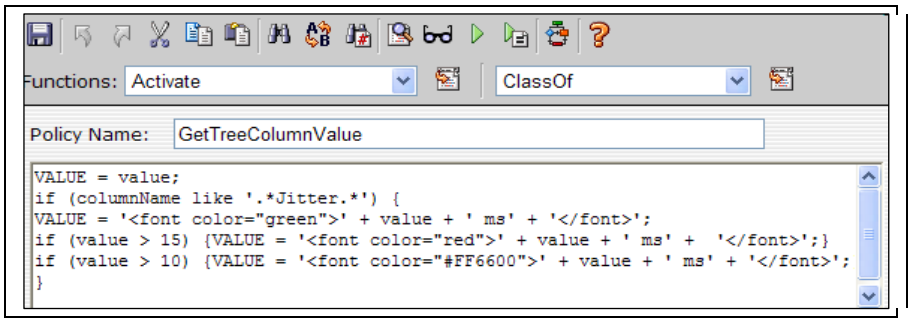

Figure 104: Tivoli Business Service Manager service template edit policy

10. Click the **Save** button  to save your updated policy.

Task 6: Validating the KQI value in the service tree portlet

Validates Tivoli Netcool Service Quality Manager metric 'Jitter' associated to services associated with 'Enterprise' resource type.

1. Select **Availability → Service Availability**.
2. In the **Service Navigation** portlet, select **Edit options → Edit Preference**, click on the **View** tab and select the service template name you customized in the previous task.
3. Click **Save** to save the reference.

4. A new service tree is displayed with an extra column **Jitter** and values for each service instance associated with 'Enterprise' resource type.

9.7 Example 2: IPVPN latency metric for the Enterprise resource type

In this example, a service tree with the Enterprise resource will be customized in order to include the Tivoli Netcool Service Quality Manager metric, in this case "IPVPN_Enterprise_ Latency" KQI from the IPVPN service module. It will result in the following portal page being displayed.

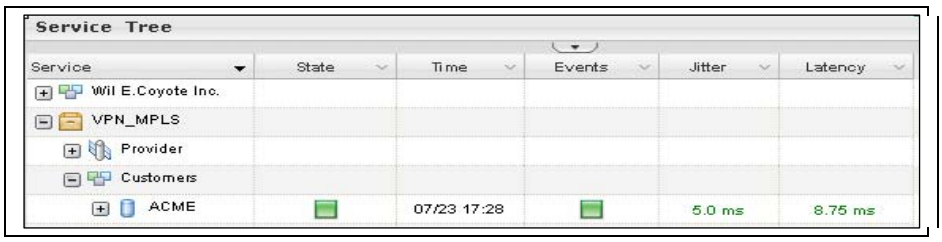

Figure 105: IPVPN Enterprise latency metric example

Task 1: Creating a data source

Skip this task if you followed task 1 in example 1.

Task 2: Create a data fetcher

Skip this task if you followed task 2 in example 1.

Task 3: Create an incoming status rule

Repeat exact steps 1 to 6 in task 3 in example 1, and then follow the steps below:

1. In the **Edit Incoming Status Rule** window, enter the following:

Rule Name:	LatencyValueRule
Data Feed:	VPNEnerprise_Metrics
Available Instance Name Fields:	USERLABEL
Available Filter Fields:	MODELNAME
Filter Expression:	MODELNAME = IPVPN_PM_Enterprise_Latency
Output Expression:	VALUE

2. Select **Preview data…** to preview the data. This will open **View Data** window.
3. Validate the preview data contains entities with MODELNAME **IPVPN_PM_Enterprise_Latency'**only and click **Close**,
4. Click **OK** in the **Edit Incoming Status Rule** window to save your rule.
5. Click the **Save** button  to save your updated template.
6. A new entry is displated in a list of rules.

Task 4: Creating a numerical formula rule

Repeat the steps 1 to 5 in task 4 in example 1, and then follow the steps below:

1. In the **Edit Numerical Formula Rule** window, enter the following:

2. Rule Name: LatencyValue
3. Expression: float (int(LatencyValueRule.Value*1000)/1000)
4. Click **OK** to save the rule.
5. Click the **Save** button  to save your updated template.
6. A new entry is displated in a list of rules.

Task 5: Customizing a service tree

Repeat the steps 1 to 4 in task 5 in example 1, and then follow the steps below:

1. In the **Column Configuration** section**,** click **Add new Tree Column,** and enter the following:

   Column Name: Latency

2. In the **Service Template Selection** section**,** add **Enterprise** template into **Selected Templates** from **Available Templates**.
3. In the **Service Template Rule mapping** section, select a template **Enterpris'** for **Active Template**, select the following in **'@LatencyValue'** row.

   Column Display Name: Latency

4. A new entry is displated in a list of attributes.

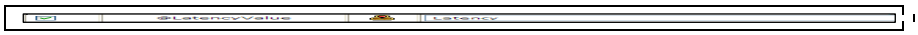

Figure 106: Tivoli Business Service Manager a service tree column and rule mapping

5. Click **Edit policy** to add an edit policy, append the following:

```
if (columnName like '.*Latency.*') {
if (value > 15) {VALUE = '<font color="red">' + value + ' ms' +  '</font>';}
if (value > 10) {VALUE = '<font color="#FF6600">' + value + ' ms' + '</font>';}
if (value <= 10){VALUE = '<font color="green">' + value + ' ms' + '</font>';}
}
```

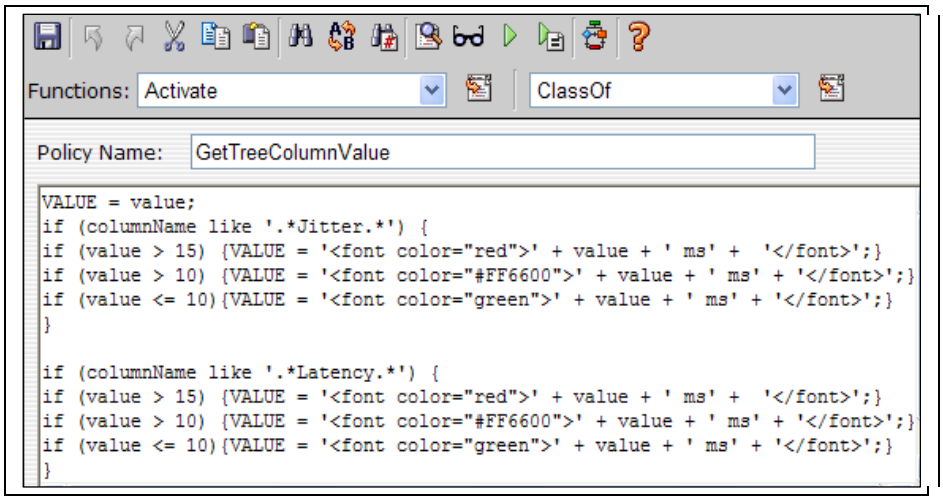

Figure 107: Tivoli Business Service Manager service template edit policy

6. Click the **Save** button  to save your updated policy.

Task 6: Validating the KQI value in the service tree portlet

This task validates Tivoli Netcool Service Quality Manager metric 'Latency' associated to services associated with the 'Enterprise' resource type.

1. Select **Availability → Service Availability**.
2. In the **Service Navigation** portlet, select **Edit options → Edit Preference**, click on the **View** tab and select the service template name you customized in the previous task.
3. Click **Save** to save the reference.
4. A new service tree is displayed with an extra column **'Latency'** and values for each service instance associated with 'Enterprise' resource type.

9.8 Example 3: IPVPN latency metric for the VPN resource type

In this example, a service tree with the VPN resource will be customized in order to include Tivoli Netcool Service Qualiy Manager metric, in this case "IPVPN_VPN_ Latency" KQI from the IPVPN service module. It will result in the following portal page being displayed.

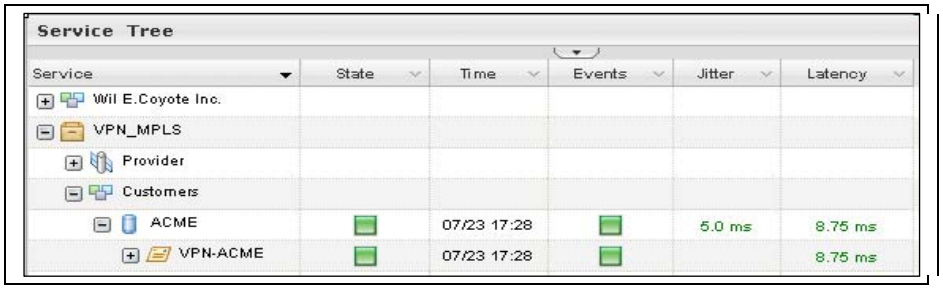

Figure 108: IPVPN VPN latency metric example

Task 1: Creating a data source

Skip this task if you followed task 1 in example 1.

Task 2: Creating a data fetcher

Repeat the steps 1 to 3 in task 2 in example 1, and then follow the steps below:

1. In the **New Data Fetcher** tab, enter the following:

Data Fetcher Name:	VPN_Metrics
Type:	SQL
Minimum Interval Between Fetches:	60
Maximum Interval Between Fetches:	300
Fetcher Interval Multiplier:	5
Data Source:	sadb

   SQL Query:

```
SELECT resourcetype.userlabel, kqimode.modelname, kqivalue.value, kqivalue.endtime
FROM sa_hst_kqivalue kqivalue, sa_hst_kqimodel kqimode, nc_vpn resourcetype
WHERE kqivalue.modelpkuid = kqimode.modelpkuid
AND kqimode.modelname IN (
  SELECT modelname
  FROM (
    SELECT modelname, resourcetype_fk FROM sa_kqi_simplemodel
    UNION
    SELECT modelname, resourcetype_fk FROM sa_kqi_combmodel
  )
  WHERE resourcetype_fk = (SELECT pkuid FROM sa_res_restype WHERE userlabel =
'VPN')
)
AND kqivalue.resid1 = resourcetype.vpn_id
AND kqimode.MODIFYORDELDATE is null
AND kqivalue.endtime = (
  SELECT max(kqivalue2.endtime)
  FROM sa_hst_kqivalue kqivalue2
  WHERE kqivalue2.modelpkuid = kqivalue.modelpkuid
  AND kqivalue2.resid1 = kqivalue.resid1
);
```

2. Select **View** from **View Data** to validate the query.
3. If the retrieval of data is successful, click **Save** in the **New Data Fetcher** tab.
4. You will see a new entry in a list of data fetchers.

Task 3: Creating an incoming status rule

Repeat exact steps 1 to 2 in task 3 in example 1, and then follow the steps below:

1. Select a service **VPN** template node.

Repeat exact steps 4 to 6 in task 3 in example 1, and then follow the steps below:

1. In the **Edit Incoming Status Rule** window, enter the following:

Rule Name:	LatencyValueRule
Data Feed:	VPN_Metrics

Available Instance Name Fields:	USERLABEL
Available Filter Fields:	MODELNAME
Filter Expression:	MODELNAME = IPVPN_PM_VPN_Latency
Output Expression:	VALUE

2. Select Preview data… to preview the data. This will open View Data window.
3. Validate the preview data contains entities with MODELNAME IPVPN_PM_VPN_Latency only and click Close.
4. Click OK to save the rule.
5. Click the Save button  to save your updated template.
6. A new entry is displayed in a list of rules.

Task 4: Creating a numerical formula rule

Repeat exact steps 1 to 2 in task 4 in example 1, and then follow the steps below:

1. Select a service **VPN** template node.

Repeat exact steps 4 to 5 in task 4 in example 1, and then follow the steps below:

1. In the **Edit Numerical Formula Rule** window, enter the following:

Rule Name:	LatencyValue
Expression:	float (int(LatencyValueRule.Value*1000)/1000)

2. Click OK' to save the rule.
3. Click the Save button  to save your updated template.
4. A new entry is displayed in a list of rules.

Task 5: Customizing a service tree

Repeat the steps 1 to 4 in task 5 in example 1, and then follow the steps below:

1. In the Column **Configuration** section**,** click **Add new Tree Column,** and enter the following:

   Column Name: Latency

2. In the Service Template Selection section, add VPN template into Selected Templates from Available Templates.
3. In the Service Template Rule mapping section, select a template VPN for Active Template, select the following in '@LatencyValue' row.

   Column Display Name: Latency

4. A new entry is displayed in a list of attributes.

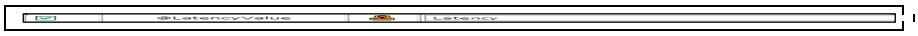

Figure 109: Tivoli Business Service Manager a service tree column and rule mapping

5. Click **Edit policy** to add an edit policy, append the following:

   Skip the following if the step 5 in task 5 in example 2 is already done.

```
if (columnName like '.*Latency.*') {
if (value > 15) {VALUE = '<font color="red">' + value + ' ms' +  '</font>';}
if (value > 10) {VALUE = '<font color="#FF6600">' + value + ' ms' + '</font>';}
if (value <= 10){VALUE = '<font color="green">' + value + ' ms' + '</font>';}
}
```

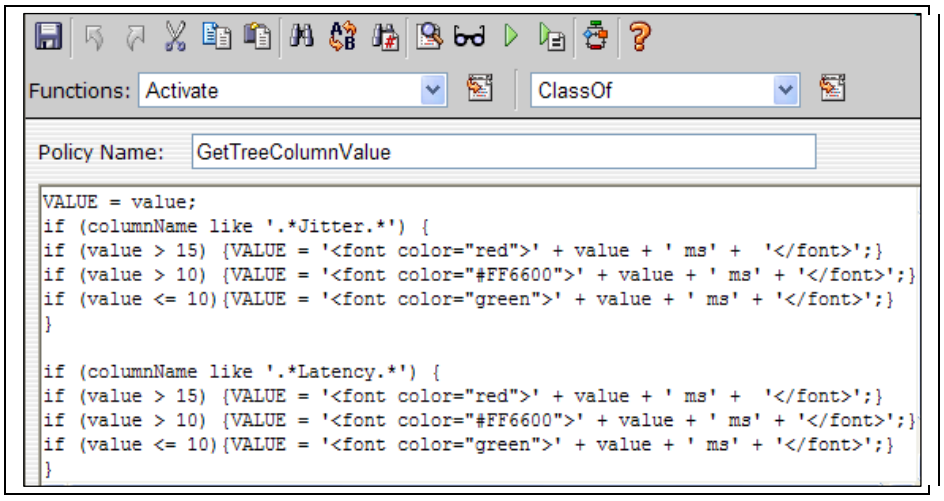

Figure 110: Tivoli Business Service Manager service template edit policy

6. Click the **Save** button  to save your updated policy.

Task 6: Validating the KQI value in the service tree portlet

This task validates the Tivoli Netcool Service Quality Manager metric 'Latency' associated to services associated with the 'VPN' resource type.

1. Select **Availability'→ 'Service Availability**.
2. In the **Service Navigation** portlet, select **Edit options → Edit Preference**, click on the **View** tab and select the service template name you customized in the previous task.
3. Click **Save** to save the reference.
4. You will see a new service tree with an extra column **Latency** and values for each service instance associated with the 'VPN' resource type.

Appendix A: Glossary

This glossary includes terms and definitions for Tivoli Netcool Service Quality Manager.

The following cross-references are used in this glossary:

- See refers you from a term to a preferred synonym, or from an acronym or abbreviation to the defined full form.
- See also refers you to a related or contrasting term.

To view glossaries for other IBM products, go to http://www-01.ibm.com/software/globalization/terminology/index.jsp.

A

Advanced Function Presentation (AFP)
A set of licensed programs, together with user applications, that use the all-points-addressable concept to print data on a wide variety of printers or to display data on various display devices. AFP includes creating, formatting, archiving, retrieving, viewing, distributing, and printing information.

Advanced Interactive Executive (AIX)
A UNIX operating system developed by IBM that is designed and optimized to run on POWER microprocessor-based hardware such as servers, workstations, and blades.

AFP
See **Advanced Function Presentation**.

AIX
See **Advanced Interactive Executive**.

American National Standards Institute (ANSI)
A private, nonprofit organization whose membership includes private companies, U.S. government agencies, and professional, technical, trade, labor, and consumer organizations. ANSI coordinates the development of voluntary consensus standards in the U.S.

ANSI
See **American National Standards Institute**.

API
See **application programming interface**.

application programming interface (API)
An interface that allows an application program that is written in a high-level language to use specific data or functions of the operating system or another program.

ARB
See **arbitrate primitive signal**.

arbitrate primitive signal (ARB)

A primitive signal that is transmitted as the fill word by a loop port (L_port) to indicate that the L_port is arbitrating to access to the loop. See also **arbitrated loop**.

arbitrated loop

(1) For fibre-channel connections, a topology that enables the interconnection of a set of nodes. (2) A shared fibre-channel transport, operating at 100 MBps, or more, that is structured as a loop and supports up to 126 devices and one fabric attachment. A port must successfully arbitrate before a circuit can be established. See also **arbitrate primitive signal**, **switched fabric**, **Network Time Protocol (NTP)**

A protocol that synchronizes the clocks of computers in a network.

node loop port.

array

(1) A structure that contains an ordered collection of data elements in which each element can be referenced by its ordinal position in the collection. All elements in an array have the same data type.

(2) An arrangement of data in one or more dimensions, such as a list, table, or multidimensional arrangement of items.

(3) An arrangement of related hard-disk-drive modules that have been assigned to a group.

(4) In programming languages, an aggregate that consists of data objects, with identical attributes, each of which can be uniquely referenced by subscripting. See also **vector**, **scalar**.

(5) In EGL, a structure item that has an occurs value greater than one. If an array has a subordinate structure item that also has an occurs value greater than one, the subordinate structure item declares an array with an additional dimension.

(6) A number of items stored together, which a user can quickly retrieve by supplying the correct index.

(7) An ordered collection, or group, of physical devices (disk drive modules) that are used to define logical volumes (LVOLs) or devices. In the ESS, an array is a group of disks designated by the user to be managed with a Redundant Array of Independent Disks (RAID). See also **Redundant Array of Independent Disks**.

B

Base Control Program (BCP)

A program that provides essential services for the MVS and z/OS operating systems. The program includes functions that manage system resources. These functions include input/output, dispatch units of work, and the z/OS UNIX System Services kernel. See also **Multiple Virtual Storage**, **z/OS**.

BCP

See **Base Control Program**.

breach value

The value at which a service level objective (SLO) is considered as not being met. A service level agreement (SLA) violation occurs if a breach value for one or more of its SLOs is exceeded. See also **service-level objective**.

C

CA

See **certificate authority**.

CA certificate

See **certificate authority certificate**.

CD-ROM

See **compact-disc read-only memory**.

central processing unit (CPU)

The part of a computer that includes the circuits that control the interpretation and running of instructions.

certificate authority (CA)

A trusted third-party organization or company that issues the digital certificates used to create digital signatures and public-private key pairs. The certificate authority verifies the identity of the individuals who are granted the unique certificate.

certificate authority certificate (CA certificate)

In computer security, a digital document that identifies an organization that issues certificates.

checksum protection
(1) A function that protects data stored in an auxiliary storage pool from being lost because of the failure of a single disk. When checksum protection is in effect and a disk failure occurs, the system automatically reconstructs the data when the system program is loaded after the device is repaired. See also **device parity protection**, **mirrored protection**.
(2) In TCP/IP, the sum of a group of data associated with the group and used for error checking purposes.

CICS
An IBM licensed program that provides online transaction-processing services and management for business applications.

circuit
In fibre-channel technology, an established communication path between two ports, which consists of two virtual circuits capable of transmitting in opposite directions. See also **Lightweight Third Party Authentication (LTPA)**
(1) An authentication framework that allows single sign-on across a set of web servers that falls within an Internet domain.
(2) A protocol that uses cryptography to support security in a distributed environment.
Link.

CLI
See **command-line interface**.

CMS
See **content management system (CMS)**
content management system (CMS)
System designed to help businesses manage and distribute content from diverse sources.

comma delimited file
A file whose records contain fields that are separated by a comma.

command-line interface (CLI)
A type of computer interface in which the input command is a string of text characters. See also **Copy Services command-line interface**.

compact-disc read-only memory (CD-ROM)
High-capacity read-only memory in the form of an optically read compact disc.

Copy Services CLI
See **Copy Services command-line interface**.

Copy Services command-line interface (Copy Services CLI)
Software that invokes ESS Copy Services functions from the command-line interface (CLI) of hosts that are attached to the ESS. See also **command-line interface**.

count key data (CKD)
(1) In mainframe computing, a data-record format employing self-defining record formats in which each record is represented by up to three fields; a count field identifying the record and specifying its format, an optional key field that can be used to identify the data area contents, and an optional data field that typically contains the user data. See also **data record**.
(2) An ESA/390 architecture for a direct access storage device (DASD) logical device that specifies the format of and access mechanisms for the logical data units on the device. The logical data unit is a track that can contain one or more records, each consisting of a count field, an optional key field, and an optional data field. See also **custom volume**.

count-key-data storage
See **S/390 storage**.

CPU
See **central processing unit**.

CRM
See **Customer Relationship Management**.

CSV file

A comma-separated value text file, commonly used to exchange files between database systems that use different formats. Sometimes called comma-delimited files, CSV files can be imported into RequisitePro.

custom volume
A volume in count-key-data (CKD) format that is not a standard volume, which means that it does not necessarily present the same number of cylinders and capacity to its assigned logical control unit, as provided by one of the standard S/390 volume types. See also **count key data**, **standard volume**, **interleave**.

Customer Relationship Management (CRM)
A collection of methods for managing customer relationships.

D

DA
See **device adapter**.

DAP
See **directory access protocol**.

DASD
See **direct access storage device**.

database (DB)
A collection of interrelated or independent data items that are stored together to serve one or more applications.

data circuit-terminating equipment (DCE)
The equipment that provides signal conversion and coding between the data terminal equipment (DTE) and the line. The DCE provides all the functions required to establish, maintain, and end a connection.

data communication equipment (DCE)
A device that establishes, maintains, and terminates a session on a network. It can also convert signals for transmission. It is typically the modem.

Data Definition Language (DDL)
A language for describing data and its relationships in a database. See also **Data Manipulation Language**.

data link control (DLC)
A set of rules used by nodes on a data link (such as an SDLC link or a token ring) to accomplish an orderly exchange of information.

data link control protocol (DLCP)
The protocol layer used by nodes on a data link to accomplish an orderly exchange of information.

Data Manipulation Language (DML)
A subset of SQL statements that is used to manipulate data. Most applications primarily use DML SQL statements, which are supported by the DB2 Connect program. SELECT, INSERT, UPDATE, and DELETE statements are similar across the IBM relational database products. See also **database**, **Structured Query Language**.

data record
The basic unit of S/390 and zSeries storage on an ESS, also known as a count-key-data (CKD) record. See also **index record**, **count key data**, **fixed-block architecture**, **track**.

data terminal equipment (DTE)
(1) In OSI, a physical node on a network.
(2) A device on a data link that sends and receives data, and provides data communications control functions according to protocols.
(3) A communications device that is the source or destination of signals on a network. It is typically a terminal or computer.

DB
See **database**.

DB2
A family of IBM licensed programs for relational database management.

DBCS
See **double-byte character set**.
DCE
(1) See **Distributed Computing Environment**.
(2) See **data communication equipment**.
(3) See **data circuit-terminating equipment**.
DDL
See **Data Definition Language**.
DDM
See **distributed data management**.
device adapter (DA)
A physical component of the ESS that provides communication between the clusters and the storage devices. Multiple DAs are connected to the clusters in such a way that any cluster can access storage device through multiple paths, providing fault tolerance and enhanced availability. See also **SSA adapter**, **loop**.
device parity protection
A function that protects data stored on a disk-unit subsystem from being lost because of the failure of a single disk unit in the subsystem. When a disk-unit subsystem has device parity protection and one of the disk units in the subsystem fails, the subsystem continues to run. The disk-unit subsystem reconstructs the data after the disk unit is repaired or replaced. See also **checksum protection**, **mirrored protection**, **Redundant Array of Independent Disks**.
direct access storage device (DASD)
A device that allows storage to be directly accessed, such as a disk drive. See also **random access memory**.
directory access protocol (DAP)
In OSI, the X.500 protocol that a directory user agent uses to obtain directory information from a remote directory system agent.
disk unit
A sealed container that holds the read and write heads, the magnetic disks, and the actuators. See also **random access memory**.
Distributed Computing Environment (DCE)
In network computing, a set of services and tools that supports the creation, use, and maintenance of distributed applications across heterogeneous operating systems and networks.
distributed data management (DDM)
A function of the operating system that allows an application program or user on one system to use database files stored on remote systems. The systems must be connected by a communications network, and the remote systems must also be using DDM.
Distributed FileManager
An implementation of target (server) support as defined by distributed data management (DDM). DDM permits systems in an extended enterprise that have DDM source (client) capability to access file data on a target MVS system. See also **extended enterprise**, **source**, **target**.
DLC
(1) See **data link control**.
(2) See **data link control protocol**.
DML
See **Data Manipulation Language**.
DNS
See **domain name system**.
domain name
In Internet communications, a name of a host system. A domain name consists of a sequence of subnames that are separated by a delimiter character, for example, www.example.com. See also **domain name system**.
domain name system (DNS)

The distributed database system used to map domain names to IP addresses. See also **domain name**.

double-byte character set (DBCS)
A set of characters in which each character is represented by two bytes. These character sets are commonly used by national languages, such as Japanese and Chinese, that have more symbols than can be represented by a single byte.

DTE
See **data terminal equipment**.

E

EGL
See **EGL**.

Enterprise Generation Language (EGL)
A high-level language that allows developers to focus on business logic as they create complex business applications for deployment in any of several environments, including the web. The language simplifies database and message-queue access, as well as the use of Java EE.

Enterprise Systems Architecture (ESA)
A hardware architecture that reduces the effort required for managing data sets and extends addressability for system, subsystem, and application functions.

Enterprise Systems Architecture/390 (ESA/390)
An IBM architecture for mainframe computers and peripherals. Processor systems that follow the ESA/390 architecture include the ES/9000 family. See also **z/Architecture**.

ESA
See **Enterprise Systems Architecture**.

ESA/390
See **Enterprise Systems Architecture/390**.

ESS (TotalStorage Enterprise Storage Server)
See **IBM TotalStorage Enterprise Storage Server**.

ETSI
See **European Telecommunications Standards Institute**.

European Telecommunications Standards Institute (ETSI)
A European organization founded in 1988 and responsible for the establishment of technical telecommunications standards. It produces European Telecoms Standards (ETS) for its membership, which consists of network operators, PTT manufacturers, users, and research institutes. Some of these functions used to be performed by the Commission of European Post and Telegraph. ETSI is similar in function to the International Telecommunication Union. See also **International Telecommunication Union**.

extended enterprise
A heterogeneous computing environment that often includes both centralized hosts and distributed workstations connected in a network. Gateways within the extended enterprise provide connections to local area networks (LANs). These LANs can serve any computing system architecture. See also **Distributed FileManager**.

Extensible Markup Language (XML)
A standard metalanguage for defining markup languages that is based on Standard Generalized Markup Language (SGML).

F

fabric loop port (FL_port)
A loop-capable fabric port that is used to connect node loop ports (NL_ports) to the switch in a loop configuration. See also **fabric port**, **Fx_port**.

fabric port (F_port)

An access point that is part of a fibre-channel fabric. An F_port on a fibre-channel fabric connects to a node's node port (N_port). See also **fabric loop port**, **Fx_port**.

Faces component
One of a collection of user interface components (such as input fields) and data components (representing data such as records in a database) that can be dragged to a Faces JSP file and then bound to each other to build a dynamic Web project. See also **JavaServer Faces**.

Faces JSP file
A file that represents a page in a dynamic Web project and contains JavaServer Faces UI and data components. See also **JavaServer Faces**.

FBA
See **fixed-block architecture**.

FC
See **fibre channel**.

FCP
See **Fibre Channel Protocol**.

fibre channel (FC)
A technology for transmitting data between computer devices. It is especially suited for attaching computer servers to shared storage devices and for interconnecting storage controllers and drives. See also **fixed-block device**.

Fibre Channel Protocol (FCP)
The serial SCSI command protocol used on fibre-channel networks.

File Transfer Protocol (FTP)
In TCP/IP, an application layer protocol that uses TCP and Telnet services to transfer bulk-data files between machines or hosts.

fixed-block architecture (FBA)
An architecture for a logical device that specifies the format of and access mechanisms for the logical data units on the device. The logical data unit is a block. All blocks on the device are the same size (fixed size). The subsystem can access them independently. See also **data record**.

fixed-block device
An architecture for a logical device that specifies the format of the logical data units on the device. The logical data unit is a block. All blocks on the device are the same size (fixed size); the subsystem can access them independently. This format is required for the logical data units for host systems that attach with a Small Computer System Interface (SCSI) or fibre-channel interface using Fibre Channel Protocol (FCP). See also **Small Computer System Interface**, **fibre channel**.

FTP
See **File Transfer Protocol**.

Fx_port
A fabric port that can operate as either a fabric port (F_port) or fabric loop port (FL_port). See also **fabric port**, **fabric loop port**.

G

gateway
(1) A device or program used to connect networks or systems with different network architectures.
(2) An entity that operates above the link layer and converts, when required, the interface and protocol used by one network into those used by another distinct network.
(3) Software that provides services between the endpoints and the rest of the Tivoli environment.
(4) A component of a Voice over Internet Protocol that provides a bridge between VoIP and circuit-switched environments.
(5) A middleware component that bridges Internet and intranet environments during Web service invocations.

(6) A ground-based link to a mobile satellite service network.
(7) An exit point from Partner Gateway that is used by Partner Gateway to deliver documents to a back-end system or a trading partner.

GDDM

See **global sign-on (GSO)**

A flexible single sign-on solution that enables the user to provide alternative user names and passwords to the back-end Web application server. Global sign-on grants users access to the computing resources they are authorized to use -- through a single login. Designed for large enterprises consisting of multiple systems and applications within heterogeneous, distributed computing environments, GSO eliminates the need for users to manage multiple user names and passwords. See also **single sign-on**.

Graphical Data Display Manager.

global sign-on (GSO)

A flexible single sign-on solution that enables the user to provide alternative user names and passwords to the back-end Web application server. Global sign-on grants users access to the computing resources they are authorized to use -- through a single login. Designed for large enterprises consisting of multiple systems and applications within heterogeneous, distributed computing environments, GSO eliminates the need for users to manage multiple user names and passwords. See also **single sign-on**.

Graphical Data Display Manager (GDDM)

An IBM computer-graphics system that defines and displays text and graphics for output on a display or printer. See also **presentation graphics routines**.

graphical user interface (GUI)

A type of computer interface that presents a visual metaphor of a real-world scene, often of a desktop, by combining high-resolution graphics, pointing devices, menu bars and other menus, overlapping windows, icons and the object-action relationship.

GSO

See **global sign-on**.

GUI

See **graphical user interface**.

H

HATS

See **Host Access Transformation Services**.

HBA

See **host bus adapter**.

home address

A field at the beginning of a track that contains information that identifies the physical track and its association with a cylinder. See also **track**.

Host Access Transformation Services (HATS)

An IBM software set of tools that provides Web-based access to 3270 and 5250-based applications and data sources.

host bus adapter (HBA)

An interface card that connects a host bus, such as a peripheral component interconnect (PCI) bus, to the storage area network.

HTML

See **Hypertext Markup Language**.

Hypertext Markup Language (HTML)

A markup language that conforms to the Standard Generalized Markup Language (SGML) standard and was designed primarily to support the online display of textual and graphical information, including hypertext links.

|

IBM TotalStorage Enterprise Storage Server (ESS, TotalStorage Enterprise Storage Server)
A member of the Seascape product family of storage servers and attached storage devices (disk drive modules). The ESS provides for high-performance, fault-tolerant storage and management of enterprise data, providing access through multiple concurrent operating systems and communication protocols. High performance is provided by multiple symmetrical multiprocessors, integrated caching, RAID support for the disk drive modules, and disk access through a high-speed serial storage architecture (SSA) interface.

IDDU
See **interactive data definition utility**.

IETF
See **Internet Engineering Task Force**.

IMS
See **Information Management System**.

index record
In the Virtual Storage Access Method (VSAM), a collection of index entries that is retrieved and stored as a group. See also **data record**.

Information Management System (IMS)
Any of several system environments available with a database manager and transaction processing that are capable of managing complex databases and terminal networks.

initiator
(1) The role of a node using the two-phase commit protocol when its local transaction program issues a commit operation that begins the two-phase commit flows. The initiator is the root node of a transaction program network. See also **responder**.
(2) In OSI Communications Subsystem, the application entity that starts an application association.
(3) The part of an operating system that reads and processes control statements from the system input device.
(4) The system component that originates an I/O command over an I/O bus or network. I/O adapters and network interface cards are typical initiators. See also **target**.
(5) In Small Computer System Interface (SCSI) technology, the part of a host computer that communicates with its attached targets. See also **SCSI device**.

input/output (I/O)
Pertaining to a device, process, channel, or communication path involved in data input, data output, or both.

interactive data definition utility (IDDU)
A function of the operating system that can be used to externally define the characteristics of data and the contents of files.

interleave
To automatically create two striped partitions across the drives in a RAID-5 array, both of which use the count-key-data (CKD) record format. See also **custom volume**.

International Organization for Standardization (ISO)
An international body charged with creating standards to facilitate the exchange of goods and services as well as cooperation in intellectual, scientific, technological, and economic activity.

International Telecommunication Union (ITU)
A United Nations treaty agency whose mission is to ensure that all nations have access to telecommunication services. The ITU works closely with all standards organizations to form an international uniform standards system for communication. It comprises three branches: telecommunications standardization, telecommunications development, and radiocommunication. See also **European Telecommunications Standards Institute**.

Internet Engineering Task Force (IETF)
The task force of the Internet Architecture Board (IAB) that is responsible for solving the short-term engineering needs of the Internet. The IETF consists of numerous working groups, each focused on a particular

problem. Specifications proposed as standards typically undergo a period of development and review before they are adopted as standards.

Internet Protocol (IP)
A protocol that routes data through a network or interconnected networks. This protocol acts as an intermediary between the higher protocol layers and the physical network. See also **Transmission Control Protocol**.

I/O
See **input/output**.

IP
See **Internet Protocol**.

iSCSI
The encapsulation and transfer of the SCSI command set and data over IP networks. See also **Small Computer System Interface**.

ISO
See **International Organization for Standardization**.

ITU
See **International Telecommunication Union**.

J

Java EE
See **Java Platform, Enterprise Edition**.

Java Message Service (JMS)
An application programming interface that provides Java language functions for handling messages.

Java Platform, Enterprise Edition (Java EE)
An environment for developing and deploying enterprise applications, defined by Sun Microsystems Inc. The Java EE platform consists of a set of services, application programming interfaces (APIs), and protocols that provide the functionality for developing multitiered, Web-based applications. (Sun)

JavaServer Faces (JSF)
A framework for building Web-based user interfaces in Java. Web developers can build applications by placing reusable UI components on a page, connecting the components to an application data source, and wiring client events to server event handlers. See also **JavaServer Pages**, **Faces component**, **Faces JSP file**.

JavaServer Pages (JSP)
A server-side scripting technology that enables Java code to be dynamically embedded within Web pages (HTML files) and run when the page is served, in order to return dynamic content to a client. See also **JSP file**, **JSP page**, **JavaServer Faces**.

Java virtual machine (JVM)
A software implementation of a processor that runs compiled Java code (applets and applications).

JMS
See **Java Message Service**.

JSF
See **JavaServer Faces**.

JSP
See **JavaServer Pages**.

JSP file
A scripted HTML file that has a .jsp extension and allows for the inclusion of dynamic content in Web pages. A JSP file can be directly requested as a URL, called by a servlet, or called from within an HTML page. See also **JavaServer Pages**, **JSP page**.

JSP page

A text-based document using fixed template data and JSP elements that describes how to process a request to create a response. (Sun) See also **JavaServer Pages**, **JSP file**.

JVM

See **Java virtual machine**.

K

key performance indicator (KPI)

A quantifiable measure designed to track one of the critical success factors of a business process.

key quality indicator (KQI)

A quantifiable measure designed to track one of the quality factors of a business process.

KPI

See **key performance indicator**.

KQI

See **key quality indicator**.

L

LAN

See **local area network**.

LDAP

See **Lightweight Directory Access Protocol**.

Lightweight Directory Access Protocol (LDAP)

An open protocol that uses TCP/IP to provide access to directories that support an X.500 model and that does not incur the resource requirements of the more complex X.500 Directory Access Protocol (DAP). For example, LDAP can be used to locate people, organizations, and other resources in an Internet or intranet directory.

Lightweight Third Party Authentication (LTPA)

(1) An authentication framework that allows single sign-on across a set of web servers that falls within an Internet domain.

(2) A protocol that uses cryptography to support security in a distributed environment.

Link

(1) A connection that provides the physical transfer of data from one node to another.

(2) In a file system, a connection between a directory and an object. The link is established when the object is created.

(3) In hypertext, an author-defined association between two information nodes.

(4) In SNA, the combination of the link connection (the transmission medium) and two link stations (one at each end of the link connection).

(5) In TCP/IP, a term for a communications line. A TCP/IP link may share the use of a communications line with SNA.

(6) In a file system, a connection between an i-node and one or more file names associated with it.

(7) In data communication, a transmission medium and data link control (DLC) component that together transmit data between adjacent nodes.

(8) A line or arrow that connects activities in a process. A link passes information between activities and determines the order in which they run.

(9) A directional relationship between two items: the parent and the child. You can use a set of links to model one-to-many associations. See also **reference**.

(10) An icon that provides direct access from one Notes document, view, or database (the source object) to any other document, view, or database (the target object). Notes opens the target object without closing the source object that was branched from.

(11) In fibre-channel technology, two unidirectional fibers carrying data in opposite directions, along with their associated transmitters and receivers. See also **circuit**.

(12) In an IMS multisystem environment, the connection between two systems. See also **physical link** and **logical link**.
(13) In IDDU, to connect a database file on disk with a file definition in a data dictionary. See also **unlink**.
(14) To interconnect items of data or portions of one or more computer programs, for example, the linking of object programs by a linkage editor or the linking of data items by pointers.

local area network (LAN)
A network that connects several devices in a limited area (such as a single building or campus) and that can be connected to a larger network.

logical link
In a multisystem environment, the means by which a physical link is related to the transactions and terminals that can use that physical link. See also **physical link**.

logical unit (LU)
(1) An access point through which a user or application program accesses the SNA network to communicate with another user or application program.
(2) A unit of linear measurement. For example, in Mixed Object Document Content Architecture (MO:DCA) and AFP data streams, the following measurements are used: 1 L-unit = 1/1440 inch, 1 L-unit = 1/240 inch.
(3) In open systems, a logical disk drive.
(4) A device or controller to which Small Computer System Interface (SCSI) commands are addressed, such as a virtual disk (VDisk) or managed disk (MDisk).

logical unit number (LUN)
In the Small Computer System Interface (SCSI) standard, a unique identifier used to differentiate devices, each of which is a logical unit (LU).

logical volume (LV, LVOL)
(1) A collection of physical partitions organized into logical partitions, all contained in a single volume group. Logical volumes are expandable and can span several physical volumes in a volume group.
(2) The combined space on all volumes for either the database or the recovery log. The database is one logical volume and the recovery log is one logical volume.
(3) The storage medium associated with a single logical unit (LU). An LVOL typically resides on one or more storage devices.

loop
(1) A connectivity topology that connects a series of systems or expansion units together. Signals can travel in either direction for optimized performance. Redundancy is provided to each unit by treating the connection as a string when a failure occurs somewhere in the loop.
(2) A sequence of instructions performed repeatedly.
(3) A closed unidirectional signal path connecting input and output devices to a system.
(4) A configuration of devices connected to the fabric by way of a fabric loop port (FL_port) interface card.
(5) The physical connection between a pair of device adapters in the ESS. See also **device adapter**.

LTPA
See **Lightweight Third Party Authentication**.

LU
See **logical unit**.

LUN
See **logical unit number**.

LV
See **logical volume**.

LVOL
See **logical volume**.

M

Management Information Base (MIB)
(1) In the Simple Network Management Protocol (SNMP), a database of objects that can be queried or set by a network management system.
(2) A definition for management information that specifies the information available from a host or gateway and the operations allowed.

managed disk (MDisk, mdisk)
A Small Computer System Interface (SCSI) logical unit (LU) that a Redundant Array of Independent Disks (RAID) controller provides and a cluster manages. The MDisk is not visible to host systems on the storage area network (SAN).

MDisk
See **managed disk**.

mdisk
See **managed disk**.

metric
(1) A measurement type. Each resource that can be monitored for performance, availability, reliability, and other attributes has one or more metrics about which data can be collected. Sample metrics include the amount of RAM on a PC, the number of help desk calls made by a customer, and the mean time to failure for a hardware device. See also **service-level objective**.
(2) A holder for information, usually a business performance measurement, in a monitoring context.

MIB
See **Management Information Base**.

mirrored protection
A function that protects data by duplicating all disk data in an auxiliary storage pool (ASP) to another disk unit (mirrored unit) in the same ASP. If a disk failure occurs, the system keeps running, using the operational mirrored unit of the mirrored pair until the disk unit is repaired or replaced. See also **checksum protection**, **device parity protection**.

Mixed Object Document Content Architecture (MO:DCA)
(1) An IBM-architected, device-independent data stream for interchanging documents.
(2) The architecture that provides a single interface definition allowing objects from different products to be interchanged so that the data can be edited, presented, or manipulated by processes of varying characteristics and intent.

MO:DCA
See **Mixed Object Document Content Architecture**.

Multiple Virtual Storage (MVS)
An IBM operating system that accesses multiple address spaces in virtual storage. See also **Base Control Program**.

MVS
See **Multiple Virtual Storage**.

N

Network Time Protocol (NTP)
A protocol that synchronizes the clocks of computers in a network.

node loop port (NL_port)
A port specific to Fibre Channel Arbitrated Loop (FC-AL). An NL_port has the same functional, logical, and message handling capability as a node port (N_port), but connects to an arbitrated loop rather than to a fabric. In some implementations, ports can function either as N_ports or as NL_ports depending on the network to which they are connected. An NL_port must replicate frames and pass them on when in passive loop mode. See also **arbitrated loop**, **Nx_port**.

node port (N_port)

A port that connects a node to a fabric or to another node. An N_port connects to a fabric port (F_port) or to the N_port of another node. An N_port handles creation, detection, and flow of message units to and from the connected systems. N_ports are end points in point-to-point links. See also **Nx_port**.

NL_port

See **Network Time Protocol (NTP)**

A protocol that synchronizes the clocks of computers in a network.

node loop port.

NTP

See **Network Time Protocol**.

N_port

See **node port**.

Nx_port

A node port that can operate as either a node port (N_port) or node loop port (NL_port). See also **Network Time Protocol (NTP)**

A protocol that synchronizes the clocks of computers in a network.

node loop port, **node port**.

O

OLAP

See **online analytical processing**.

OLTP

See **online transaction processing**.

online analytical processing (OLAP)

The process of collecting data from one or many sources; transforming and analyzing the consolidated data quickly and interactively; and examining the results across different dimensions of the data by looking for patterns, trends, and exceptions within complex relationships of that data.

online transaction processing (OLTP)

A type of interactive application in which requests submitted by users are processed as soon as they are received. Results are returned to the requester in a relatively short period of time.

open systems interconnection (OSI)

The interconnection of open systems in accordance with standards of the International Organization for Standardization (ISO) for the exchange of information.

Operations Support System (OSS)

Systems used by telecommunications service providers to provide network support.

OSI

See **open systems interconnection**.

OSS

See **Operations Support System**.

P

PDF

See **Portable Document Format**.

PCI

See **Peripheral Component Interconnect**.

PCI-X

See **Peripheral Component Interconnect-X**.

Peripheral Component Interconnect (PCI)

A local bus that provides a high-speed data path between the processor and attached devices. See also **Peripheral Component Interconnect-X**.

Peripheral Component Interconnect-X (PCI-X)

An enhancement to the Peripheral Component Interconnect (PCI) architecture. PCI-X enhances the Peripheral Component Interconnect (PCI) standard by doubling the throughput capability and providing additional adapter-performance options while maintaining backward compatibility with PCI adapters. See also **Peripheral Component Interconnect**.

physical link

The actual hardware connection between two systems. See also **logical link**.

PGA

See **program global area**.

PGR

See **presentation graphics routines**.

pointer

(1) A data element or variable that holds the address of a data object or a function. See also **scalar**.

(2) The symbol shown on a display or window that a user can move with a pointing device, such as a mouse.

(3) See **reference**.

point-to-point

(1) Pertaining to data transmission between two locations without the use of any intermediate display station or computer.

(2) Pertaining to a style of messaging application in which the sending application knows the destination of the message.

(3) A fibre-channel topology that employs direct links between each pair of communicating entities. See also **switched fabric**.

Portable Document Format (PDF)

A standard specified by Adobe Systems, Incorporated, for the electronic distribution of documents. PDF files are compact; can be distributed globally via e-mail, the Web, intranets, or CD-ROM; and can be viewed with the Acrobat Reader.

presentation graphics routines (PGR)

A group of routines within the operating system that allows business charts to be defined and displayed procedurally through function routines. See also **global sign-on (GSO)**

A flexible single sign-on solution that enables the user to provide alternative user names and passwords to the back-end Web application server. Global sign-on grants users access to the computing resources they are authorized to use -- through a single login. Designed for large enterprises consisting of multiple systems and applications within heterogeneous, distributed computing environments, GSO eliminates the need for users to manage multiple user names and passwords. See also **single sign-on**.

Graphical Data Display Manager.

program global area (PGA)

The memory region that stores data and control information for a server process.

R

RAID

See **Redundant Array of Independent Disks**.

RAM

See **random access memory**.

random access memory (RAM)

Computer memory in which any storage location can be accessed directly. See also **disk unit**.

Redundant Array of Independent Disks (RAID)

A collection of two or more physical disk drives that present to the host an image of one or more logical disk drives. In the event of a physical device failure, the data can be read or regenerated from the other disk drives in the array due to data redundancy. See also **device parity protection**, **Serial Storage Architecture**, **array**.

reference
(1) In VisualAge RPG, information from a physical source file that may be extracted at build time. Any changes made to the original source must be recompiled to reflect the changes at run time.
(2) Single direction, one-to-one association between a root or child component and another root component.
See also **Lightweight Third Party Authentication (LTPA)**
(1) An authentication framework that allows single sign-on across a set of web servers that falls within an Internet domain.
(2) A protocol that uses cryptography to support security in a distributed environment.
Link.
(3) Logical names defined in the application deployment descriptor that are used to locate external resources for enterprise applications. At deployment, the references are bound to the physical location of the resource in the target operational environment.
(4) A named slot within a classifier that facilitates navigation to other classifiers.
(5) A pointer to another instance that defines the role and scope of an object in an association.
Report Program Generator (RPG)
A programming language designed for writing application programs for business data processing requirements. The application programs range from report writing and inquiry programs to applications such as payroll, order entry, and production planning.
responder
(1) In OSI Communications Subsystem, the application entity that accepts an application association. See also **initiator**.
(2) A key server that is asked to establish a dynamic virtual private network (VPN) connection between two endpoints.
(3) In distributed queuing, a program that replies to network connection requests from another system.
RPG
See **Report Program Generator**.

S

S/390
IBM enterprise servers based on Enterprise Systems Architecture/390 (ESA/390).The S/390 has been superseded by the IBM zSeries.
S/390 storage
Storage arrays and logical volumes (LVOLs) that are connected to S/390 servers. S/390 storage sometimes also includes zSeries storage. See also **zSeries storage**.
SAN
(1) See **system area network**.
(2) See **storage area network**.
SAP
See **Service Advertising Protocol**.
SAPMON
See **Service Advertising Protocol Monitoring**.
scalar
(1) Pertaining to a single data item.
(2) A type of program object that contains either string or numeric data. It provides the byte string it is mapped to with representation and operational characteristics. See also **pointer**.
(3) An arithmetic object, an enumerated object, or a pointer to an object.
(4) A quantity characterized by a single value. See also **array**, **vector**.
SCbus
See **SID**
See **system identifier**.

Signal Computing bus.

SCSA

See **Signal Computing System Architecture**.

SCSI

See **Small Computer System Interface**.

SCSI device

A product, such as a drive or adapter, connected to a host through an I/O interface using the Small Computer System Interface (SCSI) protocol. A SCSI device is either an initiator or a target. See also **Small Computer System Interface**, **initiator**.

SDLC

See **Synchronous Data Link Control**.

Seascape architecture

A storage system architecture developed by IBM for open-systems servers, and S/390 and zSeries host systems. It provides storage solutions that integrate software, storage management, and technology for disk, tape, and optical storage.

Secure Sockets Layer (SSL)

A security protocol that provides communication privacy. With SSL, client/server applications can communicate in a way that is designed to prevent eavesdropping, tampering, and message forgery.

Serial Storage Architecture (SSA)

An American National Standards Institute (ANSI) standard, implemented by IBM, for a high-speed serial interface that provides point-to-point connection for peripherals, such as storage arrays. See also **Redundant Array of Independent Disks**, **spatial reuse**, **SSA adapter**.

Service Advertising Protocol (SAP)

A protocol that allows service providing nodes, such as file server and print server, to advertise their services so that clients can access the services. SAP also provides for responding to a user for a given type of service. This information is delivered through the use of the Internetwork Packet Exchange (IPX) protocol. A SAP packet contains sets of service entry information.

Service Advertising Protocol Monitoring (SAPMON)

A monitoring process that provides information about available network resources and services.

service-level agreement (SLA)

A contract between a customer and a service provider that specifies the expectations for the level of service with respect to availability, performance, and other measurable objectives. See also **service-level objective**.

service-level objective (SLO)

A specification of a metric property that is associated with both threshold values for peak and off-peak hours in a schedule and a guaranteed level of service that is defined in a service level agreement (SLA). See also **service-level agreement**, **metric**, **breach value**.

SGA

See **system global area**.

SGML

See **SSO**

See **single sign-on**.

Standard Generalized Markup Language.

SID

See **system identifier**.

Signal Computing bus (SCbus)

A time division multiplexed (TDM) hardware bus originated by Dialogic to interconnect different vendors' computer telephony adapters. Specified as part of Signal Computing System Architecture (SCSA).

Signal Computing System Architecture (SCSA)

An architecture defined by Dialogic to support interoperability of software and hardware components developed by different vendors in the computer telephony industry.

Simple Network Management Protocol (SNMP)

A set of protocols for monitoring systems and devices in complex networks. Information about managed devices is defined and stored in a Management Information Base (MIB).

single sign-on (SSO)

An authentication process in which a user can access more than one system or application by entering a single user ID and password. See also **global sign-on**.

sink

A port that takes voice data from the SCBus. See also **source**.

SLA

See **service-level agreement**.

SLO

See **service-level objective**.

Small Computer System Interface (SCSI)

(1) An ANSI-standard electronic interface that allows personal computers to communicate with peripheral hardware, such as disk drives, tape drives, CD-ROM drives, printers, and scanners faster and more flexibly than previous interfaces. See also **iSCSI**, **fixed-block device**, **SCSI device**.

(2) A standard hardware interface that enables a variety of peripheral devices to communicate with one another. See also **target**.

SNA

See **system global area (SGA)**

A group of shared memory areas that are dedicated to database programs and RAM, which are an Oracle instance.

system identifier (SID)

A number that identifies a cellular network in an area.

Systems Network Architecture.

SNMP

See **Simple Network Management Protocol**.

source

(1) In VisualAge RPG, a part that can notify target parts whenever the state of the source part changes. A source part can have multiple targets.

(2) A system, a program within a system, or a device that makes a request to a target.

(3) A resource, such as a host, that is being monitored by an event adapter.

(4) A port that places voice data on the SCBus. See also **single sign-on (SSO)**

An authentication process in which a user can access more than one system or application by entering a single user ID and password. See also **global sign-on**.

sink.

(5) The markup-language pertaining to files that define a HATS project or one of its resources. Also the name of a folder contained in each HATS project.

(6) In distributed data management (DDM), the platform that originates a request for remote data. See also **Distributed FileManager**, **target**.

spatial reuse

A feature of Serial Storage Architecture (SSA) that enables a device adapter (DA) loop to support many simultaneous read/write operations. See also **Serial Storage Architecture**.

SQL

See **Structured Query Language**.

SSA

See **Serial Storage Architecture**.

SSA adapter

A physical adapter based on Serial Storage Architecture (SSA). SSA adapters connect disk drive modules (DDMs) to ESS clusters. See also **Serial Storage Architecture**, **device adapter**.

SSL

See **Secure Sockets Layer**.

SSO
See **single sign-on**.

Standard Generalized Markup Language (SGML)
A standard metalanguage for defining markup languages that is based on the ISO 8879 standard. SGML focuses on structuring information rather than presenting information; it separates the structure and content from the presentation. It also facilitates the interchange of documents across an electronic medium.

standard volume
A volume that emulates one of several S/390 volume types, such as the 3390-2, 3390-3, 3390-9, 3390-2 (3380-track mode), or 3390-3 (3380-track mode). A standard volume presents the same number of cylinders and capacity to the host as the native S/390-volume type of the same name presents. See also **custom volume**.

storage area network (SAN)
A dedicated storage network tailored to a specific environment, combining servers, systems, storage products, networking products, software, and services.

Structured Query Language (SQL)
A standardized language for defining and manipulating data in a relational database. See also **Data Manipulation Language**.

switched fabric
(1) A Fibre Channel topology that provides the underlying structure to interconnect multiple nodes and provides the necessary switching functions to support communication among multiple nodes. See also **arbitrated loop**, **point-to-point**.
(2) The physical or logical mapping of the location of networking components or nodes within a network. Common network topologies include bus, ring, star, and tree.

Synchronous Data Link Control (SDLC)
A protocol for managing synchronous information transfer over a data link connection.

system area network (SAN)
The connectivity of multiple systems with the characteristic of high-performance communications and thus an implied short distance between nodes in the network.

system global area (SGA)
A group of shared memory areas that are dedicated to database programs and RAM, which are an Oracle instance.

system identifier (SID)
A number that identifies a cellular network in an area.

Systems Network Architecture (SNA)
The description of the logical structure, formats, protocols, and operational sequences for transmitting information through and controlling the configuration and operation of networks.

T

target
(1) The program or system to which a request for files or processing is sent.
(2) In VisualAge RPG, a part that receives a target event from a source part whenever the state of the source part changes.
(3) In SEU, a line command, such as B (Before) or A (After), that specifies the destination for other line commands such as C (Copy) or M (Move).
(4) The destination for an action or operation.
(5) A collection of logical units (LUs) that are directly addressable on the network. The target corresponds to the server in a client-server model.
(6) A storage device on a fibre-channel network.
(7) In distributed data management (DDM), the platform that fulfills a request for remote data. A target is also known as a server. See also **Distributed FileManager**, **source**.

(8) A Small Computer System Interface (SCSI) device that acts as a subordinate to an initiator and consists of a set of one or more logical units (LUs), each with an assigned logical unit number (LUN). The LUs on the target are typically I/O devices. A SCSI target is analogous to an S/390 control unit; a SCSI initiator is analogous to an S/390 channel; and a SCSI LU is analogous to an S/390 device. See also **Small Computer System Interface**, **initiator**.

(9) A value that a Key Performance Indicator (KPI) should achieve, such as "300" or "5 days."

TCP

See **Transmission Control Protocol**.

TCP/IP

See **Transmission Control Protocol/Internet Protocol**.

Telnet

In TCP/IP, a protocol that provides remote-terminal connection service. Telnet enables users of one host to log on to a remote host and interact as if they were directly attached terminal users of that host.

TotalStorage Enterprise Storage Server (ESS)

See **ESS**.

track

(1) A circular path on the surface of a disk or diskette on which information is magnetically recorded and from which recorded information is read.

(2) A unit of storage on a count-key-data (CKD) device that can be formatted to contain a number of data records. See also **data record**, **track-descriptor record**, **home address**.

track-descriptor record

A special record on a track that follows the home address. The control program uses the track-descriptor record to maintain certain information about the track. The record has a count field with a key length of zero, a data length of 8, and a record number of 0. This record is sometimes referred to as R0. See also **track**.

Transmission Control Protocol (TCP)

A communication protocol used in the Internet and in any network that follows the Internet Engineering Task Force (IETF) standards for internetwork protocol. TCP provides a reliable host-to-host protocol in packet-switched communication networks and in interconnected systems of such networks. See also **Internet Protocol**.

Transmission Control Protocol/Internet Protocol (TCP/IP)

An industry-standard, nonproprietary set of communication protocols that provides reliable end-to-end connections between applications over interconnected networks of different types.

U

UI

See **user interface**.

UNIX

A highly portable operating system that features multiprogramming in a multiuser environment. The UNIX operating system was originally developed for use on minicomputers, but was adapted for mainframes and microcomputers. The AIX operating system is IBM's implementation of the UNIX operating system.

unlink

In IDDU, to remove the association between a database file on disk and a file definition in a data dictionary.

See also **Lightweight Third Party Authentication (LTPA)**

(1) An authentication framework that allows single sign-on across a set of web servers that falls within an Internet domain.

(2) A protocol that uses cryptography to support security in a distributed environment.

Link.

Uniform Resource Locator (URL)

The unique address of an information resource that is accessible in a network such as the Internet. The URL includes the abbreviated name of the protocol used to access the information resource and the information used by the protocol to locate the information resource.

user interface (UI)

The hardware, or software, or both that enables a user to interact with a system, program, or device.

V

virtual disk (VDisk)

(1) In CICS/VSE, a range of up to two gigabytes of contiguous virtual storage addresses that a program can use as workspace. Although the virtual disk exists in storage, it appears as a real FBA disk device to the user program. All I/O operations directed to a virtual disk are intercepted and the data to be written to, or read from, the disk is moved to or from a data space. Like a data space, a virtual disk can hold only user data; it does not contain shared areas, system data or programs. Unlike an address space or a data space, data is not directly addressable on a virtual disk. To manipulate data on a virtual disk, the program has to perform I/O operations.

(2) A device that host systems attached to the storage area network (SAN) recognize as a Small Computer System Interface (SCSI) disk.

VDisk

See **virtual disk**.

vector

(1) In the GDDM function, a directed line segment, which is a straight line between two points.

(2) In SNA, a data structure containing three fields; a length field that specifies the length of the vector in which it is contained, an identifier or type field, and a value field. The value field may contain subvectors.

(3) An array of one dimension.

(4) A linearly ordered collection of scalars of the same type. Each scalar is said to be an element of the vector. See also **array**, **scalar**.

virtual private network (VPN)

An extension of a company's intranet over the existing framework of either a public or private network. A VPN ensures that the data that is sent between the two endpoints of its connection remains secure.

Virtual Storage Access Method (VSAM)

An access method for direct or sequential processing of fixed-length and variable-length records on disk devices. The records in a VSAM data set or file can be organized in logical sequence by a key field (key sequence), in the physical sequence in which they are written on the data set or file (entry sequence), or by relative-record number.

Virtual Storage Extended (VSE)

A system that consists of a basic operating system (VSE/Advanced Functions), and any IBM supplied and user-written programs required to meet the data processing needs of a user. VSE and the hardware that it controls form a complete computing system. Its current version is called VSE/ESA.

Voice over Internet Protocol (VoIP)

Sending telephony voice over Internet Protocol (IP) data connections rather than existing dedicated voice networks, switching and transmission equipment.

VoIP

See **Voice over Internet Protocol**.

VPN

See **virtual private network**.

VSAM

See **virtual private network (VPN)**

An extension of a company's intranet over the existing framework of either a public or private network. A VPN ensures that the data that is sent between the two endpoints of its connection remains secure.

Virtual Storage Access Method.

VSE
See **Virtual Storage Extended**.

X

X.500
The directory services standard of ITU, ISO, and IEC.
XML
See **Extensible Markup Language**.

Z

z/Architecture
An IBM architecture for mainframe computers and peripherals. The zSeries family of servers uses the z/Architecture. It is the successor to the S/390 and 9672 family of servers. See also **Enterprise Systems Architecture/390**.
z/OS
An IBM mainframe operating system that uses 64-bit real storage. See also **Base Control Program**.
zSeries
IBM enterprise servers based on z/Architecture.
zSeries storage
Storage arrays and logical volumes (LVOLs) that are defined in the ESS as connected to zSeries servers. See also **count-key-data storage**.

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