

*InCharge*TM

Service Assurance Manager User's Guide for Business Impact Manager

Version 6.2



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Contents

Preface	vii
Intended Audience	vii
Prerequisites	vii
Document Organization	viii
Documentation Conventions	viii
InCharge Installation Directory	ix
Additional Resources	xi
InCharge Commands	xi
Documentation	xi
Technical Support	xii
1 Overview	1
InCharge Business Impact Manager	2
2 Business Elements and Notifications	5
Business Impact Manager Elements	5
ServiceOffering	6
BusinessProcess	6
ServiceSubscriber	6
Customer	6
Organization	7
BusinessUnit	7
LOB (Line of Business)	7
Department	7
Business Impact Manager Processes	7
Calculated Business Impact Values	8
Automatically Propagated Business Impact Notifications	8
Notifications Created with Business Process Tools	11

3	Business Services Map	15
	Using the Business Services Map	15
	Accessing Maps	18
	Displaying the Business Services Map	18
	Business Services Map Example	19
4	Setting Up and Using Business Impact Manager	23
	Understanding Names and Display Names	23
	Business Impact Weights	24
	Mechanisms for Assigning Weights	25
	Strategies for Assigning Weights	26
	Creating Business Elements	27
	Importing Business Data	27
	Syntax for Defining Business Elements	28
	Import Files Examples	29
	Optional Import Files	32
	Rules and Considerations For Creating Business Elements	33
	Specifying Data Files to Import	33
	Reconfiguration and Regrouping	34
	Creating Business Elements with the Topology Builder Console	35
	Accessing the Topology Builder Console	36
	Layout of the Topology Builder Console	36
	Modifying Topology	38
	Adding Elements to Your Topology	38
	Adding Elements Using Create Instance	39
	Adding Elements with the Create Pop-Up Menu	42
	Adding Elements with the Create Node Toolbar Button	42
	Adding Existing Elements with Add to Map	42
	Adding Relationships and Connections to the Topology	43
	Deleting Elements, Relationships, and Connections	43
	Synchronizing Topology	44
	Index	45

Preface

This guide describes the InCharge Service Assurance Business Impact Manager. It also describes the business elements that serve as the basis for Business Impact Manager, and provides information about how to configure and use Business Impact Manager.

Intended Audience

This guide is intended to be read by business enterprise and/or network service provider administrators and managers who need to set up and use Business Impact Manager, as well as by integrators who need to deploy and implement InCharge Business Impact Manager with InCharge Service Assurance.

Prerequisites

This document assumes that the reader has an installed, functioning InCharge Service Assurance Global Manager, and has installed the required components of InCharge Business Impact Manager.

Document Organization

This guide consists of the following sections:

1. OVERVIEW	Provides an overview of InCharge Business Impact Manager and its use.
2. BUSINESS ELEMENTS AND NOTIFICATIONS	Describes the business elements used by InCharge Business Impact Manager. It also discusses automatically generated notifications for the elements, and tool-created notifications for BusinessProcess elements.
3. BUSINESS SERVICES MAP	Describes the Business Services Map displayed through the Global Console.
4. SETTING UP AND USING BUSINESS IMPACT MANAGER	Discusses the creation of business element instances, and the assignment of weights to elements managed by Business Impact Manager.

Table 1: Document Organization

Documentation Conventions

Several conventions may be used in this document as shown in Table 2.

CONVENTION	EXPLANATION
<code>sample code</code>	Indicates code fragments and examples in Courier font
keyword	Indicates commands, keywords, literals, and operators in bold
<code>%</code>	Indicates C shell prompt
<code>#</code>	Indicates C shell superuser prompt
<code><parameter></code>	Indicates a user-supplied value or a list of non-terminal items in angle brackets
<code>[option]</code>	Indicates optional terms in brackets
<code>/InCharge</code>	Indicates directory path names in italics
<i>yourDomain</i>	Indicates a user-specific or user-supplied value in bold, italics
<code>File > Open</code>	Indicates a menu path in italics
▼▲	Indicates a command that is formatted so that it wraps over one or more lines. The command must be typed as one line.

Table 2: Documentation Conventions

Directory path names are shown with forward slashes (/). Users of the Windows operating systems should substitute back slashes (\) for forward slashes.

Also, if there are figures illustrating consoles in this document, they represent the consoles as they appear in Windows. Under UNIX, the consoles appear with slight differences. For example, in views that display items in a tree hierarchy such as the Topology Browser, a plus sign displays for Windows and an open circle displays for UNIX.

Finally, unless otherwise specified, the term InCharge Manager is used to refer to InCharge programs such as Domain Managers, Global Managers, and adapters.

InCharge Installation Directory

In this document, the term **BASEDIR** represents the location where InCharge software is installed.

- For UNIX, this location is: `/opt/InCharge<n>/<productsuite>`.
- For Windows, this location is: `C:\InCharge<n>\<productsuite>`.

The `<n>` represents the InCharge software platform version number. The `<productsuite>` represents the InCharge product suite that the product is part of.

Table 3 defines the `<productsuite>` directory for each InCharge product.

PRODUCT SUITE	INCLUDES THESE PRODUCTS	DIRECTORY
InCharge IP Management Suite	<ul style="list-style-type: none"> • IP Availability Manager • IP Performance Manager • IP Discovery Manager • InCharge Adapter for HP OpenView NNM • InCharge Adapter for IBM/Tivoli NetView 	/IP

PRODUCT SUITE	INCLUDES THESE PRODUCTS	DIRECTORY
InCharge Service Assurance Management Suite	<ul style="list-style-type: none"> • Service Assurance Manager • Global Console • Business Dashboard • Business Impact Manager • Report Manager • SAM Failover System • Notification Adapters • Adapter Platform • SQL Data Interface Adapter • SNMP Trap Adapter • Syslog Adapter • XML Adapter • InCharge Adapter for Remedy • InCharge Adapter for TIBCO Rendezvous • InCharge Adapter for Concord eHealth • InCharge Adapter for InfoVista • InCharge Adapter for NetIQ AppManager 	/SAM
InCharge Application Management Suite	<ul style="list-style-type: none"> • Application Services Manager • Beacon for WebSphere • Application Connectivity Monitor 	/APP
InCharge Security Infrastructure Management Suite	<ul style="list-style-type: none"> • Security Infrastructure Manager • Firewall Performance Manager • InCharge Adapter for Check Point/Nokia • InCharge Adapter for Cisco Security 	/SIM
InCharge Software Development Kit	<ul style="list-style-type: none"> • Software Development Kit 	/SDK

Table 3: Product Suite Directory for InCharge Products

For example, on UNIX operating systems, InCharge IP Availability Manager is, by default, installed to `/opt/InCharge6/IP/smarts`. This location is referred to as **BASEDIR**/`smarts`.

Optionally, you can specify the root of **BASEDIR** to be something other than `/opt/InCharge6` (on UNIX) or `C:\InCharge6` (on Windows), but you cannot change the `<productsuite>` location under the root directory.

For more information about the directory structure of InCharge software, refer to the *InCharge System Administration Guide*.

Additional Resources

In addition to this manual, SMARTS provides the following resources.

InCharge Commands

Descriptions of InCharge commands are available as HTML pages. The *index.html* file, which provides an index to the various commands, is located in the **BASEDIR**/*smarts/doc/html/usage* directory.

Documentation

Readers of this manual may find other SMARTS documentation (also available in the **BASEDIR**/*smarts/doc/pdf* directory) helpful.

InCharge Documentation

The following SMARTS documents are product independent and thus relevant to users of all InCharge products:

- *InCharge Release Notes*
- *InCharge Documentation Roadmap*
- *InCharge System Administration Guide*
- *InCharge ICIM Reference*
- *InCharge ASL Reference Guide*
- *InCharge Perl Reference Guide*

InCharge Service Assurance Manager Documentation

The following SMARTS documents are relevant to users of the InCharge Service Assurance Management product suite.

- *InCharge Service Assurance Management Suite Installation Guide*
- *An Introduction to InCharge Service Assurance Manager*
- *InCharge Operator's Guide*
- *InCharge Service Assurance Manager Configuration and Administration Guide*
- *InCharge Service Assurance Manager Business Dashboard Configuration Guide*
- *InCharge Service Assurance Manager User's Guide for Business Impact Manager*

- *InCharge Service Assurance Manager User's Guide for Report Manager*
- *InCharge Service Assurance Manager Failover System User's Guide*

The following SMARTS documents are relevant to InCharge Service Assurance Manager adapters.

- *InCharge Service Assurance Manager Notification Adapters User's Guide*
- *InCharge Service Assurance Manager SQL Data Interface Adapter User's Guide*
- *InCharge Service Assurance Manager Adapter Platform User's Guide*
- *InCharge XML Adapter User's Guide*
- *InCharge Service Assurance Manager User's Guide for Remedy Adapter*
- *InCharge Service Assurance Manager User's Guide for Concord eHealth Adapter*
- *InCharge Service Assurance Manager User's Guide for InfoVista Adapter*

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Overview

Business enterprises, such as financial institutions, manufacturers, and retailers, as well as network service providers, rely on today's technologies to conduct their businesses. Their enterprises are comprised of three broad categories of elements that need to be managed, as shown in Figure 1: network infrastructure elements, applications, and business elements.

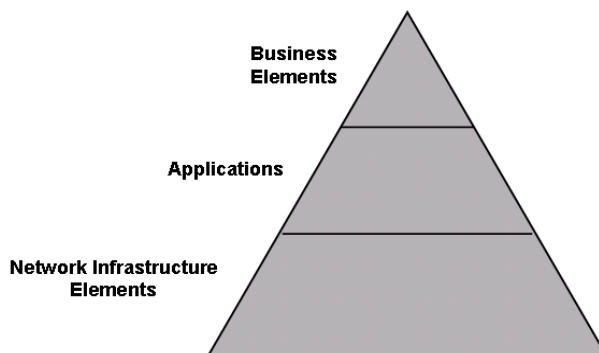


Figure 1: Infrastructure Elements, Applications, and Business Elements

Network infrastructure elements include, for example, hosts, routers, and switches: all of the devices and connections that make up a network.

Applications, which are layered over and hosted by the infrastructure elements, include elements such as accounting packages, order management programs, and inventory control packages.

Business elements not only include business operations and processes, but also the elements that use those processes: service subscribers, organizations, business units, lines of business, departments and customers. (See [Business Impact Manager Elements](#) on page 5 for a description of the elements.)

All of the elements are closely linked: applications depend on infrastructure elements; business elements depend on the applications that they use in conducting business.

The degradation or failure of important network infrastructure elements can slow or stop vital applications and services, and dramatically reduce user productivity in needed business areas.

For example, a host (an infrastructure element) that exhibits degraded performance will slow one or more applications that are running on it. The slow applications will, in turn, disrupt business operations and processes on which users (organizations, business units, lines of business, departments, and customers) depend.

InCharge Business Impact Manager connects infrastructure elements and applications managed by InCharge with specified business elements. This enables business enterprises and network service providers to immediately identify disruptions and failures, and prioritize the resolution of network problems in accordance with their business impact.

InCharge Business Impact Manager

InCharge Business Impact Manager (Business Impact Manager) operates in conjunction with, and extends the capabilities of InCharge Service Assurance Manager to calculate the business impact of events. It then propagates the impacts to affected business elements (service offerings, business processes, and the users of the processes). The propagated impacts are discrete notifications that are connected through a causal event chain to the authentic problem(s) in the network infrastructure responsible for the problems of the business processes and elements. (See [Business Impact Manager Processes](#) on page 7 for detailed information about notifications.)

Each authentic problem includes a business impact value. The business impact value is displayed in the Notification Log of Service Assurance Manager. Concurrently, the propagated impact notification, that is generated for a business element (Impacted), is displayed on the Business Services Map Console of Service Assurance Manager. The Impacted instance of the business element displays a Severity Icon that is colored according to the severity level of the notification. (if multiple notifications are active at the element, the most severe level is indicated). Double clicking on the element instance on the Business Services Map displays the details of the notification(s).

To perform its operations, Business Impact Manager includes facilities to import business element definitions. (See [Importing Business Data](#) on page 27 for additional information.)

Additionally, Business Impact Manager includes a Topology Builder console through which business elements can be added and modified. (See [Creating Business Elements with the Topology Builder Console](#) on page 35 for additional information.)

Business Impact Manager also includes facilities to assign weights to business and infrastructure elements in the topology. Business Impact Manager uses the assigned weights when calculating values for business impacts. (See [Business Impact Weights](#) on page 24 for additional information.)

2

Business Elements and Notifications

This chapter describes the InCharge Common Information Model™ (ICIM) business elements that are managed by the InCharge Business Impact Manager.

In addition, this chapter describes the Business Impact Manager processing, including the following:

- How business impact values are calculated for impacted business elements.
- How Impacted notifications are automatically generated and propagated to particular business elements
- How notifications for business process elements can be created through the Business Process Tools.

Business Impact Manager Elements

Business Impact Manager manages multiple business elements:

- ServiceOffering and BusinessProcess elements
- Business User elements which include ServiceSubscribers, Organizations, BusinessUnits, LOBs, Departments, and Customers.

ServiceOffering

An element that represents a business service delivered to a set of subscribers. The ServiceOffering is related to its subscribers through the Subscribers/Subscriptions relationship. A ServiceOffering is also related to the infrastructure and application elements that implement the offering through the ConsistsOf/MemberOf relationship.

BusinessProcess

A BusinessProcess represents functions and operations that support the internal business activities and/or other processes of a business enterprise. In the manufacturing sector, BusinessProcess elements can include, for example, Order Processing, Production Planning, Purchasing and Receiving, Inventory Management, Production Control, and Accounts Payable and Receivable.

A BusinessProcess participates in the Serves/ServedBy relationshipset with other BusinessProcess elements. Serves/ServedBy models the dependencies between business processes. In addition, BusinessProcess elements can also participate in the ConsistsOf/MemberOf relationship with instrumented topology elements such as application and infrastructure elements. The BusinessProcess is also related to its subscribers through the Subscribers/Subscriptions relationship.

ServiceSubscriber

This element represents a business user who subscribes to a ServiceOffering. Internal business units may also be referred to as ServiceSubscribers so that they can be associated with the individual services they manage. The ServiceSubscriber relationship to the ServiceOffering is Subscribers.

Customer

A Customer is a business element that consumes the services of one or more BusinessProcess elements. The element represents one or more business enterprises or individuals that maintain a business relationship with an Organization or one of its BusinessUnit elements.

Organization

An Organization represents a hierarchically structured business enterprise comprised of one or more business units that engage in one or more lines of business. Its primary function is to manage the performance of its composite business units. Organization elements can include, for example, manufacturers, retailers, financial institutions, and service providers.

BusinessUnit

Within an Organization, a BusinessUnit represents a semi-autonomous division that engages in one or more lines of business. Typically, BusinessUnit elements focus on specific product markets (in the computer industry, for example, hardware or software products) and/or geographical areas (for example, the Eastern United States, Europe, or Asia).

LOB (Line of Business)

Within a BusinessUnit, a LOB represents a division that focuses on specific product markets. In the insurance industry, LOB elements include, for example, general homeowner policies, fire coverage, and flood insurance. LOB elements can be further categorized as commercial lines (for businesses) and personal lines (for individuals).

Department

Within a BusinessUnit or LOB, a Department represents a group that engages in business functions which support the BusinessUnit or LOB. Two very common, yet vital Department elements can include, for example, Human Resources and Accounting.

Business Impact Manager Processes

Business Impact Manager evaluates events that affect business elements by performing the following processing:

- Calculating business impact values and generating impacted notifications
- Automatically propagating business impact notifications
- Allowing creation of notifications with Business Process Tools

Calculated Business Impact Values

Business Impact Manager uses weights to automatically calculate the business impact of incoming notifications from the underlying managed domains. The weights are assigned to business elements, and to the infrastructure and application elements that support those business elements. (See [Business Impact Weights](#) on page 24 for detailed information about weights.) The impact, therefore, is dynamically calculated at the time of an infrastructure or application slowdown or failure, and is based on the administrator-defined impact to the business service, process, and/or business user.

When Business Impact Manager automatically calculates business impacts, it performs the following operations:

- Determines the infrastructure or application element associated with the original authentic problem, and the other infrastructure and application elements associated with all of the problem's impacts. The association between the authentic problem and its impacts is the result of the root-cause and impact analysis of the underlying InCharge applications.
- Determines the business elements associated with each of the infrastructure and application elements.
- Reads the weights assigned to the infrastructure, application and business elements, and calculates a value for impact.
- Uses a built-in, automated mechanism to automatically propagate impacts to affected business elements as discrete notifications that are related to the infrastructure or application events that triggered them.

After Business Impact Manager calculates the business impact of events, the Impact notification property, which quantifies the business impact of an authentic problem, is displayed in the Notification Log of Service Assurance Manager.

Impact is a viewable attribute for all notifications (indicated by IMPACT in the Category column). It is also a value calculated by Business Impact Manager (in the Impact column of the Notification Log), and can be used to sort notifications by the effect that they have on service delivery.

Automatically Propagated Business Impact Notifications

Concurrently with calculating the business impact of events, the propagated impact notification that is generated for a business element (Impacted), is displayed in the Notification Log and on the Business Services Map Console of Service Assurance Manager.

Impacts are propagated as follows:

- To service offerings whenever an event occurs on a member of the service offering.
- To the business process that is served by the Impacted business process.
- To one service subscriber from another whenever an event occurs on a service offering or business process associated with the service subscriber. In addition, impacts are propagated to service subscribers from the other service subscribers that are part of it. For example, impacts are propagated to an Organization from the Impacted Department that is part of the Organization.

The instance of the business element on the Business Services Map is colored according to the severity level of the notification. Double clicking on the element instance displays the details of the notification.

Note: Except for notifications created by the Business Process Tools for BusinessProcess elements, there are no root-cause or symptomatic events defined for business elements.

Automatically Propagated Impact Notification Scenario

An example of the automatic propagation of Impacted notifications is shown in Figure 2. In this example, the Trade Settlement BusinessProcess depends on a Trade Settlement Application. When viewing the Business Services Map, remember that it shows dependent relationships through arrows: arrows point from a business element to the element that it depends on. Conversely, Impacted notifications propagate *to* a business element *from* the element that it depends on. This means that Impact notifications are propagated in the direction that is opposite to that of the relationship arrows.

To aid in understanding, read the relationships in Figure 2 from top to bottom and left to right. For example, TradeAccntgFinCntr (Trade Accounting Financial Center) is served by Trade Netting and Trade Netting serves Trade Settlement.

When the Trade Settlement Application is Degraded (severity level 2, Major notification), it causes Business Impact Manager to generate an Impacted notification for the Trade Settlement BusinessProcess.

Thus, Trade Settlement Application Degraded causes Trade Settlement Impacted. From Trade Settlement BusinessProcess, the Impacted notification propagates to any dependant business processes—that is, any business processes that Trade Settlement serves. These are the Trade Reconciliation and TradeAcctngFinCntr BusinessProcesses.

The Trade Reconciliation Impacted and TradeAcctngFinCntr Impacted notifications then propagate further to any business processes served by these processes: to the Trade Netting BusinessProcess from TradeAcctngFinCntr Impacted and, once again, to TradeAcctngFinCntr from Trade Reconciliation Impacted.

As a result, Business Impact Manager generates an Impacted notification for Trade Reconciliation, Trade Netting, Trade Problem Investigation, and TradeAcctngFinCntr.

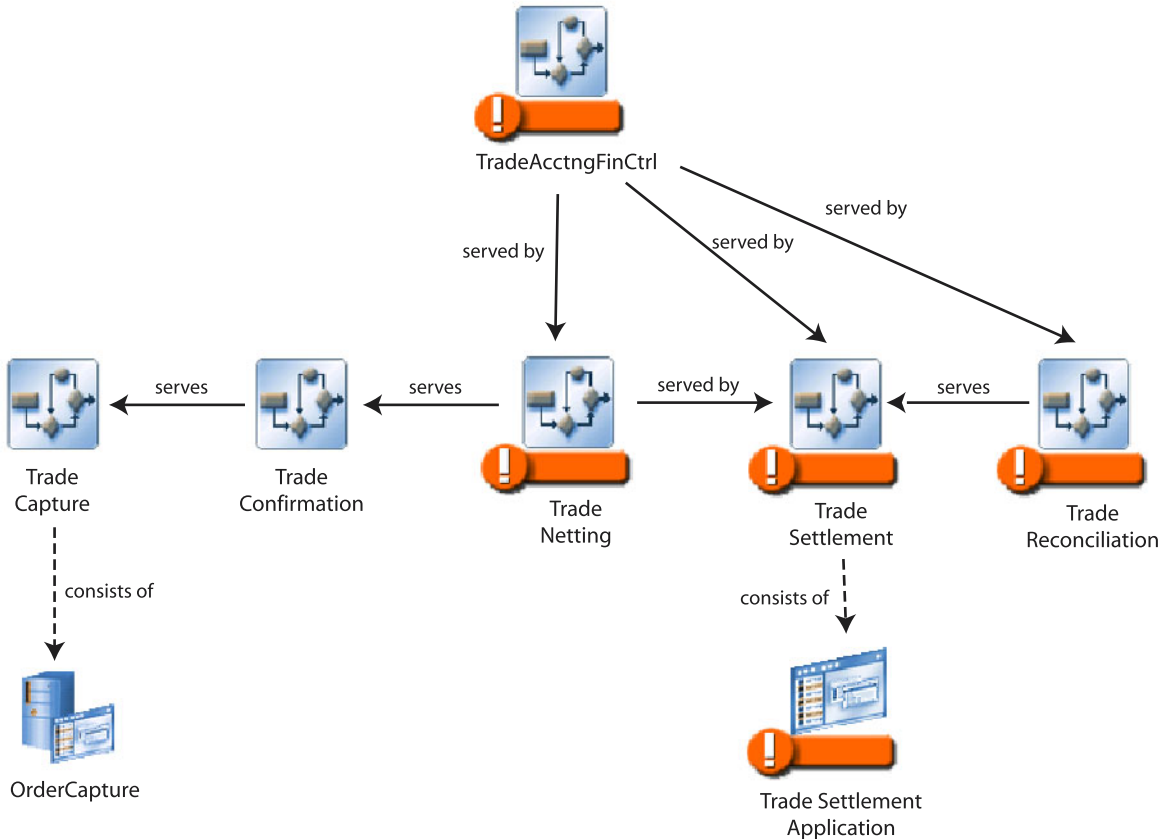


Figure 2: Automatically Propagated Impact Notification Scenario

Notifications Created with Business Process Tools

BusinessProcess elements are typically affected by performance degradation or failures in infrastructure or application elements, and are displayed as Impacted notifications. However, business leaders, for example, directors and managers, as well as other authorized personnel, can also create root-cause notifications for BusinessProcess elements when they notice disruptions in processes.

For example, a financial officer of a business unit can create a root-cause notification if the officer sees that the Accounts Receivable process is impacted by external activities such as construction in the building that prevents access to the Accounts Receivable office. The problem with the process can then be resolved in a timely manner.

Through the Global Console, you can access tools to create, modify, or clear BusinessProcess notifications. The tools used to create and update these notifications are called Business Process Tools.

Business Process Tools are included with the InCharge Global Manager as a set of server-side tools. The tools can only be used to create and update notifications for BusinessProcess elements. They are described in the following sections.

Notify Business Process Event

This tool enables you to create a notification on a BusinessProcess element. In the dialog (see Figure 3), you must provide a value for EventName (note that the EventName cannot be Impacted, which is reserved). Severity is optional when a value already exists (re-notify of an existing notification). EventText is optional.

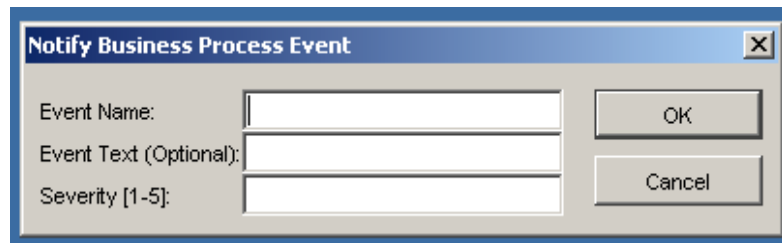


Figure 3: Notify Business Process Event Dialog

The Notify Business Process Event tool is accessed from the Topology Browser or Business Services Map by right-clicking on an instance of a BusinessProcess element and selecting *Notify Business Process Event* from the Server Tools menu.

The attributes for Business Process notifications initiated by the Business Process Tools are created with the values listed in Table 4.

ATTRIBUTE	VALUE
Category	BusinessNotification
Certainty	100
ClearOnAcknowledge	FALSE
EventType	DURABLE
Expiration	0
InMaintenance	FALSE
SourceDomainName	INCHARGE-SA (Global Manager name)

Table 4: Attributes for Business Process Notifications

Update Business Process Event

This tool enables you to change the EventText and Severity values of a BusinessProcess notification. In the dialog (see Figure 4), you can optionally update the values for EventText and Severity. If the values are not updated, the current values remain.

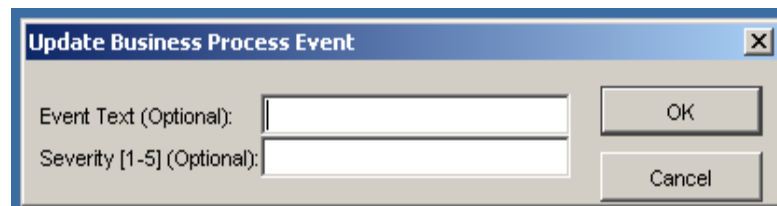


Figure 4: Update Business Process Event Dialog

The Update Business Process Event tool is accessed from the Notification Log by right-clicking on a BusinessProcess notification (that is not an Impacted notification) and selecting *Update Business Process Event* from the Server Tools menu.

Clear Business Process Event

This tool enables you to clear a notification on a BusinessProcess element. In the dialog (see Figure 5), you can update the EventText.

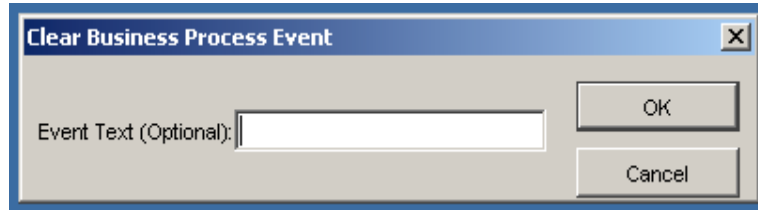


Figure 5: Clear Business Process Event Dialog

The Clear Business Process Event tool is accessed from the Notification Log by right-clicking on an active BusinessProcess notification (that is not an Impacted notification) and selecting *Clear Business Process Event* from the Server Tools menu.

Business Process Tools Notification Scenario

The following illustrates an Impact notification created with the Business Process Tools.

In Figure 6, the BusinessProcess CRM (Customer Relationship Management) depends on an Application, Customer Service, for its operations. When Customer Service is Degraded or Down, CRM is Degraded or Down. When viewing the Business Services Map, remember that it shows dependent relationships through arrows: arrows point from a business element to the element that it depends on. Conversely, Impacted notifications propagate to a business element *from* the element that it depends on. This means that Impact notifications are propagated in the direction that is opposite to that of the relationship arrows.

To aid in understanding, read the relationships in Figure 6 from top to bottom and left to right. For example, CRM consists of Customer Service and Accounting serves CRM.

For example, if the customer service representatives decide to strike at Ace Industries, their manager can use the Business Process Tools to create an UnusualSituation root-event on CRM with a severity level 1, critical. Business Impact Manager will also create an Impacted notification on the affected BusinessProcess CRM also with the severity level 1, critical.

In addition, the CRM notification propagates through the ServedBy relationship to the business process of Accounting. As a result, Business Impact Manager generates an Impacted notification for Accounting.

Thus, the CRM UnusualSituation notification causes CRM and Accounting Impacted notifications.

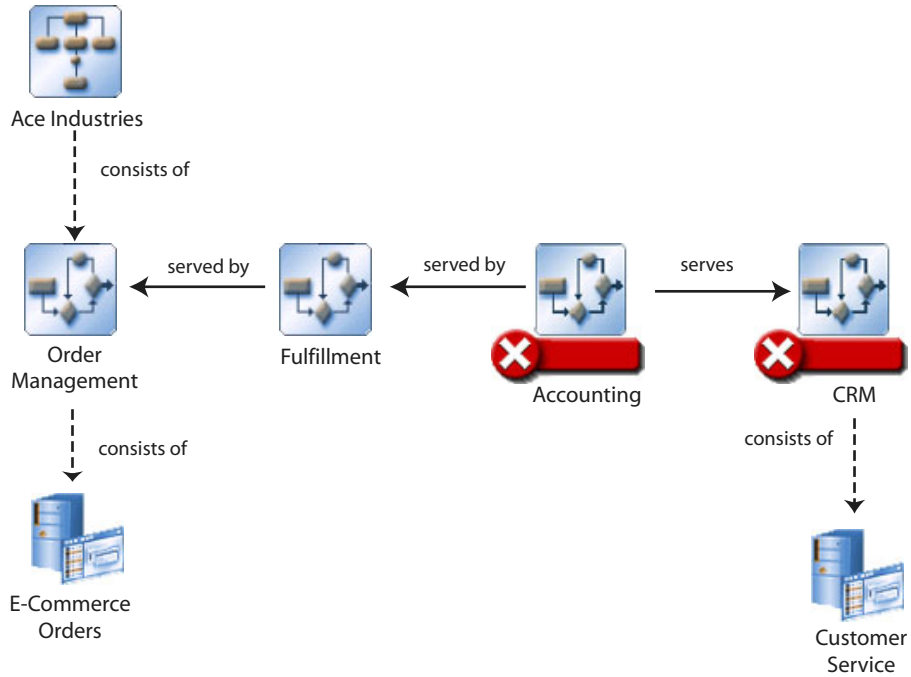


Figure 6: Business Process Tools Notification Scenario

3

Business Services Map

This chapter briefly describes how to use the Business Services Map that can be displayed in the Global Console to learn more about the source, impact and causes of business impact events.

Note: See the *InCharge Operator's Guide* for detailed information about the use of the Global Console.

Using the Business Services Map

The Business Services Map displays business users, the business services that these users consume, and the applications and infrastructure elements that support the business services:

- The business users include Organizations, BusinessUnits, LOBs, Departments, Customers, and ServiceSubscribers.
- The business services include BusinessProcesses and ServiceOfferings. ServiceOfferings are usually web hosting or a device name service.
- Applications and infrastructure elements include ApplicationServices, Applications, devices or groups of elements, Sessions, Transactions, and RedundancyGroups.

Note: Access to the Business Services Map is permitted based on the permissions provided by your InCharge user account.





If an application or infrastructure element has a relationship to a business element, the Business Services Map is available for that application or infrastructure element in the Topology tab of the Map Console. Likewise, for groups with relationships to business elements, the Business Services Map will be available for the group in the Groups tab.









The relationships between elements are called edges. The edges display as arrows in a Business Services Map:

- Solid arrows indicate dependencies.
- Dotted arrows indicate composition or ownership.

Table 5 identifies and describes the default icons and other visual indicators that may appear in a Business Services Map. In the Map Console, you can also select *Map > Map Legend* to see a similar list.

Note that your system administrator may replace the default element icons with other element icons that are preferred by your organization. In that case, use *Map > Map Legend* to see the definitions of your element icons.

ICON / VISUAL INDICATOR	DESCRIPTION
	Icon represents an Application.
	Icon represents an ApplicationServer.
	Icon represents an ApplicationService.
	Icon represents a BusinessProcess. This is a business element.

ICON / VISUAL INDICATOR	DESCRIPTION
	<p>Icon represents a BusinessUnit. This is a business element.</p>
	<p>Icon represents a Customer. This is a business element.</p>
	<p>Icon represents a DatabaseServer.</p>
	<p>Icon represents a Department. This is a business element.</p>
	<p>Icon represents an LOB (Line of Business). This is a business element.</p>
	<p>Icon represents an Organization. This is a business element.</p>
	<p>Icon represents a ServiceOffering. This is a business element.</p>
	<p>Icon represents a ServiceSubscriber. This is a business element.</p>



ICON / VISUAL INDICATOR	DESCRIPTION
	Solid down arrow represents dependency.
	Dotted down arrow represents composition.

Table 5: Default Element Icons and Edges for the Business Services Map

Accessing Maps

You can access maps by selecting *Show Map* from any existing console. *Show Map* opens the Map Console and displays the default map for the selected element. *Show Map* is available as a button in some secondary windows and dialog boxes or as an option from the *Event* menu for selected notifications.

For example:

- The *Show Map* button appears in the Find Instance and Find System dialog boxes. (The button is activated when you select a row in the table.)
- The *Show Map* option appears in the *Event* menu or the pop-up menu if you right-click on a selected notification.
- Use the *Show Map* toolbar button to display a default type of map for a selected summary. *Show Map* is enabled if a topological filter is specified for the summary.

Displaying the Business Services Map

To display a Business Services map, perform these steps:

- 1** Open the Map Console.
- 2** Select an instance of any classes in the Topology tab or a group in the Groups tab.
- 3** Right-click and select *Business Services* in the pop-up menu. The map displays. If the *Business Services* option is not available (greyed out), then a Business Services Map is not available for the element.

Business Services Map Example

In the following Business Services map example, an Organization called ACME uses an order management process flow. The flow includes five distinct business processes:

- Demand Planning develops product and market forecasts to ensure ACME can meet customer demands. This process does not rely on a specialized application.
- Order Management uses an SAP application suite to support all order management functions, including scheduling and generating parts lists.
- Fulfillment relies on FedEx fulfillment services to deliver orders to customers.
- Accounting provides customer billing, accounts receivable, and accounts payable functions for ACME. These functions are supported by an SQL database that stores financial data and the Oracle Financials application for bookkeeping.
- Customer Relationship Management (CRM) attempts to ensure customer satisfaction after order delivery by providing product support, refund processing, and warranties. CRM uses the Siebel applications for this purpose.

The Business Services Map in Figure 7 shows how the order management process flow is mapped in Business Impact Manager. ACME appears in the topology tree under Organization. When ACME is selected in the topology tree, the Business Services map appears. In Figure 7, the Business Services Map was expanded to show all elements.

The Business Services Map shows that the Organization, Acme, relies on five BusinessProcesses through the dependencies. Four of the BusinessProcesses consist of at least an ApplicationService: two BusinessProcesses also consist of a DatabaseServer.

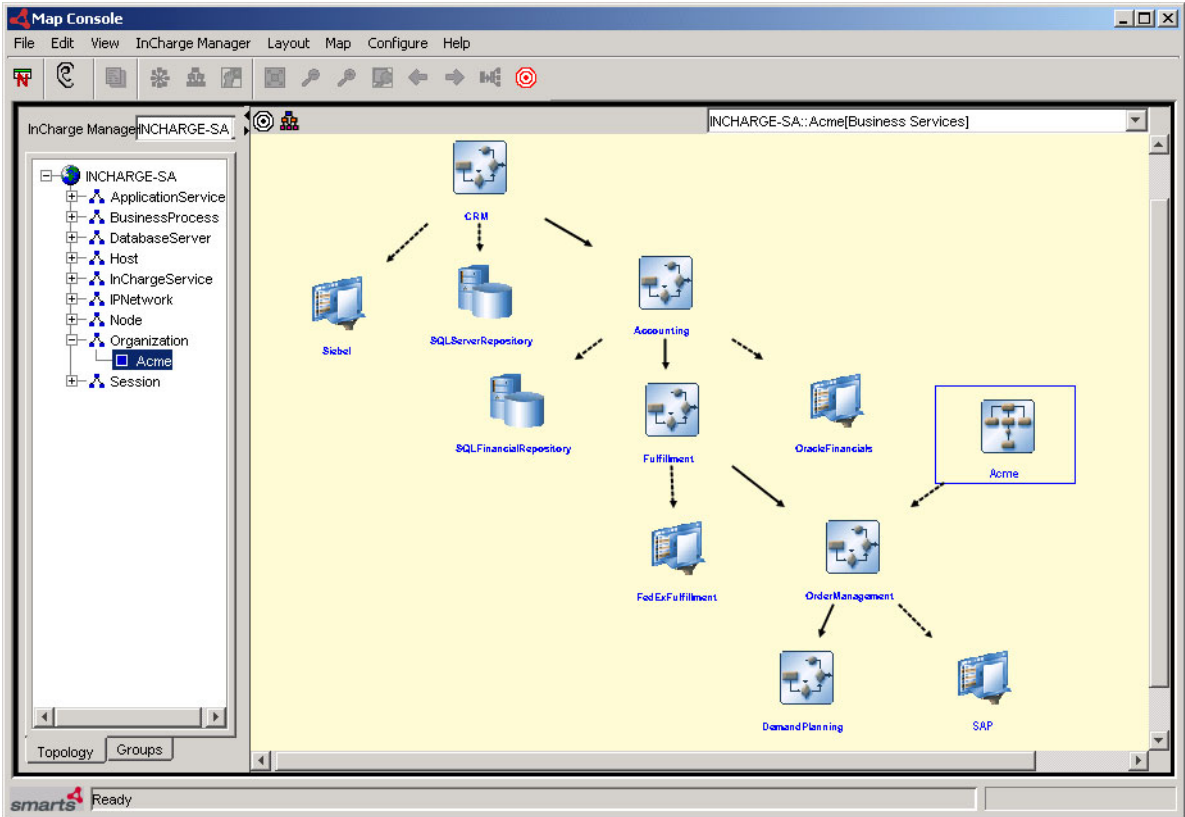


Figure 7: An Example of a Fully Expanded Business Services Map

When viewing a Business Services map, you may find it useful to manually rearrange the icons so that the logic of the Organization’s business processes is more evident. For example, after manually rearranging the icons, the linear relationship of the BusinessProcesses is obvious in Figure 8:

- The BusinessProcesses include DemandPlanning, OrderManagement, Fulfillment, Accounting, and CRM. Remember that the arrowheads indicate dependencies—not data flow. Therefore, DemandPlanning depends on, or is served by, the OrderManagement process. OrderManagement is served by Fulfillment, and so on.
- ApplicationServices include FedExFulfillment, OracleFinancials, SAP, and Siebel. Dashed lines with arrowheads indicate composition: for example, the Fulfillment BusinessProcess is composed of the FedExFulfillment application and the OrderManagement is composed of the SAP application.

- The DatabaseServers are SQLFinancialRepository and SQLServerRepository. Once again, dashed lines with arrowheads indicate composition, so the SQLServerRepository is a member of the CRM BusinessProcess and SQLFinancialRepository is a member of Accounting.

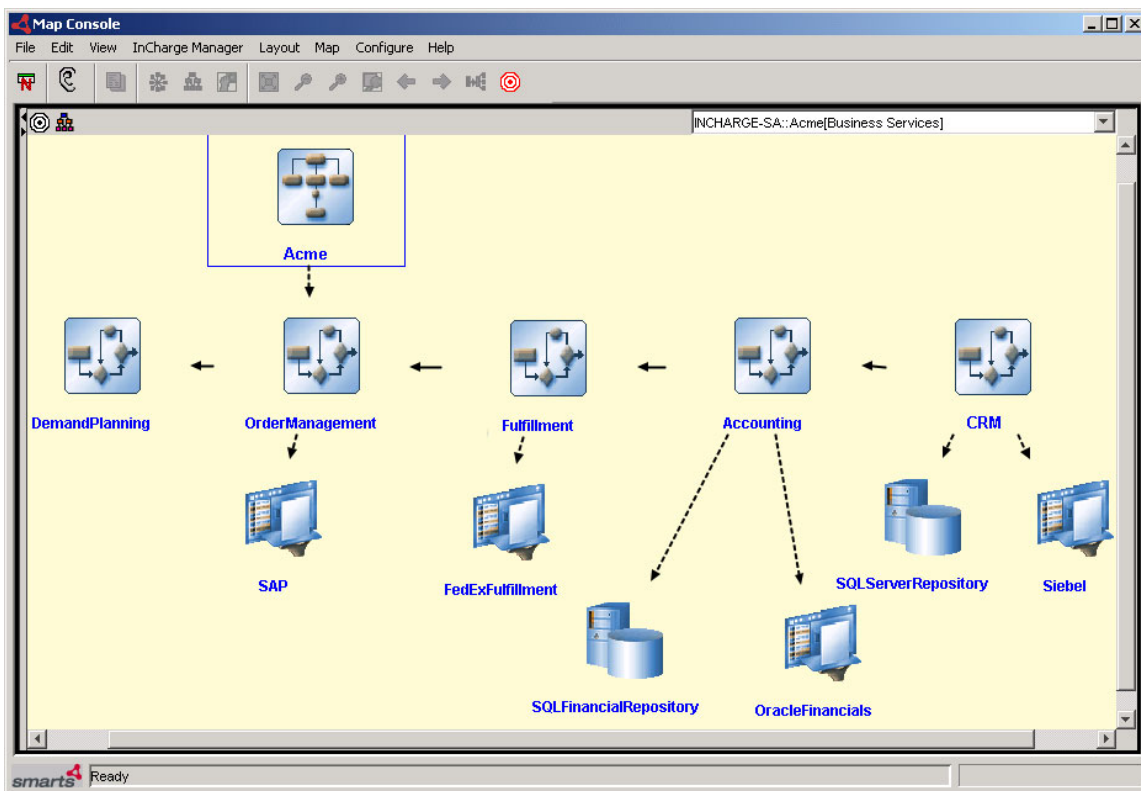


Figure 8: An Example of a Manually Arranged Business Services Map Showing an Organization's Business Processes

When an event occurs, its business impact is calculated and Impact notifications are automatically propagated to affected business elements. Figure 9 shows how impacts are automatically propagated in the example. A Degraded event occurs at the Siebel ApplicationService, which indicates Major status (severity 2). An Impacted notification results at the CRM BusinessProcess which also indicates Major status (severity 2). No other BusinessProcesses are served by CRM, so there is no further propagation of the impact.

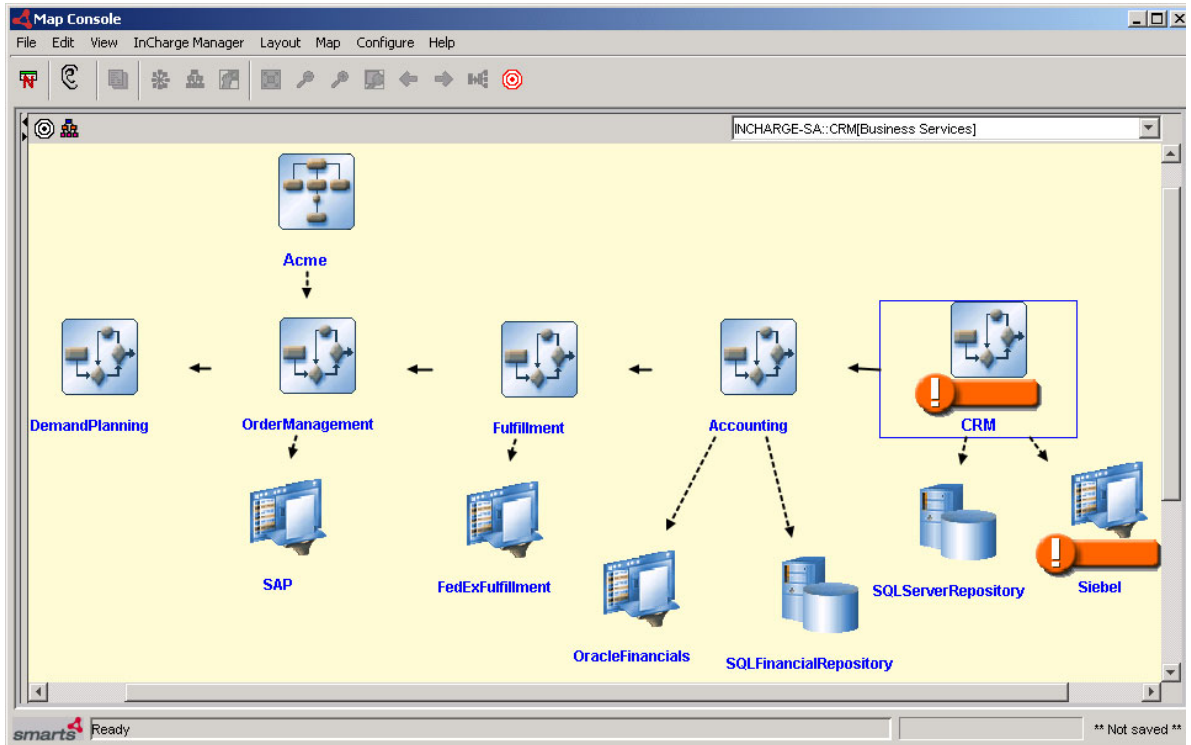


Figure 9: An Example of Notification Propagation in a Business Services Map for an Organization

4

Setting Up and Using Business Impact Manager

This chapter discusses element names, explains how to import topological data, and describes how to use the Topology Builder to add and update elements and relationships. It also describes the weights used by Business Impact Manager when it calculates impact values for root cause notifications.

Understanding Names and Display Names

Each element in the Global Manager's repository must have a unique name. When you create a topological element, the Global Manager assigns a predetermined prefix to each element's name to prevent naming conflicts with other topology elements. Table 6 lists the prefixes for the business elements managed by Business Impact Manager.

PREFIX	BUSINESS ELEMENT
SRVO-	ServiceOffering
BP-	BusinessProcess
SRVS-	ServiceSubscriber
ORG-	Organization
BU-	BusinessUnit

PREFIX	BUSINESS ELEMENT
LOB-	LOB (Line of Business)
DEP-	Department
CUS-	Customer
HGRP	HierarchicalGroup

Table 6: Prefixes for Business Element Names

In addition to a Name, each element is also given a DisplayName, which is easier to read and understand. The DisplayName does not include the element prefix.

When you create topology elements using topology import files or the Topology Builder, specify the DisplayName. The Global Manager automatically creates the Name by adding the prefix to the DisplayName.

When topology elements are created by other means, for example, through a custom adapter, the Name of the element must include the prefix while the DisplayName should not. Elements created using these methods must observe the naming conventions used by InCharge software.

Business Impact Weights

Business Impact Manager calculates a numeric impact value for the problem by summing the weight for each impacted element. The numeric impact value appears in the Impact column in the Notification Log.

A weight is a numeric value you assign to an element (for example, ServiceOffering, BusinessProcess, or ServiceSubscriber) based on its importance to your business. By summing all of the assigned values, Business Impact Manager determines which events have a greater business impact than others. This allows you to apply your own criteria to “weigh” network problems based on information that is most important to you at any given time. This enables you to prioritize support efforts based on business impacts.

Only root cause notifications can have a non-zero Impact value. A notification can both cause and be caused by other notifications, as shown in Figure 10. Notification N2 is caused by N1 (the root notification), and causes notification N3. However, even if the notification causes other notifications, if it is not the root cause notification, its Impact value is zero. (The `IsRoot` attribute of the notification is equal to `FALSE`.) Only notification N1 has an Impact value greater than zero.

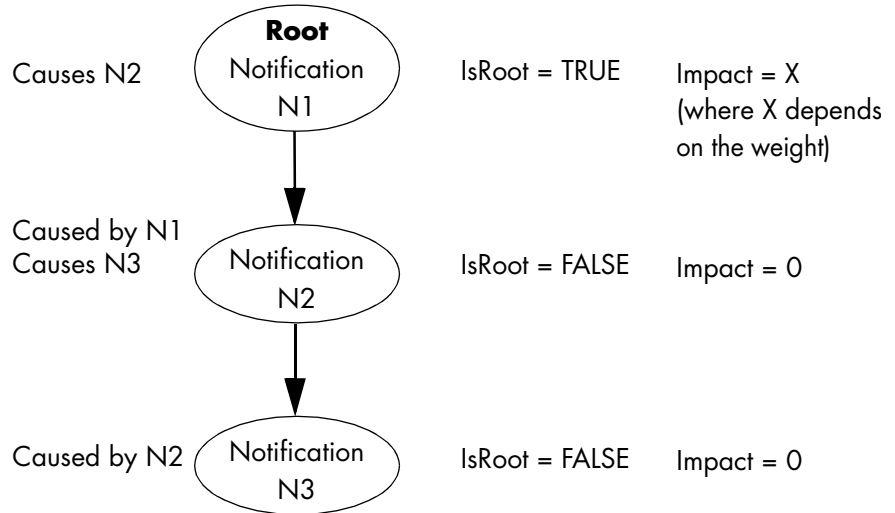


Figure 10: Relationship Between Root Notifications and Impact Value

Mechanisms for Assigning Weights

Business Impact Manager uses the `weights.conf` file to assign weights. By default, Business Impact Manager assigns a weight of "1" for each managed infrastructure or business element in the `ICIM_ManagedElement` class. Therefore, if left at this default level, all impacted infrastructure, `ServiceOffering`, `BusinessProcess`, and `ServiceSubscriber` objects carry equal "weight" when determining an event's impact.

To change weights, edit your local copy of the `weights.conf` file in the **BASEDIR**/`smarts/local/conf/ics` directory. Then reconfigure the Business Impact Manager to apply the changes. Use the following command to reconfigure Business Impact Manager:

```
% sm_adapter -s <global_manager_name> ▼
▲ics/ICS_RemoteConfig.asl
```

- ▼▲ The command must be type as one line.
-

Strategies for Assigning Weights

Weight values are assigned to ICIM classes and instances in the *weights.conf* file provided in the **BASEDIR**/*smarts/conf/ics* directory.

Weights can be assigned to any element class or instance by specifying one of the following keywords:

- ClassWeight
- InstanceNameWeight
- InstanceWeight

The syntax in the file is as follows:

```
ClassWeight <class_name> <value>
InstanceNameWeight <class_name> <DisplayName> <value>
InstanceNameWeight <class_name> <full_instance_name> <value>
InstanceWeight <class_name> <instance_name> <value>
```

For the keyword InstanceNameWeight, business classes are specified by their DisplayName, without a prefix. For all other classes, you must specify the <full_instance_name>, or the complete name of the element, including the prefix of the element. For <instance_name>, you can specify the DisplayName or you can specify a wildcard pattern. The symbols for wildcards are listed and described in the *weights.conf* file.

When you assign weight values to elements, categorize the elements according to their importance within your environment. Then, assign greater values to the elements that are more important to your business.

For example:

```
ClassWeight          ICIM_ManagedElement 1
InstanceNameWeight   BusinessProcess Inventory 4000
InstanceNameWeight   Application APP-Inventory Service 4000
InstanceWeight       Router *[Gg] [Ww] * 1000
```

Similarly, you can assign varying weights to service subscribers:

```
ClassWeight   Organization   1000
ClassWeight   BusinessUnit   1200
ClassWeight   LOB             1400
ClassWeight   Department     1600
ClassWeight   Customer       1800
```

Note: In Business Impact Manager's calculations, the weight assigned to an instance takes precedence over the weight assigned to a class, and the weight assigned to a subclass takes precedence over the weight assigned to the parent class.

Creating Business Elements

There are several methods used to create new business elements:

- Importing service data files (see [Importing Business Data](#) on page 27).
- Using the Topology Builder Console (in the Global Console). See [Creating Business Elements with the Topology Builder Console](#) on page 35.

The method used to create the business element determines how the element can be deleted.

Elements or relationships that are created by the Topology Builder Console can only be removed by the Topology Builder Console. Similarly, the Topology Builder Console cannot remove any business elements or relationships that are created or established using the import files.

Note: The Topology Builder Console can also delete service information created using other means, such as an ASL script or using the **create** operation with the **dmctl** utility.

Importing Business Data

The import function allows you to import business elements (for example, ServiceOfferings, BusinessProcesses, ServiceSubscribers). When defining these, you must state the relationships to the underlying infrastructure elements and applications.

Importing business elements can entail defining the following components:

- ServiceOffering: a service provided to business users.
- BusinessProcess: a process used by business users or another process

- **ServiceSubscriber**: the business users who receive services provided by a **ServiceOffering** or **BusinessProcess**.

You must define the elements that have relationships with the **ServiceOfferings** using these relationship keywords:

- **members**: A list of the infrastructure elements directly relied upon by the service. This could be a list of network elements (hosts, routers, applications, etc.) or a **HierarchicalGroup**.
- **subscribers**: A list of the business users that subscribe to the service.

You must also define the components that have relationships with the **ServiceSubscribers** using the relationship keyword:

- **subscriptions**: A list of the services being provided to the user.

Business elements are imported into Business Impact Manager using import data files. A template (*service.data.template*) of this import data file can be found in **BASEDIR**/*smarts/conf/ics*.

Use **sm_edit** to create an import data file. The file name is specified on the command line. Normally, the file is specified from its original installation location, such as **BASEDIR**/*smarts/conf/ics/service.data.template*. **sm_edit** will actually edit the file in the “local” area of the directory structure, such as **BASEDIR**/*smarts/local/conf/ics/service.data.template*. If the local version of the file does not yet exist, **sm_edit** will copy it, creating any necessary directories, and setting the protection appropriately. If the local version of the file already exists, it will be edited.

The following example edits the template file. The template file can then be saved with a new name.

```
$ sm_edit conf/ics/service.data.template
```

Once you have created your data file containing the necessary business elements, or service data, you can then list that data file name in the *BusinessSection* of the *ics.conf* file provided in **BASEDIR**/*smarts/local/conf/ics*.

Syntax for Defining Business Elements

The *service.data.template* file provides an example business topology import file. You can specify business elements in a topology import file, and the Global Manager will create the elements and add them to its topology. For smaller collections of elements, you can add business elements to the topology using the Global Console Topology Builder.

The intent is to use the template file to create business elements (ServiceOffering, BusinessProcess, ServiceSubscriber, Organization, BusinessUnit, LOB, Department, and Customer) and establish their relationships to existing infrastructure elements.

The syntax for defining business topology is as follows:

```
<class> <instance> <relationship> <related_instance>
```

- <class> is the name of any business class.
- <instance> is the DisplayName name of the instance to be created.
- <relationship> is the name of the relationship and <relationship> can be one of the following:
 - **members**
 - subscriptions/subscribers
 - composedof/partof
 - serves/servedby
- <related_instance> is the name of the related instance(s) members, subscribers, or applications. If *members* is specified, this is a list of instances in <class>::<instance> format. In such cases, the listed instances must already exist in the topology

In all cases, except when **members** is specified, the class name is optional. When the class name is not specified, Business Impact Manager makes the following assumptions:

- When <relationship> is **subscribers**, the default class for <related_instance> is ServiceSubscriber.
- When <relationship> is **subscriptions**, the default class for <related_instance> is ServiceOffering.
- When <relationship> is composedof or partof, the default class for <related_instance> is ServiceSubscriber.
- When <relationship> is serves or servedby, the default class for <related_instance> is BusinessProcess.

Import Files Examples

In the following ServiceSubscriber-ServiceOffering examples, keywords are indicated in bold type and user input is in regular type.

```
▼ServiceSubscriber subscriber1 subscriptions service1
```

```
service2 BusinessProcess::bProcess1▲
```

-
- ▼▲ The command must be typed as one line.
-

This results in the creation of the ServiceSubscriber element subscriber1 and the ServiceOffering elements service1 and service2. The bProcess1 element will also be create as an instance of the class, BusinessProcess. The ServiceOffering class is not specified because the **subscriptions** keyword implies that these elements are instantiated from the ServiceOffering class.

The ServiceOffering example that follows uses similar logic.

The related objects subscriber1 and subscriber2 are created as ServiceSubscriber elements, along with an instance of Customer, customer1, and an instance of ServiceOffering, service1.

```
▼ServiceOffering service1 subscribers subscriber1  
subscriber2 Customer::customer1▲
```

When the <relationship> is **serves** or **servedby** and the value of <class> is **BusinessProcess**, the implied class for <related_instance> is BusinessProcess.

```
▼BusinessProcess bProcess1 serves bProcess2  
BusinessProcess::bProcess3▲
```

-
- ▼▲ The command must be typed as one line.
-

```
BusinessProcess bProcess1 servedby bProcess4
```

As mentioned previously, the ServiceSubscriber elements can also appear in the service data files, as shown below:

```
▼Organization organization1 subscriptions service1  
BusinessProcess::bProcess1▲
```

```
▼BusinessUnit business_unit1 subscriptions service1  
BusinessProcess::bProcess1▲
```

```
▼LOB lob subscriptions ServiceOffering::service1  
BusinessProcess::bProcess1▲
```

```
▼Department department subscriptions service1  
BusinessProcess::bProcess1▲
```

```
▼Customer customer subscriptions service1 service2  
BusinessProcess::bProcess1▲
```

Additionally, ServiceSubscriber elements can be a part of or composed of other ServiceSubscriber elements. The syntax is:

```

▼Organization organization1 composedof
BusinessUnit::business_unit1 Department::department1▲

LOB lob1 partof business_unit1 BusinessUnit::business_unit2
    
```

Note: Since business_unit1 does not have a class specified for it, it will automatically be created as an instance of ServiceSubscriber.

After a BusinessProcess instance is specified in one data file, it can be specified as a member of a ServiceOffering or HierarchicalGroup that is also defined in an import file:

```

▼ServiceOffering service1 members
BusinessProcess::bProcess1 Host::H1▲

▼HierarchicalGroup group1 members
BusinessProcess::bProcess1 Router::R1▲
    
```

A BusinessProcess may consist of ApplicationService elements or other logical elements that already exist in the topology:

```

▼BusinessProcess bProcess1 members
ApplicationService::A1 Application::A2▲
    
```

For a complete example, the Organization, BusinessProcess, DatabaseServer, and ApplicationService elements and their relationships shown in the Business Services Map in Figure 7 through Figure 9 are defined as follows:

```

BusinessProcess CRM servedby BusinessProcess::Accounting

▼BusinessProcess Accounting servedby
BusinessProcess::Fulfillment▲

▼BusinessProcess Fulfillment servedby
BusinessProcess::OrderManagement▲

▼BusinessProcess OrderManagement servedby
BusinessProcess::DemandPlanning▲

▼Organization Acme subscriptions
BusinessProcess::OrderManagement▲
    
```

▼BusinessProcess OrderManagement members
ApplicationService::SAP▲

▼BusinessProcess Fulfillment members
ApplicationService::FedExFulfillment▲

▼BusinessProcess Accounting members
ApplicationService::OracleFinancials
DatabaseServer::SQLFinancialRepository▲

▼BusinessProcess CRM members ApplicationService::Siebel
DatabaseServer::SQLServerRepository▲

▼▲ The command must be typed as one line.

When dealing with large numbers of members in a ServiceOffering, it may become more practical to use HierarchicalGroups to represent a group of network elements. Groups may be defined in the *service.data.template* file along with the ServiceOfferings. For more information on defining and importing Hierarchical Groups, refer to the *InCharge Service Assurance Manager Configuration Guide*.

Optional Import Files

When listing related members, subscribers, or applications is not practical because there are too many to list, elements can be listed in separate input files that are referenced in the service data files. For example:

```
▼BusinessProcess bProcess1 serves bProcess2 bProcess3  
bProcess4▲
```

is the same as:

```
BusinessProcess bProcess1 serves file://C:/mydir/myfile  
where C:/mydir/myfile consists of three lines:
```

```
bProcess2  
bProcess3  
bProcess4
```

Input files must be specified in a service data file. For more information, see [Specifying Data Files to Import](#) on page 33.

Each element in an input file must use the <class>:<instance> syntax with one entry per line. Similar to the service data files, Business Impact Manager assumes that elements in the input file for a ServiceOffering are ServiceSubscriber elements (unless the class, such as Department, is specified).

When members are specified, the elements must already exist in the topology so that the relevant relationship can be established with the requested object. Otherwise, such items will be ignored.

Rules and Considerations For Creating Business Elements

When defining business elements and service data in the Import Data file, keep the following rules and considerations in mind:

- Each business element to be included must start with the class name (for example, `ServiceOffering`, `ServiceSubscriber`)
- You can combine `ServiceOffering` data with group data (`HierarchicalGroups`) in the same import file.
- When defining members or subscribers in a separate file, `<file_name>` is a file that will contain one member or subscriber name per line, as an alternative to listing members in the primary data files. For Members, the `class::instance` syntax is required.
- Each relationship must be defined on a separate line.
- The same business element can appear in multiple lines (so you do not have to list all of the related element on a single line).
- Since a service is created as an offering of a subscriber, it does not need to be defined separately if it does not have any other subscribers or any members of its own. Similarly, when a subscriber appears in a line where an offering is listed, it is automatically created. You do not have to define it individually.
- The system name of an element does not need to be a fully-qualified domain name. The truncated system name will be searched for and matched.

Specifying Data Files to Import

By default, the `service.data.template` and `topology-group.data.template` files are listed in the `BusinessSection` of the file `ics.conf`. If you change the name of the data files, you must list the new file names in `ics.conf`. The following example shows how to define import file names in the `BusinessSection` of the `ics.conf` file:

```
BusinessSection
{
    Name="topology-group.data.template";
    Name="service.data.template";
```

}

At the end of every topology synchronization process, the Global Manager automatically starts the group driver if any object has been added to the topology by any domain. Therefore, ServiceOfferings and ServiceSubscribers will be updated automatically whenever topology changes are imported to the Global Manager.

After the *BusinessSection* is parsed, the list of import file names (such as *service.data.template*) is stored in the repository.

Reconfiguration and Regrouping

Reconfiguring the Global Manager

If you modify the import files that are already being read by Business Impact Manager, then you do not need to reconfigure the Global Manager. But, if you create a set of import files with new names to be read by Business Impact Manager, you must reconfigure the Global Manager for the change to take effect. Reconfiguration reparses the *ics.conf* into the running Global Manager. Use the following command to reconfigure Business Impact Manager only if names in the business section have changed:

```
▼% sm_adapter -s <global_manager_name>  
ics/ICS_RemoteConfig.asl ▲
```

-
- ▼▲ The command must be type as one line.
-

Reimporting Business Elements in the Global Manager

Once Business Impact Manager is reconfigured, the Global Manager must reimport business elements. If you have modified the import files (without changing the file names) currently being used by Business Impact Manager, you need to reimport business elements in the Global Manager. To reimport business elements, use the following **dmctl** command:

```
▼dmctl -s <global_manager_name>  
invoke GA_DaemonDriver::ICS-Group-Driver start▲
```

-
- ▼▲ The command must be typed on one line.
-

For example:

```
▼% bin/dmctl -s INCHARGE-SA invoke
```

```
GA_DaemonDriver::ICS-Group-Driver start▲
```

If you have simply changed the contents of your service files (without altering their structure by adding new groups), you just need to reimport using the preceding *dmctl* command.

Note: Each time Business data import files are imported, the new definition set replaces the current one. Any eliminations from an import file will remove that service definition from the topology. Reimporting only affects the elements or relationships previously created by the Service Import; it does not affect the elements or relationships created using the Topology Builder Console.

Creating Business Elements with the Topology Builder Console

You can also create new business elements and add the elements to a Business Services map through the use of the Topology Builder Console (in the Global Console).

After you add elements to a Business Services map, you should link them to related topology elements. The root-cause and impact analysis performed by InCharge software depends on the relationships (links) between topology elements.

To create and add elements, perform one or more of the following:

- Create instances of the business elements.
- Establish relationships between business elements.
- Establish relationships between business elements and application or infrastructure elements.

For information about using the Global Console and maps in general, see the *InCharge Operator's Guide*.

Accessing the Topology Builder Console

The Topology Builder enables you to modify existing topology. It displays a graphical representation of your topology. Accessing the Topology Builder Console requires an InCharge user account with the following privileges and permissions:

- All privileges, specified in the *serverConnect.conf* file (or its equivalent) read by the Global Manager.
- Permission to use the console operation *Launch Topology Builder*. This permission is provided using the Global Manager Administration Console and is specified in the Console Operations section of a user profile.

For information about configuring access privileges, see the *InCharge System Administration Guide*. For information about configuring permissions to perform specific console operations, see the *InCharge Service Assurance Manager Configuration Guide*.

Opening the Topology Builder Console

- 1 Attach to an InCharge Manager with the Global Console.
- 2 Select *Configure > Topology Builder*. This opens the Topology Builder Console.

Layout of the Topology Builder Console

The Topology Builder Console, which enables you to edit topology elements, is divided into two panels (as shown in [Figure 11](#)):

- In the left panel, there are two tabs.
The Topology tab displays a topology tree of the attached InCharge Manager (selection from the InCharge Manager pull-down menu). Click on the plus sign next to a class to view its elements.
- The right panel displays a graphical representation of the topology. The right panel remains blank until an element is selected in the Topology tab.

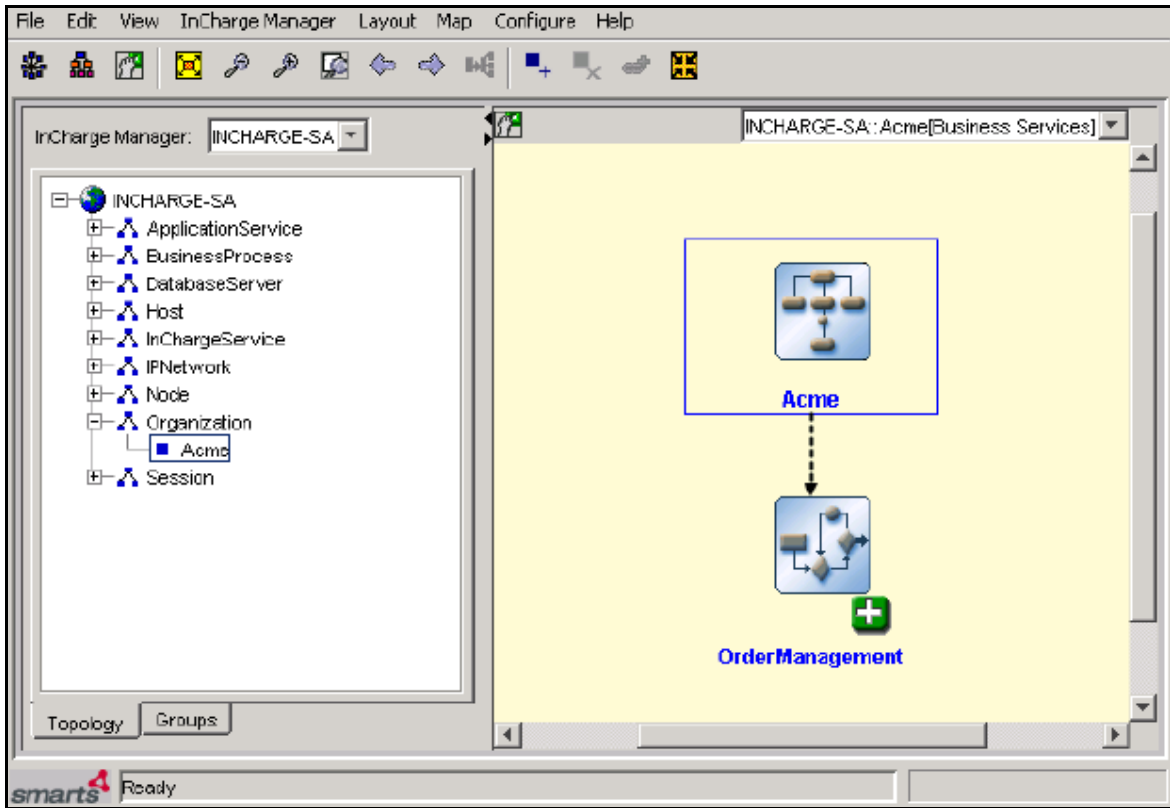





Figure 11: Topology Builder Console

Toolbar Buttons for Editing Topology

Table 7 describes the toolbar buttons that are used to create and link topology elements. If a function is not available, the toolbar buttons are disabled (gray).

BUTTON	DESCRIPTION
	Create Node makes a new topology element and adds it to the map.
	Remove deletes the selected topology element or link. You can only remove nodes and links that were created with the Topology Builder Console.
	Link Node creates a relationship between two selected nodes.


BUTTON	DESCRIPTION
	Synchronize Topology makes the InCharge Manager send topology updates to its clients.

Table 7: Toolbar Buttons For Editing Topology

Modifying Topology

In order to use the Topology Builder, the attached InCharge Manager must be loaded with some initial topology. The Topology Builder is designed for modifying existing topology.

You use the Topology Builder to add new elements, relationships, and connections to your topology and to delete elements, relationships, and connections created with the Topology Builder. Your topology modifications are *automatically saved* as you make them, and are stored with the discovered topology.

You cannot use Topology Builder to add or modify topology elements, relationships, and connections that are discovered by the attached InCharge Manager. For example, you cannot create a new element for the Host class.

Clicking the **Synchronize Topology** toolbar button sends topology changes to all listening InCharge Managers. Until you synchronize the topology, your modifications do not affect InCharge analysis locally or remotely. Invoke **Synchronize Topology** after you have completed your changes.

Adding Elements to Your Topology

You can create and add elements to your topology using one of several methods.

The following methods will create the new element, but the element is not added to the graphical representation. You can add the element to the graphical representation using the *Add to map* option (see [Adding Existing Elements with Add to Map](#) on page 42).

- The *Create Instance* option from a pop-up menu at the domain node allows you to create an element (an instance) even when there are no existing elements of the same type in the current topology.
- The *Create* option from a pop-up menu at a class requires that an element of the of the same type already exist in topology.

The following method both creates the new element and automatically adds it to the graphical representation.

- The **Create Node** toolbar button

You can also add an existing element to the graphical representation by using the following:

- The *Add to map* option from a pop-up menu of an instance in the topology tree

After adding elements, you need to create relationships and connections for them (see [Adding Relationships and Connections to the Topology](#) on page 43). The root-cause and impact analysis performed by InCharge software depends on the relationships and connections between topology elements.

Adding Elements Using Create Instance

The *Create Instance* pop-up menu option allows you to create an element, even if a previous element of that type does not already exist in topology. For example, you can create a new Customer element even when the Topology tree does not contain any existing Customer elements.

To add a topology element using the *Create Instance* pop-up menu option, follow these steps:

- 1 Right-click on the Global Manager in the Topology tree. The Create instance in domain:<domain_name> dialog is displayed.

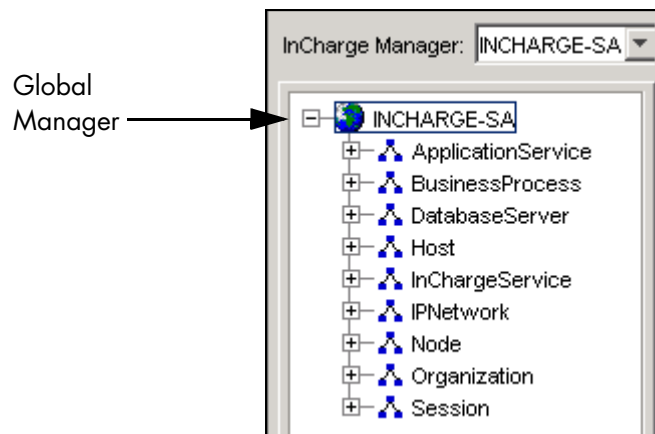


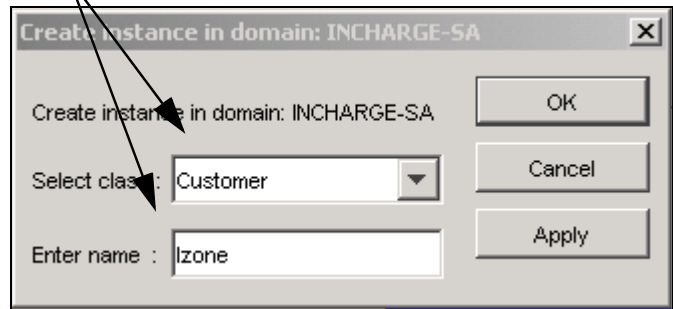
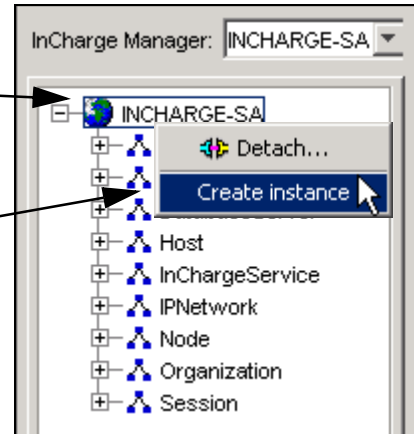
Figure 12: Location of the Global Manager Level in the Tree

- 2 Select the type of element (the element class) that you want to create, using the Select class drop-down list.
- 3 Enter a name for the new element.
- 4 Click **Apply** to add the new element to the topology, and continue to create additional elements. Or, click **OK** to add the new element and close the dialog.

If a previous element of the selected type (the element class) did not exist in topology, the element class will be added to the Topology tree. The new element will also be added to the Topology tree.

Figure 13 illustrates adding a new Customer element when there are no previous customer elements in the topology.

- 1 Select and right-click the Global Manager in the Topology tree.
- 2 Select "Create Instance" to create an instance.
- 3 In the Create Instance dialog box, select a class and enter a name for the instance.



Topology tree after creating a Customer element named lzone.

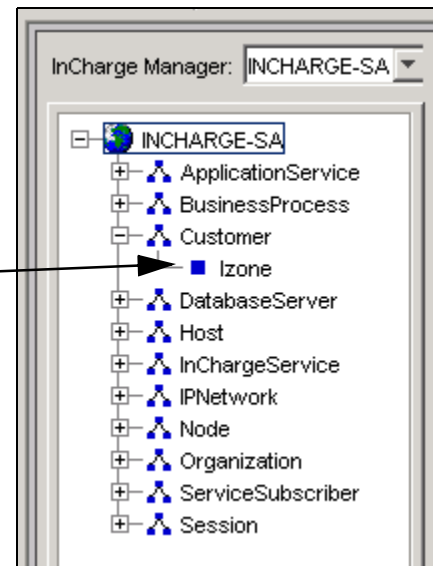


Figure 13: Topology Tree Before and After Using Create Instance

Adding Elements with the Create Pop-Up Menu

To add a business element using the *Create* pop-up menu option from a class, follow these steps:

- 1 In the Topology tree, right-click the element class for which you wish to add an element and select *Create* from the pop-up menu. The class must already include at least one instance. The Create Instance dialog appears.
- 2 In the dialog, type the name of the new element.

Click **Apply** to add the new element to the topology, and continue to create additional elements. Or, click **OK** to add the new element and close the Create Instance dialog.

Adding Elements with the Create Node Toolbar Button

To add a topology element using the **Create Node** toolbar button, follow these steps:

- 1 Click an existing element in the Topology tree to open the graphical topology representation in which you wish to add the new element.
- 2 Click the **Create Node** toolbar button to display the Create Map Node dialog.
- 3 In the dialog, select an element class from the Select Class drop-down list.
- 4 Type the name of the new element.
- 5 Click **Apply** to add the new element to the topology, and continue to create additional elements. Or, click **OK** to add the new element and close the Create Map Node dialog.

Adding Existing Elements with Add to Map

You can use this method if you wish to add instances of *existing* elements to the topology. To add a element using this method, follow these steps:

- 1 Open a graphical topology representation in which you wish to add an instance of an existing element.
- 2 In the Topology tree, right-click the element that you wish to add and select *Add to map* from the pop-up menu. The element is added to the topology and appears as a node in the graphical topology representation.

Adding Relationships and Connections to the Topology

After you create and add new elements to your topology, you need to link them to related topology elements. The root-cause and impact analysis performed by InCharge software depends on the relationships and connections between topology elements.

To establish a relationship or connection between two elements, follow these steps:

- 1 Open a graphical topology representation in which you wish to add the relationship or connection.
- 2 Press the **Ctrl** key and select the source element and then the related element. The source element is where the relationship or connection originates.
- 3 Click the **Link Node** toolbar button to display the Link Selected Map Nodes dialog.
- 4 In the dialog, select a relationship or connection from the drop-down list. (For a transaction, accept the default name or specify a unique qualifier.) Elements can have multiple relationships and/or connections if necessary. Click **Apply** to add the relationship or connection to the topology, and continue to create additional relationships or connections. Or, click **OK** to add the relationship or connection and close the Link Selected Map Nodes dialog.

Deleting Elements, Relationships, and Connections

You use the **Remove** toolbar button to delete one or more selected elements, relationships, or connections from the topology. You can delete elements, relationships, and connections created with the Topology Builder, but you cannot delete elements, relationships, and connections discovered by the InCharge Manager.

To remove an element, relationship, or connection, follow these steps:

- 1 Click an existing element in the Topology tree to open the graphical topology representation in which you wish to delete the new element, relationship, or connection.
- 2 In the graphical display, select the element, relationship, or connection that you wish to remove. (To select multiple elements, relationships, or connections, press the **Ctrl** key while making your selections.)
- 3 Click the **Remove** toolbar button to remove the element, relationship, or connection from the topology.

Synchronizing Topology

After you have completed your changes, click the **Synchronize Topology** toolbar button to send your topology changes to all listening InCharge Managers, at which time the updates become available to the listening managers for analysis. The updates do not affect InCharge analysis locally or remotely (at the listening managers) until the topology is synchronized.

If you do not invoke **Synchronize Topology** and you exit the Topology Builder, the InCharge Manager does not send the updates to its listening managers.

Index

A

- ApplicationService
 - Standard icon 16
- ApplicationService Degraded 9
- Automatically Propagated Notifications 8

B

- BASEDIR ix
- Business and Service Elements
 - Rules for Creating 33
- Business Elements
 - Creating with the Global Console 35
- Business Impact Classes 5
 - BusinessProcess 6
 - BusinessUnit 7
 - Customer 6
 - Department 7
 - LOB 7
 - Organization 7
 - ServiceOffering 6
 - ServiceSubscriber 6
- Business Impact Manager
 - Overview 2
- Business Impact Notifications
 - Automatic Processes 8
 - Automatically Propagated 8
 - Created with Business Process Tools 11
- Business Impact Scenarios
 - ApplicationService Degraded 9
- Business Impact Weights 24
- Business Process Tools 11
 - Clear Business Process Event 12
 - Notify Business Process Event 11
 - Update Business Process Event 12
- Business Services Map 15
 - Example 19
 - Icon 16
- Business Services Maps
 - Displaying 18
- BusinessProcess 6
 - Standard icon 16
- BusinessProcess Notifications
 - Attributes 12

- BusinessUnit 7
 - Standard icon 17

C

- Class Name Prefixes 23
- Clear Business Process Event 12
- Configuration Files
 - weights.conf 25
- Customer 6
 - Standard icon 17

D

- Data Import File
 - Optional 32
- Data Import File Examples 29
- DatabaseServer
 - Standard icon 17
- Department 7
 - Standard icon 17
- Display Names and Names 23
- dmctl 34
- dmctl command 34

E

- Edge
 - Table of 16

G

- Global Manager
 - Reconfiguring 34
 - Regrouping 34

I

- ICS_RemoteConfig.asl 25, 34
- Impact Values
 - Assigning 25
 - Configuration file, weights.conf 25
 - Strategies 26
- Impacted Element Weights 24

L

LOB (Line of Business) 7
Standard icon 17

M

Map
Icons and indicators 16
Map Console
Icons and indicators 16

N

Name Prefixes 23
Names and Display Names 23
Node
Table of 16
Notify Business Process Event 11

O

Optional Data Import Files 32
Organization 7
Standard icon 17

R

Reconfiguring the Global Manager 34
Regrouping 34

S

serverConnect.conf 36
Service Data
BusinessProcess 27
Import File Examples 29
Relationships 28
Members 28
Subscribers 28
Subscriptions 28
ServiceOffering 27
ServiceSubscriber 28
Specifying Import Files 33
Syntax for Defining Elements 28
Service Import Tool 34
service.data.template file 28
ServiceOffering 6
Standard icon 17
ServiceOffering class 6
ServiceSubscriber 6
Standard icon 17
ServiceSubscriber class 6

sm_adapter 25
Syntax for Defining Service and Business elements 28

T

Technical Support xii
Tools
Business Process 11
Topology
Creating and adding elements 38
Creating and adding relationships and connections 43
Deleting elements, relationships, and connections 43
Synchronizing updates 44
Topology Builder Console
Add to map menu option 42
Create Instance menu option 42
Create Node toolbar button 37, 42
Layout 36
Link Node toolbar button 37, 43
Opening 36
Remove toolbar button 37, 43
Synchronize Topology toolbar button 38, 44

U

Update Business Process Event 12

W

Weights
Assigning 26
weights.conf 25, 26