

WebSphere. Lombardi Edition 7.2

Administration Guide



Table of Contents

Copyright notice	1
Introduction	2
Lombardi product components	2
Lombardi architecture	3
Managing Lombardi Process Servers	5
Accessing the Process Admin console	5
Understanding administrative tasks	6
Managing Lombardi users	7
Understanding Lombardi security	7
Setting up user accounts	8
Creating and maintaining users	9
Creating and maintaining groups	10
Managing group membership	10
Managing default users and groups	11
Synchronizing with an external security provider	13
Restricting installation access to runtime servers	14
Assigning user attributes	14
Managing installed applications	16
Configuring installed snapshots	18
Monitoring Lombardi servers	20
Monitoring Process Server performance	20
Monitoring processes and services	21
Viewing Process Server logs	24
Configuring available log files	25
Maintaining and monitoring Lombardi Event Manager	25
About the Event Manager	25
Monitoring the Event Manager	26
Creating and maintaining blackout periods	27
Creating and maintaining execution queues	28
Viewing the JMS Error Queue	29
Managing Process Server caches and databases	30
Resetting Process Server caches	30
Deleting tasks from the Process Server database	31
Managing exposed process values (EPVs)	31
Configuring access to a secure WebSphere application server	33
Acquiring signer certificate	33
Installing signer certificate in Lombardi Process Server trust store	33
Customizing the Process Admin Console	35
Adding functions to the Process Admin Console using services	35
Removing functions from the Process Admin Console	35
Restricting access to the Process Admin Console	36
Changing preferences	37
Managing Lombardi Performance Data Warehouses	38
Accessing the Performance Admin Console	38
Understanding administrative tasks	38
Viewing and managing Performance Data Warehouse queues	39
Viewing performance records waiting to be loaded	39
Viewing and managing error records	39
Viewing and managing data transfer errors	40
Viewing Performance Data Warehouse statistics	41
Monitoring the Performance Data Warehouse	42

Using the Performance Data Warehouse command-line tool	42
Before running a command	43
Using the archive command	43
Using the restore command	44
Using the pending command	44
Understanding Performance Data Warehouse architecture	45
Managing Lombardi configuration settings	46
Configuring proxy settings	47
Settings for Critical Path Management	47
Setting up user access to Critical Path Management tools	47
Setting the default duration for critical path analysis	48
Encoding credentials in URLs	49
Extending the maximum number of characters in tracked performance data	49
Restricting access to debugging for services	51
Notices and Trademarks	52
Notices	52
Trademarks and service marks	54

Copyright notice

Before using this information and the product it supports, be sure to read the general information under [Notices](#).

© **Copyright International Business Machines Corporation 2010. All Rights Reserved.**

IBM WebSphere Lombardi Edition 7.2.0 Licensed Materials - Property of IBM. U. S. Government Users Restricted Rights - Use, duplication, or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Introduction

Most administrative tasks in IBM Websphere Lombardi Edition are performed using the following interfaces:

Process Admin Console	Provides management tools for Process Servers in your environment. The Process Admin Console enables you to manage Lombardi users as well as the process applications installed on Process Servers. In addition, the Process Admin Console provides tools to help you manage Lombardi queues and caches. See Managing Lombardi Process Servers for more information.
Performance Admin Console	Provides management tools for the Performance Data Warehouses in your environment. The Performance Admin Console enables you to manage server queues as well as monitor server performance. See Managing Lombardi Performance Data Warehouses for more information.

You can administer the Process Center repository in your Lombardi environment using the Process Center Console. To learn more, see *Managing the Process Center repository* in the *Authoring Environment User Guide* or online help.



The minimum required resolution for Lombardi consoles is 1280 x 1024. Lower resolutions may cause problems when using the consoles.

Lombardi product components

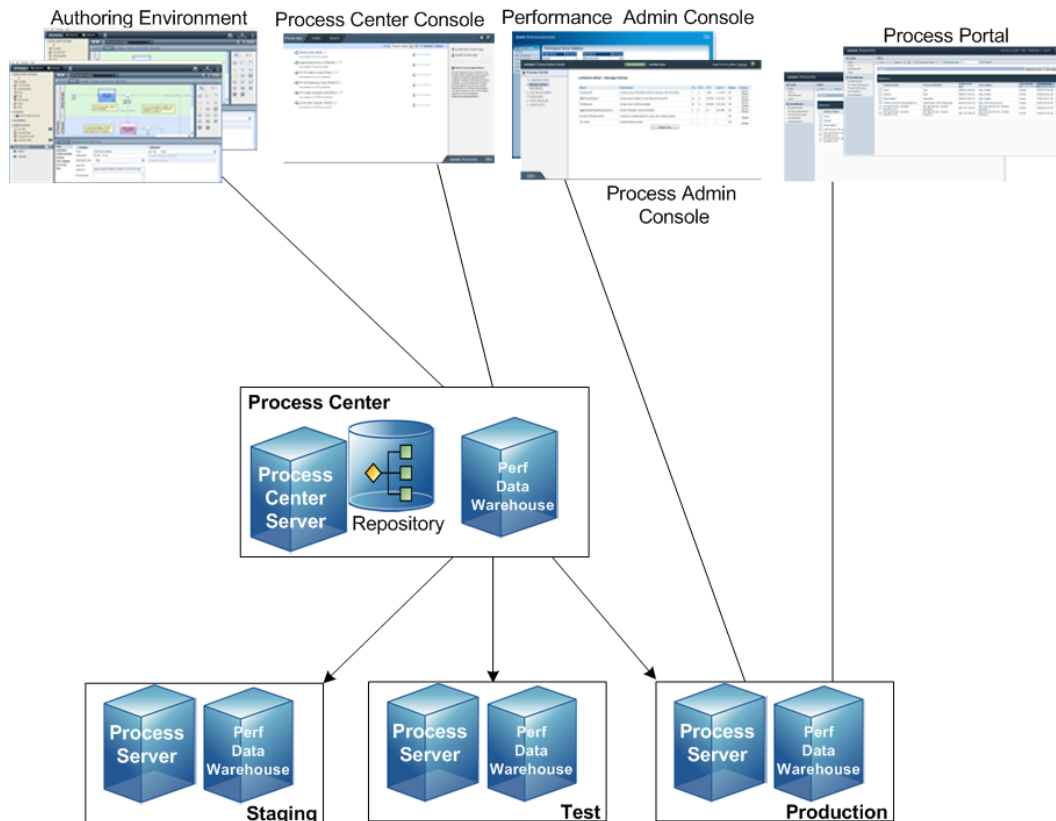
IBM® WebSphere® Lombardi Edition includes the following components. The following diagram illustrates how these components are commonly configured.

Component	Function
Process Center	Provides a central development environment and repository for multiple process authors working in the Process Center Console and other interfaces in Lombardi Authoring Environment. The Process Center includes a Process Center Server and a Performance Data Warehouse, allowing you to build and run process applications and also store performance data for testing and playback purposes during development efforts.
Process Server	Executes the processes and services built in Lombardi Authoring Environment, stored in the Process Center repository, and then installed in a runtime environment.
Performance Data Warehouse	Collects and aggregates process data according to tracking requirements established in Lombardi Authoring Environment.
Process Center Console	Enables you to manage and maintain the Lombardi repository, including management of process applications, workspaces, and snapshots. Also enables installation of process applications on Process Servers in runtime environments.
Authoring Environment	Lombardi Authoring Environment consists of several interfaces to enable process authors to model, implement, simulate, and inspect business processes.
Process Portal	Provides an interface that enables process participants to perform assigned tasks, view the history of tasks, and view the performance of their processes and teams. Using Process Portal, process participants can connect to the Process Center Server or a Process Server in any configured runtime environment, such as test or production environments.
Process Admin Console	Provides an interface that enables administrators to configure and maintain Lombardi Process Servers in any configured runtime environment, such as test or production environments. Also enables administrators to configure and maintain the Process Center Server.
Performance Admin Console	Provides an interface that enables administrators to configure and maintain Lombardi Performance Data Warehouses in any configured runtime environment, such as test or

Component	Function
	production environments. Also enables administrators to configure and maintain the Performance Data Warehouse included in the Process Center.

Lombardi architecture

The following diagram illustrates a typical IBM WebSphere Lombardi Edition configuration:



- From Lombardi Authoring Environment, multiple users connect to the Process Center.
- In Lombardi Authoring Environment, users create process models and supporting implementations (process applications) and store those applications and associated items in the Process Center repository. Authoring Environment users connected to the Process Center can share items.
- The Process Center includes a Process Center Server and Performance Data Warehouse, allowing users working in Lombardi Authoring Environment to run their process applications and store performance data for testing and playback purposes during development efforts.
- From the Process Center Console, administrators install process applications that are ready for staging, testing, or production on the Process Servers in those environments.
- From the Process Center Console, administrators manage running instances of process applications in all configured environments.
- From the Process Portal, end users perform assigned tasks. The Process Center Server and Process Servers in configured runtime environments can run the process applications that create the assigned tasks.

- Using the Process Portal, process participants can connect to the Process Center Server or a Process Server in any configured runtime environment, depending on whether a process is being developed, tested, or has been released to a production environment.
- Lombardi Performance Data Warehouse retrieves tracked data from the Process Server or Process Center Server at regular intervals. Users can create and view reports that leverage this data in Lombardi Authoring Environment and Process Portal.
- From the Process Admin Console and Performance Admin Console, administrators can manage and maintain all Lombardi servers.

Managing Lombardi Process Servers

The Process Servers in your IBM WebSphere Lombardi Edition configuration run instances of the Business Process Definitions (BPDs) created in the Designer in Lombardi Authoring Environment. In your development environment, the Process Center Server enables you to run processes as you build them. When you're ready, you can install and run those same processes on the Process Servers in your test and production environments. Since Process Servers play such a vital role in Lombardi, you should monitor their performance and ensure that all necessary set up and configuration is complete when you install and run test or production versions of your processes.

The following sections explain how to access the Process Admin Console to perform administrative tasks and also provide a list of the types of tasks that you can perform with links to detailed information and procedures.

The Process Admin Console enables you to manage the Process Servers in your runtime environments (e.g., staging, test, production) as well as the Process Center Server that is part of the Process Center as shown in [Lombardi architecture](#).



Pathnames to configuration files and other resources in the following topics are specific to Process Servers installed in staging, test, and production environments. These pathnames are different when you are administering the Process Center Server. For example, the pathname to the Process Center Server's 100Custom.xml file is [Lombardi_home]/process-center/config/100Custom.xml. So, you can simply replace process-server with process-center to find the same files and resources for the Process Center Server.

Accessing the Process Admin console

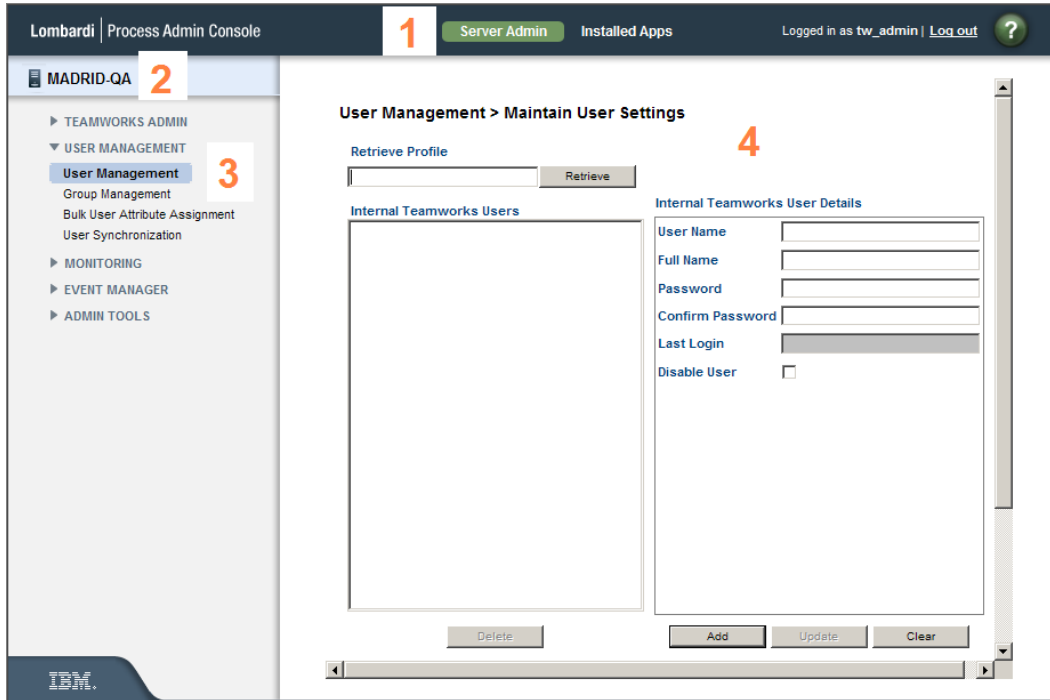
To access the Process Admin console, perform one of the following actions:

- Point your Web browser to: `http://[host_name]:[port]/ProcessAdmin`, providing the name of the host on which the server is installed and the port designated for the Process Server during Lombardi installation.
- In the Process Center Console, go to the **Servers** area, select the server that you want to administer, and click the **Configure** link.
- If you are working on a Windows® host where the Process Server is installed, choose **IBM WebSphere Lombardi Edition > Process Admin Console** from your **Start** menu.

To log in to the Process Admin console, use the default account for Lombardi administrators:

Default administrative account	Default password
tw_admin	tw_admin

The following image and corresponding table show how to access the features of the Process Admin console:



1	When the Process Admin console starts, it displays the Server Admin capabilities. If you want to manage your installed applications, click the Installed Apps option.
2	The Process Admin console displays the name of the Process Server instance you are currently accessing.
3	Click an indicator next to a category to see the available options. For example, if you click the indicator next to User Management, Process Admin console displays the User Management and Group Management options.
4	You can perform actions, such as creating users, in the page displayed for each option chosen.

Understanding administrative tasks

The following table describes the types of tasks that you can perform in the Process Admin console, with links to step-by-step procedures.

Task	Description	See...
Managing user accounts	Although Lombardi includes several default accounts, it is likely that you will want to create additional accounts. You may also need to maintain the passwords and other aspects of your Lombardi accounts.	The security overview and detailed procedures in the Managing Lombardi users section.
Managing installed applications	When you install Lombardi processes on test and production servers, you may need to complete several administrative tasks to ensure that those processes run properly. For instance, you may need to add users to the participant groups that have been defined for a process.	The tasks described in Managing installed applications to determine which tasks apply to your servers and processes.
Monitoring Lombardi	As part of Lombardi maintenance, you may need to analyze Process Server	The list of tasks described in the Monitoring Lombardi servers section

Task	Description	See...
	performance and view available logs to determine the source of performance or other problems.	to determine how to best troubleshoot issues with Process Servers.
Maintaining Lombardi Event Manager	The Event Manager is the part of the Process Server that handles undercover agents and timer events in your BPDs. You can use the Process Admin Console to troubleshoot issues with undercover agents and timer events—for example, to determine why a process that was supposed to start automatically through an undercover agent is not starting. You can also configure blackout periods and manage Event Manager queues.	The overview of Event Manager and detailed procedures in the Maintaining and monitoring Lombardi Event Manager section.
Managing Process Server caches and databases	As part of Process Server maintenance, you may want to reset server caches or delete processes from the server's databases.	The detailed procedures in the Managing Process Server caches and databases section.
Managing exposed process values (EPVs)	Adjust specific variable values as constants, thereby affecting the flow of all running process instances, task assignments, and so on for particular processes.	The procedure in the Managing exposed process values (EPVs) section.

Managing Lombardi users

Read the following sections to learn about Lombardi security and how to create and manage Lombardi users and groups.

Understanding Lombardi security

IBM Websphere Lombardi Edition includes an internal security provider, which you can use to create and maintain Lombardi users and groups as outlined in the following sections. You can use the internal Lombardi security provider in conjunction with an external LDAP security provider (such as Active Directory) that you have registered with the Lombardi embedded application server. To learn how to configure Lombardi to work with your external provider, see the *Lombardi Installation and Configuration Guide* appropriate for your environment.

The Lombardi internal security provider includes several default users and groups, which are described in [Managing default users and groups](#).



Do not remove the default Lombardi administrator account, `tw_admin`, or the default administrator group, `tw_admins`. Administration of Lombardi is not possible without these default accounts.

When you use the internal Lombardi security provider in conjunction with an external provider, the users and groups from both providers are available for selection throughout Lombardi. The following table describes where these user accounts are made available in Lombardi:

Task	Interface	To learn more..
Granting access to the Lombardi repository	Process Center Console	See <i>Managing access to the Process Center repository</i> in the <i>Authoring Environment User Guide</i> or online help.
Binding users to participant groups during process development	Designer in Authoring Environment	See <i>Creating a participant group</i> in the <i>Authoring Environment User Guide</i> or online help.



Task	Interface	To learn more..
Binding users to participant groups at run time	Process Admin Console	See Configuring installed snapshots .

Before performing any of the following tasks, go to the Process Admin console and log in as described in [Accessing the Process Admin console](#).

Setting up user accounts

The best way to manage security in Lombardi is by using groups. For example, the best way to grant administrative access to Lombardi is to add pre-existing groups of users from your external security provider to `tw_admins`, which is a Lombardi security group whose members have administrative access to Lombardi by default. Then, when changes are required, you can simply add or remove individual users from the groups that exist in your external security provider. This practice ensures that the security maintenance you perform in your external provider does not require additional work in Lombardi.

When initially configuring Lombardi, you should complete tasks similar to the following to set up your users:

Task	Interface	To learn more..
1. Start the Process Admin console and log in using the default administrative account (<code>tw_admin</code>).	Process Admin Console	See Accessing the Process Admin console
2. (Optional) Create the different types of users and groups that your users will need in Lombardi.	Process Admin Console	See Creating and maintaining users and Creating and maintaining groups
3. Add members to the default Lombardi groups or groups that you have created. You can add users and groups from any configured external provider (such as LDAP) and internal Lombardi users and groups.  To learn how to configure Lombardi to work with your external provider, see the <i>Lombardi Installation and Configuration Guide</i> appropriate for your environment.	Process Admin Console	See Managing group membership
4. Open your web browser to <code>http://[host_name]:[port]/ProcessCenter</code> and log in using the default administrative account (<code>tw_admin</code>).	Process Center Console	See <i>Starting Lombardi Authoring Environment</i> in the <i>Authoring Environment User Guide</i> or online help
5. In the Process Center Console, add the users and groups who need access to the repository, grant administrative access to the appropriate users, and then establish who can access each process application and toolkit.  The best way to grant access to the repository is to add members to the default Lombardi group, <code>tw_authors</code> .	Process Center Console	See <i>Managing access to the Process Center repository</i> in the <i>Authoring Environment User Guide</i> or online help

Creating and maintaining users

To create Lombardi users:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **User Management** option.
3. In the **User Management > Maintain User Settings** dialog, enter a user name, a full name, and a password.



Passwords must meet the following requirements:

Must include at least six characters.
Must not be the same as the user name.
Must not be the same as the existing password.
Must be different from the three most recently used passwords.

4. Enter the password a second time to confirm it.
5. Click the **Add** button.

To update Lombardi users by changing password or other account settings:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **User Management** option.
3. In the **User Management > Maintain User Settings** dialog, enter a complete or partial user name (like `tw_a`) in the **Retrieve Profile** field.
4. Click the **Retrieve** button.
5. Change settings as required and click the **Update** button.

To delete Lombardi users:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **User Management** option.
3. In the **User Management > Maintain User Settings** dialog, enter a complete or partial user name (like `tw_a`) in the **Retrieve Profile** field.
4. Click the **Retrieve** button.

Select the account that you want from the **Internal Lombardi Users** list.

5. Click the **Delete** button.

Creating and maintaining groups

If you have configured Lombardi to work with your external security provider, you can view the groups from that external provider in the Process Admin console, but you cannot edit the external groups. You can, however, add users and groups from your external provider to any Lombardi security groups that you create.

To create Lombardi groups:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Group Management** option.
3. In the Group Management dialog, click the **New Group** option.
4. In the Create Group pop-up dialog, enter a name and a description for the group and click the **Save** button.

You can add members to the new group as described in the following section, [Managing group membership](#).

To delete Lombardi groups:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Group Management** option.
3. In the Group Management dialog, enter a partial or complete group name in the **Select Group to Modify** text box.
4. In the list of groups displayed, click the Remove icon for the group that you want to delete.

The group is removed from the list and is no longer available in Lombardi.

Managing group membership

When you create a group in Lombardi, you can add users and groups from your external security provider to the Lombardi group. You can also add Lombardi users and groups, which enables you to combine accounts from different providers into one group.

In addition to managing group membership, you can designate a Team Manager Group for each group. This enables you to establish a hierarchy for the My Team Performance scoreboard available in Lombardi Process Portal.

To add members to Lombardi groups:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Group Management** option.
3. In the Group Management dialog, enter a partial or complete group name in the **Select Group to Modify** text box.
4. From the list of groups displayed, click the group that you want to update.

5. Click the **Add Members** option (displayed next to the selected group).
6. In the Add Users and Groups pop-up dialog, enter the name of the user or group that you want to add in the **Search for Name** field. You can enter part of the name and Lombardi displays all accounts that match.

The added users and groups now show as members of the selected group.

To designate a Team Manager group for a group:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Group Management** option.
3. In the Group Management dialog, enter a partial or complete group name in the **Select Group to Modify** text box.
4. From the list of groups displayed, click the group for which you want to designate a Team Manager.
5. Enter a partial or complete group name in the **Team Manager Group** text box, and then select the group that you want from the drop-down list.

When you establish a Team Manager Group, that group is above the other chosen group in the hierarchy for the My Team Performance scoreboard available in Lombardi Process Portal. The Team Manager Group can view data for the group directly below it in the hierarchy. For example, if a group named Directors is the Team Manager Group for another group named Managers, the members of the Directors group can view statistics for the Managers group in the My Team Performance scoreboard. For more information, see the Reporting section in *Lombardi Authoring Environment User Guide* or online help.

To remove users from Lombardi groups:

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Group Management** option.
3. In the Group Management dialog, enter a partial or complete group name in the **Select Group to Modify** text box.
4. From the list of groups displayed, click the group that you want to update.

The Process Admin Console lists the members of the group.



5. Click the Remove icon for the users and groups that you want to remove.

The removed users and groups are no longer displayed in the list of members and are removed from the selected group.


Managing default users and groups

The Lombardi internal security provider includes the following default users:

Default user account	Default password	Description
tw_admin	tw_admin	Provides full access to all Lombardi interfaces, enabling users to alter or delete all types of available library items

Default user account	Default password	Description
		<p>and assets including process applications and toolkits. This account also enables administration of Process Servers, Performance Data Warehouses, and internal Lombardi users and groups.</p>  <p>Do not remove this account. Administration of Lombardi is not possible without this account. You can change the password for this account as described in the <i>Lombardi Installation and Configuration Guide</i>.</p>
tw_author	tw_author	<p>Provides access to the Designer and other interfaces in Lombardi Authoring Environment, including Process Center Console. Users who log in to Process Center Console as tw_author can create process applications and toolkits and control access to those projects. Access to other process applications and toolkits (projects) and the assets they contain is controlled by Process Center repository administrators. For more information, see <i>Managing access to the Process Center repository</i> in the <i>Authoring Environment User Guide</i> or online help.</p>
tw_portal_admin	tw_portal_admin	<p>Provides direct access to Process Admin console from Process Portal via an Admin link at the top right of the portal. Clicking the provided link opens Process Admin console in a new browser window. Searches saved by this user in Lombardi Process Portal can be shared with other portal users.</p>
tw_runtime_server	tw_runtime_server	<p>For runtime environments, used to connect to the designated Process Center. This is the default account specified in <code>[Lombardi_home]/process-server/config/system/99Local.xml</code> For more information, see <i>Connecting a runtime environment to a Process Center</i> in the WebSphere Lombardi Edition Runtime Installation and Configuration Guides.</p>
tw_user	tw_user	<p>Provides a default account for Lombardi users who are not authors or administrators. Authors can add the tw_user account to the participant groups that they create in the Designer in Lombardi Authoring Environment to enable other Lombardi users to run processes and services in the Inspector.</p>
tw_webservice	tw_webservice	<p>The tw_webservice user account is invoked when a Web service implemented in Lombardi is not protected.</p>  <p>This account is publicly available and so you may want to change it. To do so, copy the entire <webservices> section from the 99.Local.xml file, edit it to change the tw_webservice user name and password, and copy the changes to the 100Custom.xml file. You can find these files in: <code>[Lombardi_home]/process-server/config</code></p>

The Lombardi internal security provider includes the following default groups:

Default group	Users included by default	Description
tw_admins	tw_admin	Members have full access to all Lombardi interfaces, assets, servers, and security.  Do not remove this group. Administration of Lombardi is not possible without this group.
tw_authors	tw_admin, tw_author	Members have access to the Designer and other interfaces in Lombardi Authoring Environment, including Process Center Console. From Process Center Console, members can create process applications and toolkits to those projects. Access to other process applications and toolkits (projects) and the assets they contain is controlled by Process Center repository administrators. For more information, see <i>Managing access to the Process Center repository</i> in the <i>Authoring Environment User Guide</i> or online help.
tw_portal_admins	tw_portal_admin	Members have the ability to directly access Process Admin console from Process Portal via an Admin link at the top right of the portal. Clicking the provided link opens Process Admin console in a new browser window. Also, when members save searches in Lombardi Process Portal, those searches can be accessed by other portal users.
Debug	tw_admin	Can be used to restrict access to service debugging in the Inspector in Lombardi Authoring Environment. For more information, see Restricting access to debugging for services .
tw_allusers	tw_admin, tw_author, tw_portal_admin, tw_user, tw_webservice	This group is the default lane assignment for non-system lanes when creating business process definitions (BPDs) in the Designer in Lombardi Authoring Environment. Plus, the reports and scoreboards that you create in the Designer are exposed to this group by default. For more information, see the <i>Authoring Environment User Guide</i> or online help.

Synchronizing with an external security provider

Some Lombardi functionality requires current data from your external security provider in order to function properly. If you see results with routing of activities, team data in scoreboards, or other aspects of Lombardi that may be caused by a lag between Lombardi and your external security provider, you can use the Synchronization option in Process Admin Console to resolve those issues.

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **User Synchronization** option.
3. In the User Management > Synchronize dialog, you can:

Action	Results
Click the Full Synchronize button	Synchronizes Lombardi with all user accounts in your configured external provider.

Action	Results
Click the Add button, enter a user name, and repeat this action to create a list of user names. Then click the Synchronize button.	Synchronizes Lombardi with the user accounts in the created list.

Restricting installation access to runtime servers

The following procedure describes how to restrict the users who can install snapshots of process applications to runtime servers that are online.

By default, to install to runtime servers that are online, you must have access to the process application that you want to install as follows: administrative access to install to Process Servers in Production environments; write access to install to any non-production Process Server; read access to install to Process Servers in Development environments. For more information, see *Installing process applications: online Process Servers* in the *Authoring Environment User Guide* or online help.

1. Access the host of the online Lombardi Process Server that you want to configure.
2. Stop the Lombardi Process Server.
3. Open the [Lombardi_home]/process-server/config/100Custom.xml file.
4. Add the following property to the <server> tag in the 100Custom.xml file that you opened in the previous step:

```
<process-center-install-group>[group_name]</process-center-install-group>
```

Where [group_name] is the group of users to whom you want to grant this access. You can use an existing group or create a new one as described in [Creating and maintaining groups](#).

Your 100Custom.xml file should look like the following example when you are finished with your edits:

```
<properties>
  <server merge="mergeChildren">
    <process-center-install-group>[group_name]</process-center-install-group>
  </server>
</properties>
```

5. Start the Lombardi Process Server.

Assigning user attributes

In the Designer in Lombardi Authoring Environment, you can create user attribute definitions to associate unique capabilities or qualities with one or more users. For more information, see *Creating a user attribute definition* in *Lombardi Authoring Environment User Guide* or online help. The Process Admin Console enables you to assign existing user attributes to multiple users simultaneously as instructed in the following procedures.

1. In the Server Admin area of the Process Admin Console, click the indicator next to **User Management** to list the available management options.
2. Click the **Bulk User Attribute Assignment** option.

3. Click either the **View by Attribute** or **View by User** option.

If you select **View by Attribute**

1. In the **Select an Attribute** list, click the Attribute that you want. The Process Admin Console displays all user attribute definitions that exist in the Process Center repository, including the default definitions from the System Data toolkit.
2. Under **Select Users**, do one of the following:

In the User field	Type the first few letters of the user names that you want and click the Search button.
In the Participant Group field	Type the first few letters of the participant group that contains the users that you want and click the Search button.

3. In the User column, click the checkbox next to each user to whom you want to assign a User Attribute value.
4. From the Value drop-down list, select the User Attribute value that you want to assign and click the **Assign** button.

If the User Attribute has no assigned values, you can type an appropriate value in the Value field and click the **Assign** button.

When you assign an Attribute value to a user, that value is displayed under Current Attribute Value as shown in the following image.

Bulk User Attribute Assignment

View by Attribute View by User

Select an Attribute

Select the attribute you wish to assign values of.

Alert On Assign And Run
Approvers
Image
Locale
Primary Role
Task Email Address
Task Notification
TestMe

Select Users

Select the users that you wish to assign a to value to.

User:

Participant Group:

User	Current Attribute Value
<input checked="" type="checkbox"/> tw_admin	do approve

Specify a Value and Assign it to the Selected Users

Enter the value that you would like to assign to the selected users.

Value:

If you select **View by User**

1. Under **Select a User** in the User Filter field, type the first few letters of the user name that you want and click the **Retrieve** button.
2. From the list of retrieved users, click the user to whom you want to assign an Attribute value.

Under **Assign Attribute Values**, the console displays the User ID, User Name, and Full Name as shown in the following image.

Bulk User Attribute Assignment

View by Attribute
 View by User

Select a User
Select the user that you wish to edit.

User Filter:

tw_admin

tw_author

tw_portal_admin

tw_transfer

tw_user

tw_webservice

Assign Attribute Values
Edit the attribute values below.

User ID:

User Name:

Full Name:

Custom Attributes

Alert On

Assign And

Run

Home Office:

Image

Locale:

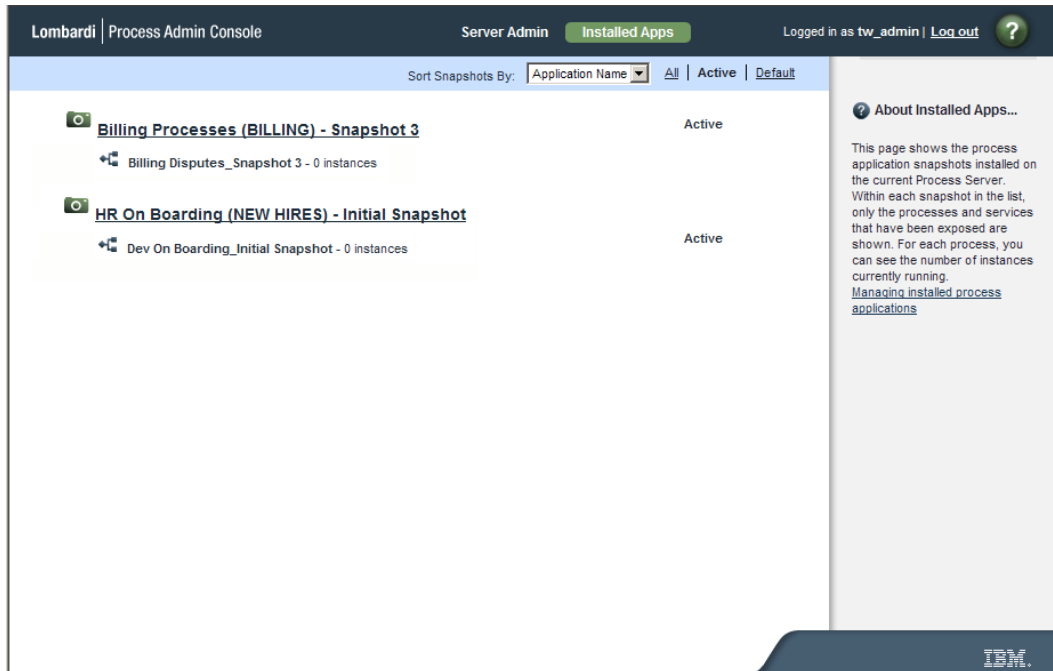
3. Under **Custom Attributes**, the console displays each User Attribute for which you can assign a value to the selected user.

You can change a current value by typing the new value in the field and pressing the Enter key or by using a drop-down list to select a new value.

Supply a new value for a Custom Attribute by typing in the value and pressing the Enter key.

Managing installed applications

When you click the **Installed Apps** option in the Admin console, you can see the list of snapshots of process applications that have been installed on the current Process Server as shown in the following image:



The process application snapshots shown in this list have been installed on this server using the Process Center Console. When process applications are installed, any toolkits that the deployed process application depends upon (that are not already installed on the current Process Server) are also installed, ensuring that all library items required to run the application are available.



If you are using the Process Admin Console to monitor and configure the Process Center Server, the list of snapshots shown here are snapshots of the process applications created on the current server. When you create a snapshot and save it in the Process Center repository, it displays as an inactive snapshot. (Click the **All** option to see all snapshots, including inactive ones.) If you activate a particular snapshot using the Process Center Console, the snapshot is shown to be active in this list. See *Activating snapshots in the Process Center Console* in *Lombardi Authoring Environment User Guide* or online help for more information.

To view the applications installed on a different Process Server in your Lombardi environment, point your Web browser to: `http://[host_name]:[port]/ProcessAdmin`, providing the name of the host on which the server is installed and the port designated for the Process Server during Lombardi installation.

Within each process application snapshot in the list, only the processes that have been exposed are shown. For each process, you can see the number of instances currently running.



To expose a process, you must open the Business Process Definition in the Designer in Lombardi Authoring Environment, select the Overview tab, and select the participant groups for the **Expose** options.

You can perform the following actions in the Installed Apps dialog:

- Click the **All**, **Active**, or **Default** option to filter the list of snapshots shown.
- Click one of the listed snapshots and then choose one of the options displayed in the right margin of the Process Admin Console as described in [Configuring installed snapshots](#).
- Click one of the listed snapshots to perform the run-time configuration tasks as described in [Configuring installed snapshots](#).

Configuring installed snapshots

For each installed process application snapshot, you can either configure the entire snapshot (for example, select a snapshot to be the default version on the current server) or you can configure run-time settings (such as role bindings and environment variables) as described in the following tables.




To configure installed snapshots, you must have administrative access to the Process Server on which the snapshots are installed.

The options displayed in the right margin of the Process Admin Console enable you to configure the selected snapshot on the current server as follows:

Option	Description
Deactivate Application	Selected snapshot remains installed on the current server, but users cannot start new instances of the exposed processes or services. Any currently running instances run until complete.
Migrate In-flight Data	Migrates currently running instances to the version of the selected snapshot. Wherever the running instances are in the flow of the process or service, the new version is implemented for the next item or step.
Sync Settings	Copies settings from the selected snapshot. You can choose the settings that you want to copy such as environment variables, role bindings, exposed process values (EPVs), and so on.
Make Default Version	Makes the selected snapshot the default version on the current server. If a snapshot is the default, the items within it should run by default when an event or other trigger that applies to more than one version of a process or service is received. The first snapshot that you install on a server is the default version of the process application. When you install subsequent snapshots, you can use this option to ensure that the version that you want to run is actually the default.
Send Tracking Definitions	If a problem occurs during snapshot installation so that tracking definitions are not sent to the Performance Data Warehouse, you can use this option to send the definitions for the selected snapshot. Because tracking definitions are automatically sent to the Performance Data Warehouse during snapshot installation, you should only use this option when a problem occurs. For more information, see <i>Troubleshooting installations</i> in <i>Lombardi Authoring Environment User Guide</i> or online help.

Run-time configuration options include the following:

Option	Description	See...
Exposing	<p>During development in Lombardi Authoring Environment, process authors determine which processes, services, reports, and other items are available and to which participant groups. After a process application is installed on a Process Server in a different environment (test or production), you may need to disable a particular exposed item within that application.</p>  <p>Items that are exposed are accessible to the designated group of users. For example, users in the designated group can start an exposed process in Lombardi Process Portal.</p>	Configuring exposed processes and services

Option	Description	See...
Role Bindings	During development in Lombardi Authoring Environment, process authors create the participant groups for each process application. After a process application is installed on a Process Server in a different environment (test or production), you may need to add or remove users in those groups. For example, users that exist in the test environment may not have been available in the development environment. So, you would need to add those users once installation in your test environment is complete so that they can access and perform the tasks generated by the process.	Configuring runtime participant groups
Environment Variables	During development in Lombardi Authoring Environment, process authors can set environment variables for each process application. In some cases, the correct value for a particular environment (test or production) may not be known during process design. In those cases, you need to provide the value after installing the process application in the new environment.	Configuring runtime environment variables

Configuring exposed processes and services

After selecting a snapshot to configure, you can manage exposed items by following these steps:

1. If not already selected, click the **Exposing** option.
2. Click the check box next to the item that you want to disable.

Clicking the check box causes the item to no longer be exposed to the selected group. When the exposure setting is disabled, the users within the group can no longer start or otherwise manipulate the process or service on the current server.



When you disable items that are not exposed to a particular participant group, such as Web services and Undercover Agents (UCAs), those items can no longer be executed on the current server.

Configuring runtime participant groups

After selecting a snapshot to configure, you can adjust the members of necessary participant groups. Follow these steps:

1. Click the **Role Bindings** option.

Lombardi lists each participant group and the members of each group. The participant groups listed are those that were created for the process application during process development in the Designer in Lombardi Authoring Environment.

2. For each participant group listed, you can perform the following actions:

Action	Description
Click Add Users and Groups option	Lombardi displays the Add Users dialog where you can enter a partial or complete user name in the Retrieve text box to display the users and groups that are available on the current server. Select the check box for each user and group that you want and click the Add button.

Action	Description
Click the remove icon next to an existing user or group	Lombardi removes the user or group from the participant group.

Configuring runtime environment variables

After selecting a snapshot to configure, you can set environment variables to the appropriate values for the current server. Follow these steps:

1. Click the **Environment Vars** option.
2. For the variables listed, provide a value or ensure that the value shown is accurate for the current server.



If no variables are listed, that means that none were established during process development in Lombardi Authoring Environment.

Monitoring Lombardi servers

The Process Admin console enables you to monitor the performance of the Process Servers in your environment. And, when necessary, you can view Lombardi logs from the Process Admin console to help resolve issues. Read the following sections to learn more:

- [Monitoring Process Server performance](#)
- [Monitoring processes and services](#)
- [Viewing Process Server logs](#)

Before performing any of the tasks in the following sections, go to the Process Admin console and log in as described in [Accessing the Process Admin console](#).

Monitoring Process Server performance

The Process Admin console includes an Instrumentation monitor to help identify performance bottlenecks in Process Server and to capture instrumentation data that you can use to further analyze any performance issues.

To access the Instrumentation monitor and display the most recent data:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Monitoring** to list the available monitoring options.
2. Click the **Instrumentation** option.
3. Click the **Refresh** button.

To automatically refresh the displayed data, select the time interval that you want from the drop-down menu.



To reset all values to 0, click the **Reset** button. This enables you to monitor performance as data is collected.

To log instrumentation data to an external .dat file:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Monitoring** to list the available monitoring options.
2. Click the **Instrumentation** option.
3. Click the **Start Logging** button.

The Instrumentation monitor displays the path and file to which the data is saved. The file is created and stored on the host of the Lombardi server that you are currently monitoring.

4. Click the **Stop Logging** button to end data capture to the log file.

Monitoring processes and services

The Process Admin console includes a Process Monitor that enables administrators to view the processes and services that are running on Process Server, and also to stop any problematic processes or services. For example, you may need to stop a service that causes an exception or a service that is stuck in a repeating loop.

The Process Monitor includes the following tabs:

- Summary

Shows you how many active services and processes are currently consuming CPU resources. Also shows which services and processes are most expensive in terms of the total time, total number of instances, and the total number of steps needed to execute them.

Data displayed	Description
Active Processes Currently Executing	Total number of process instances currently executing on this server that are potentially problematic.
Active Services Currently Executing	Total number of services currently executing on this server that are potentially problematic.
Most Expensive Services	Name, total running time, and the number of steps required for each executed service deemed most costly on this server.
Most Expensive Processes	Name, total running time, and the number of steps required for each executed process deemed most costly on this server.
Most Expensive Service Steps	Service name, step name, total running time, and total number of instances required to run each executed step deemed most costly on this server. (If any sub-services are associated with the step, the Process Monitor displays those sub-service names as well.)
Most Expensive Process Steps	Process name, step name, total running time, and total number of instances required to run each executed step deemed most costly on this server. (If any sub-processes are associated with the step, the Process Monitor displays those sub-process names as well.)

- Processes

Shows the following data for all processes on this server:

Data displayed	Description
Active Processes Currently Executing	Name, enter time (start time), duration (running time), and total number of steps for each process instance currently running on this server that is potentially problematic. For example, if a process instance is stuck in a repeating loop, it is shown in this list.
Active Processes Not Currently Executing	Name, last enter time (most recent start time), last duration (running time from most recent execution), total duration (cumulative running time), and total number of steps for processes previously started, but not currently active, on this server. This category includes process instances that are active but not running at this moment. For example, if a process instance is waiting for an event, it is included in this category.
Completed Processes	Name, last enter time (most recent start time), last duration (running time from most recent execution), total duration (cumulative running time), and total number of steps for processes that executed successfully on this server.

- Services

Shows the following data for all services on this server:

Data displayed	
Active Services Currently Executing	Name, enter time (start time), duration (running time), and total number of steps for each service currently running on this server that is potentially problematic. For example, if a service is stuck in a repeating loop, it is shown in this list.
Active Services Not Currently Executing/Completed Services	Name, last enter time (most recent start time), last duration (running time from most recent execution), total duration (cumulative running time), and total number of steps for services previously started, but not currently active, on this server and for services that executed successfully on this server. This category includes two types of services: (1) services that completed successfully and (2) services that were previously started but are not currently executing. For example, if a service is waiting for an event, it is included in this category.

To access the Process Monitor:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Monitoring** to list the available monitoring options.
2. Click the **Process Monitor** option.
3. Click the option that you want: Summary, Processes, or Services.

To stop an active process:

1. Access the Process Monitor as described in the preceding task.
2. Click the **Processes** option.
3. Under **Active Processes Currently Executing**, click the name of the process that you want to stop.
4. Click the **Halt Process** button.

Process "loop" Details

BPD Name	loop
Instance ID	67
Enter Time	04/15/08 12:52:06.103
Duration	0:05:50.505
State	Active
Total Steps Completed	35976

Halt Process

Active Step

Sub-Process Name	Step Name	Start Timestamp	Duration
	Untitled	04/15/08 12:57:56.592	0:00:00.000

Completed Steps

Sub-Process Name	Step Name	Last Enter Time	Total Duration	Total Instances
	Untitled	04/15/08 12:57:56.592	0:05:48.482	35973
	Untitled1	04/15/08 12:52:06.103	0:00:00.064	2
	Start	04/15/08 12:51:48.086	0:00:00.015	1

Active Services

Service Name	Enter Time	Duration	Total Steps
There are no active Services			

Inactive/Completed Services

Service Name	Last Enter Time	Last Duration	Total Duration	Total Steps
Default Human Service	04/15/08 12:52:05.978	0:00:00.079	0:00:00.626	12

The halted process now appears in the Active Processes Not Currently Executing list.

To stop an active service:

1. Access the Process Monitor as described in the preceding task.
2. Click the **Services** option.
3. Under **Active Services Currently Executing**, click the name of the service that you want to stop.
4. Click the **Halt Service** button.

Service "PM_Service" Details

Name	PM_Service
Instance ID	guid:1834ad1ced21c429-35deafa9:1195302b11d-7ec6
Parent Process	PM_BPD (52)
Enter Time	04/15/08 12:13:37.031
Duration	0:03:20.627
State	Active
Total Steps Completed	51614

Halt Service

Active Step

Sub-Service Name	Step Name	Enter Time	Duration
PM_HandleErrorService	Process Item X	04/15/08 12:16:57.658	0:00:00.000

Completed Steps

Sub-Service Name	Step Name	Last Enter Time	Total Duration	Total Instances
	Error Handler Item A	04/15/08 12:16:57.658	0:00:34.019	25807
PM_HandleErrorService	Process Item X	04/15/08 12:16:57.658	0:01:32.836	25806
	Process Item A	04/15/08 12:13:37.031	0:00:00.375	1

The halted service now appears in the Active Services Not Currently Executing/Completed Services list.

Viewing Process Server logs

Lombardi logs data about its performance and actions in several different types of log files. The physical log files are stored on Process Server, but you can view these logs from the Process Admin console. The following table describes the logs available with Lombardi and the data that each provides. By default, you can access all of the following logs from the Process Admin Console.



See [Configuring available log files](#) to learn how to customize the list of log files that is available from the Process Admin Console.

Log file	Description
TW BPD Engine	Records errors generated as a result of process instance execution on the current server.
TW Console	Records actions that have occurred in the Process Admin console.
TW Debug	Records warnings from the Process Server.
TW Error	Records Lombardi Java™ exceptions.
TW EventManager	Records historical information about Event Manager processing.
TW Exp/Imp	Records the process export and import transactions in Lombardi Authoring Environment.
TW Limit	Records Process Server limit overruns. You can configure Process Server limits in the 99Local.xml file in [Lombardi_home]/process-server/config/system.
TW JavaScript	Records any logging associated with JavaScript log functions like <code>log.info()</code> or <code>log.debug()</code> . Basically, this log records anything you write out to the log in a Server Script component.
WS UCA Execution	Records errors generated as a result of Undercover Agent (UCA) execution.
WS Inbound	Records calls to published Lombardi Web services.
WS Outbound	Records data about Web services that a Lombardi process consumes.

To view Lombardi logs:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Monitoring** to list the available monitoring options.
2. Click the **View Logs** option.
3. From the **Log Name** drop-down list, select the log that you want to view. (The preceding table describes each available log.)
4. From the **# of Lines** drop-down list, select the number of lines that you'd like to view.
5. If you want to view oldest log entries first, click the **Ascending** check box. (By default, the check box is disabled and the newest log entries are shown first.)
6. To find a particular word or phrase in the log file, enter the string to search for in the **Filter** text box.
7. Click the **Refresh** button to ensure you are viewing the most recent data available from Process Server.



See [Configuring available log files](#) to learn how to configure the list of log files that is available

Configuring available log files

By editing the `50AppServer.xml` file, which you can find in `[Lombardi_home]/process-server/config/system`, you can establish:

- Which log files can be viewed from the Process Admin Console
 - The default location for log files generated by Lombardi components
1. Open the `50AppServer.xml` file in a text editor (for example, Notepad).
 2. Find the `<log-watcher>` section.
 3. Make the appropriate edits to the path for each log file whose default location you want to change.
 4. If you want a particular log file to be inaccessible from the View Logs page, comment out or remove the `log name` element for that log.

Maintaining and monitoring Lombardi Event Manager

The Event Manager monitor, included in the Process Admin console, is useful for troubleshooting processes that are supposed to run automatically (through an Undercover Agent, for example), but fail to start. Using the Event Manager monitor, you should be able to identify any underlying problems, as well as control various aspects of Event Manager processing.

Before performing any of the tasks in the following sections, go to the Process Admin console and log in as described in [Accessing the Process Admin console](#).

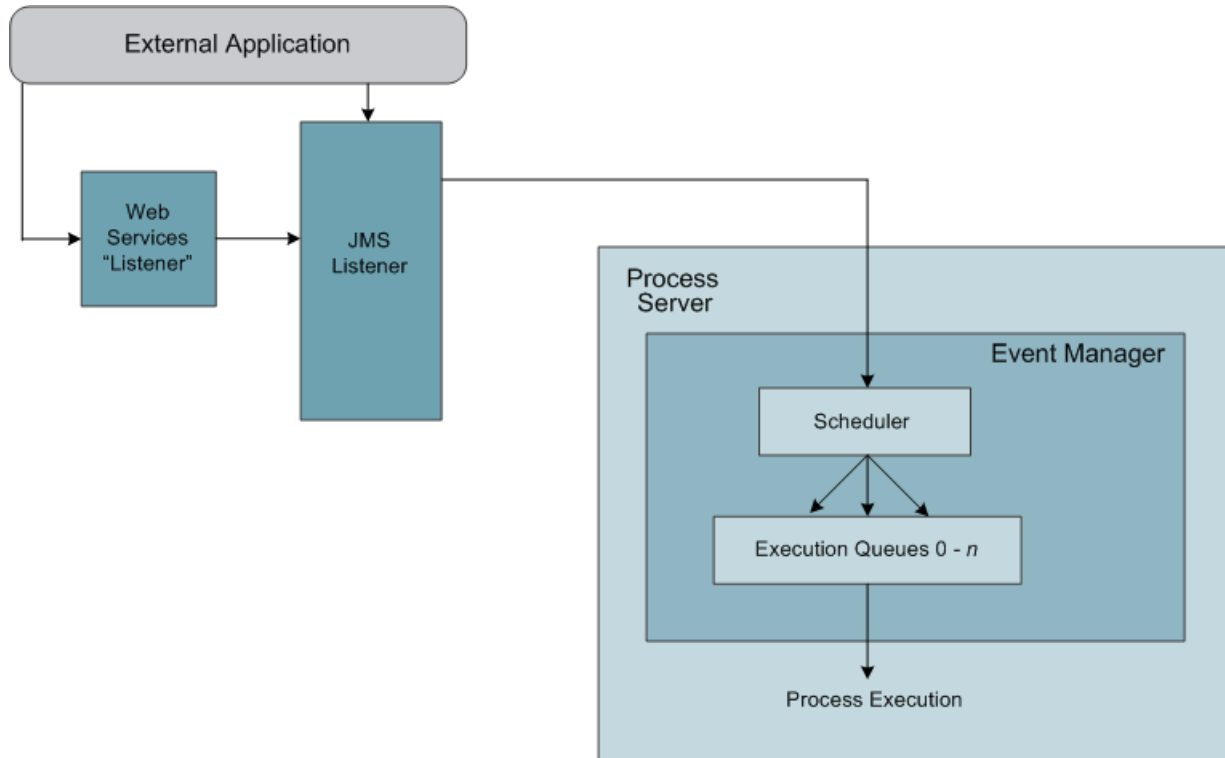
About the Event Manager

The Event Manager is the part of the Process Server that handles event scheduling and queuing. For example, when an event is received by Process Server, that event becomes a job in the Event Manager. Each job in the Event Manager is routed through a Scheduler, which schedules and tracks the execution of its assigned jobs.

For inbound integrations, where an external system or application calls into Lombardi to kick off a service, developers in Lombardi Authoring Environment can create an Undercover Agent and a Web Service to start the necessary Lombardi service. (For more information, see *Creating inbound integrations* in *Lombardi Authoring Environment User Guide* or online help.) The Event Manager processes all incoming requests as described in the following table:

For...	Event Manager...
Incoming message events from external applications	Queues incoming messages and then kicks off the appropriate UCA
Schedules set in UCAs	Looks to find the next UCA to run, calculates the time until the next UCA is due to run, and is dormant for the time between

The following diagram shows how the Event Manager receives and processes incoming requests:



Monitoring the Event Manager

The Event Manager monitor in the Process Admin console displays information about the Scheduler for the Event Manager on your Process Center Server or Process Server, and the various jobs being tracked by that Scheduler. When you access the Event Manager monitor, you can see the status for each scheduled job.



In a clustered environment, the monitor displays all Schedulers in the cluster and the jobs for all Schedulers in the cluster.

To use the Event Manager monitor:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Monitor** option.
3. The monitor displays the ID and status for each Scheduler and also displays all currently scheduled jobs as shown in the following image:

Event Manager > Monitor

Scheduler ID	Status	Connect expiration	# Jobs Executing
<input checked="" type="checkbox"/> NaplesProcCtr		08/28/2009 14:59:20	0

Total Jobs Executing: 0 Total Jobs: 2

Scheduler	Job Name	Job Queue	Scheduled Time	Last Scheduled Time	Last Execution Time	Next Scheduled Time	Job Status
	BPD timer execution	BPD async queue	08/27/10 04:18:13				Scheduled
	BPD timer execution	BPD async queue	08/27/10 04:24:09				Scheduled

4. You can pause a selected or all Schedulers by using the **Pause** or **Pause All** buttons. If you pause a Scheduler, any executing jobs are completed before processing is halted. (Use the **Resume** or **Resume All** buttons to resume processing.)

5. Examine the list of jobs to determine which events are scheduled and when they should execute.

This list can help you troubleshoot issues with your processes. For example, if an undercover agent (UCA) is supposed to start a process automatically at a certain time and you notice that the process is not running, you can examine the list of jobs to determine if the UCA was scheduled. If not, you know there could be an issue with the Process Server receiving the event. If the UCA is scheduled, but never runs, you can check the implementation of the UCA in the Designer to understand why it fails to run.

6. Click the **Refresh** button to ensure you are viewing the most recent data available.

The Event Manager monitor does not show historical information about Undercover Agents (UCAs) that were successfully run, but you can capture this type of information to the `[Lombardi_home]/process-server/logs/tw-ucaexecution.log` file. To do so, you need to configure the `TWUcaAppender` property in the `[Lombardi_home]/process-server/config/log4j.xml` file so that the value element for the `Threshold` parameter is set to `Info` as shown in the following example:

```
<param name="Threshold" value="INFO"/>
```

After changing the value for the `Threshold` parameter, restart the Process Server to begin capturing information to the `tw-ucaexecution.log` file.

Creating and maintaining blackout periods

Administrators should establish blackout periods to specify times when events cannot be scheduled, for example, due to a holiday or when regular system maintenance is scheduled. The Event Manager takes blackout periods into account when scheduling and queuing events and undercover agents (UCAs).

To create a blackout period:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Blackout Periods** option.
3. Set a Date/Time Range or a Weekday/Time Range.

For example, for a holiday, you'd set a Date/Time Range for a specific date in the future. For weekly system maintenance, you'd set a Weekday/Time Range.

4. Click the **Add** button.

The new blackout period is added to the Blackout Periods list.

To update a blackout period:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Blackout Periods** option.
3. Select the blackout period that you want to update from the list.
4. Change the details of the period as required.
5. Click the **Update** button.

To delete a blackout period:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Blackout Periods** option.
3. Select the blackout period that you want to delete from the list.
4. Click the **Delete** button.

Creating and maintaining execution queues

Event Manager jobs are scheduled to be processed by an execution queue. (If you look at the job listing in the Event Manager monitor, you can see that each job is assigned to a job queue.) The Event Manager includes two types of execution queues:

Asynchronous queue	Allows jobs to run at the same time.
Synchronous queue	Forces one job to finish before the next job can start.

Administrators can create multiple synchronous execution queues to handle Event Manager jobs. When multiple queues are available, developers who create events and corresponding undercover agents (UCAs) can specify the queue in which they want their event to run. You may want to create separate synchronous queues so that certain types of events can all be routed to a separate queue and processed sequentially.



You can override the default values set in the `[Lombardi_home]/process-server/config/system/80EventManager.xml` file to control the number of events that are loaded at one time on your synchronous queues and to control the number of simultaneous events that can execute on your asynchronous queues. To override the default values, copy the `<sync-queue-capacity>` and `<async-queue-capacity>` elements to the `[Lombardi_home]/process-server/config/100Custom.xml` file and change the default values to the new values that you want.

To create a synchronous queue:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Synchronous Queues** option.
3. Enter a name for the new queue in the **Description** text box.
4. Click the **Add** button.

The new queue is now included in the Synchronous Queues list.

To change the name of a synchronous queue:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Synchronous Queues** option.
3. Select the queue that you want to change from the Synchronous Queues list.
4. Change the name in the **Description** text box.
5. Click the **Update** button.

The queue is included with the new name in the Synchronous Queues list.



When you change the name of a synchronous queue, be sure to inform developers and other members of your team who may be specifying that queue to process their events.

To delete a synchronous queue:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.
2. Click the **Synchronous Queues** option.
3. Select the queue that you want to delete from the Synchronous Queues list.
4. Click the **Delete** button.

The queue is no longer included in the Synchronous Queues list.



When you delete a synchronous queue, be sure to inform developers and other members of your team who may be specifying that queue to process their events.

Viewing the JMS Error Queue

The Event Manager JMS Error Queue shows records that have not been processed by the Event Manager because of errors that have occurred or due to the Event Manager being in a blackout state.

To access the JMS Error Queue:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Event Manager** to list the available management options.

2. Click the **EM JMS Error Queue** option.

Managing Process Server caches and databases

The Process Server caches and databases normally run efficiently and without issues. However, there may be cases where particular problems come up that require you to use the utilities discussed in this section.



Before performing any of the tasks in the following sections, go to the Process Admin console and log in as instructed in [Accessing the Process Admin console](#).

Resetting Process Server caches

For performance reasons, Lombardi caches some information on the Process Server. The caches for Lombardi refresh automatically and so resetting these caches should only be required when an issue exists that a reset might rectify.



To control the frequency of cache refresh, use the `cache-refresh-interval` setting in the `[Lombardi_home]\process-server\config\system\00Static.xml` properties file.

You can use the Manage Caches page in the Process Admin console to view all caches and their status, as well as reset each cache. In addition to the name of the cache and a brief description, the Manage Caches page displays the following information for each cache on the Process Server:

CA	Cache Access	Shows the number of times the cache was refreshed and accessed.
UCA	Unrefreshed Cache Access	Shows the number of times the cache was accessed but not refreshed.
UCP	Unrefreshed Cache Percentage	Shows the percentage of uncached access versus cached access for this cache.
Last A.	Last Accessed	Shows the most recent access.
Status	Status	Shows whether the cache is on or off.
Actions	Actions	Allows you to show or reset the cache.

To use the Manage Caches page:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Lombardi Admin** to list the available administrative options.
2. Click the **Manage Caches** option.

The Manage Caches page displays the information described in the preceding table for each cache on the Process Server.

3. In the **Actions** column, click one of the following options:

Show	To view a cache in a separate browser window.
Reset	To reset a cache.

4. At any time, you can click the **Refresh** button to ensure you are viewing the most recent data available.

Deleting tasks from the Process Server database

To reduce the amount of space Lombardi uses, administrators can use the Task Cleanup utility in the Process Admin console to delete tasks from the Lombardi task database. The Cleanup Task utility enables administrators to easily remove:

- Tasks that end users have deleted from their task list
- Tasks that reside in users' SENT or CLOSED folders
- Attachments for deleted or orphaned tasks

To use the Task Cleanup utility:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Lombardi Admin** to list the available administrative options.
2. Click the **Task Cleanup** option.
3. Select the option that you want:

Clean up attachments that are associated with deleted tasks or that have been orphaned	This option removes only attachments and not tasks.
Clean up tasks and attachments where every user in the history tree has deleted the task from their task list	This option removes tasks and attachments.
Clean up tasks and attachments where every user in the history tree has deleted the task from their task list or the task resides in the user's SENT folder	This option removes tasks and attachments.
Clean up tasks and attachments where every user in the history tree has deleted the task from their task list or the task resides in either the users' SENT or CLOSED folders	This option removes tasks and attachments.

4. Under **Current Counts**, note how many tasks and attachments currently exist in the database per the option you choose.
5. Click the **Cleanup** button.
6. Under **After Cleanup Counts**, you can see how many tasks and attachments were deleted.

Managing exposed process values (EPVs)

Exposed process values (EPVs) are variables that certain users can change when processes are running on the Process Center Server or a Process Server in your test, production, or other runtime environment.

For example, suppose a process author is creating an Expense Reimbursement process and he wants his process to be flexible so that it can work in any major organization in his business. To support this flexibility, he creates EPVs to enable some end users to adjust specific variable values as constants, thereby affecting the flow of the process, task assignments, and so on. The process author can, for example, enable supervisors in his organization to change the allowed amounts for daily expenditures, or the dollar amount that coincides with the various levels of approvers.

The users who can manage EPVs is determined during process design in Lombardi Authoring Environment. When a process author creates an EPV, he uses the exposure setting to choose the users who can alter

the EPV. If you are included in the exposure setting, you can manage EPVs as described in the following procedure.

To manage EPVs, follow these steps:

1. In the Server Admin area of the Process Admin console, click the indicator next to **Admin Tools** to list the available options.
2. Click the **Manage EPVs** option.
3. Using the drop-down menu, select the process application snapshot that contains the EPV that you want to modify.

Each process application snapshot listed also includes the workspace name. Current working versions of process applications are listed as `Tip`, enabling you to test EPVs on the Process Center Server without creating a snapshot.

4. Using the drop-down menu, select the EPV that you want to edit.

The Process Admin Console displays the variable values in the EPV that you can modify as shown in the following image:

The screenshot shows the 'Admin Tools > Manage EPVs' interface. At the top, there is a 'Feedback' button with an envelope icon. Below that is a section titled 'Exposed Process Values' containing three rows: 'Snapshot' with a dropdown menu showing 'Billing Disputes (Main .Tip)', 'Name' with a dropdown menu showing 'approverThresholds', and 'Description' with a text area containing 'Expense report approval levels.' Below this is a 'Variable List' table with the following data:

Variable Name	Description	Current Value
Level1	This is the dollar amount that requires first-line manager approval.	250
Level2	This is the dollar amount that requires Director approval.	500
Level3	This is the dollar amount that requires VP approval.	1000

5. Click the row of the variable that you want to change and then click the **New** button.
6. In the Exposed Process Value pop-up window, enter a new value, set the date and time at which you want the new value to take effect, and click the **OK** button.
7. Repeat steps 5 and 6 for each variable that you want to modify. You can enter multiple values for the same variable, each taking effect at a different time.

The Process Admin Console displays all modifications for each variable in a separate table as shown in the following image:

Admin Tools > Manage EPVs

Exposed Process Values Feedback:

Snapshot	Billing Disputes (Main_Tip)
Name	approverThresholds
Description	Expense report approval levels.

Variable List

Variable Name	Description	Current Value
Level1	This is the dollar amount that requires first-line manager approval.	250
Level2	This is the dollar amount that requires Director approval.	500
Level3	This is the dollar amount that requires VP approval.	1000

Schedule Change / View Details

Effective Date	Value	Modified By	Modified Date
09/28/2009 21:26:00	7000	tw_admin	08/27/2009 21:26:53
08/31/2009 21:23:39	5000	tw_admin	08/27/2009 21:23:49

- Click a row and then use the Edit and Delete buttons to change or remove your modifications, if necessary.

Configuring access to a secure WebSphere application server

If an ILOG JRules Rule Execution Server or a WebSphere Service Registry and Repository (WSRR) registry is running on a remote WebSphere application server that has security enabled, you need to configure Lombardi Process Server as described in the following steps to enable users in Lombardi Authoring Environment to view available rule applications, rule sets, and WSRR services.

Acquiring signer certificate

Follow these steps to acquire the signer certificate from the remote WebSphere application server:

- Log in to WebSphere Administration Console for the remote WebSphere application server as an administrator.
- Go to: **Security > SSL certificate and key management > Key stores and certificates**
- Select: **NodeDefaultTrustStore**
- Select: **Signer certificates**
- Enable the **root** option and then select: **Extract**
- Enter the path and file name to which you want to save the certificate and set the **Data type** to **Binary DER data**.
- Select: **OK**

Installing signer certificate in Lombardi Process Server trust store

Follow these steps to install the signer certificate to the Lombardi Process Server's trust store:

1. Stop Lombardi Process Server if already running.
2. Transfer the DER file from the preceding procedure to a file system location that is accessible to the Lombardi Process Server. (For example, you can use a shared drive.)
3. On the Lombardi Process Server host, go to [Lombardi_home]/AppServer/java/bin and invoke:
ikeyman
4. Select: **Key Database File > Open**
5. Set the **Key database type** to: **JKS**
6. Set the **Location** to: [Lombardi_home]/AppServer/java/jre/lib/security
7. Set the **File Name** to: cacerts
8. Select: **OK**
9. Provide a password (the default password is: changeit).
10. Select **Signer Certificates** from the drop-down list.
11. Select: **Add**
12. Specify the location of the DER file and select: **OK**
13. Enter a label for the certificate and select: **OK**
14. Start Lombardi Process Server.

Customizing the Process Admin Console

Administrators can customize Process Admin console for IBM Websphere Lombardi Edition by adding new pages with new functionality or by removing the pages and functions included by default. You can also restrict access to both the pages that you add and the default pages. Read the following sections to learn more.

Adding functions to the Process Admin Console using services

To add pages to the Process Admin console:

1. Create a service in the Designer in Lombardi Authoring Environment that includes the functionality you want to add.
2. Click the **Overview** tab for the service.
3. From the **Exposed As** drop-down list, select **Administration Service**.
4. Use the **Select** button (next to **Expose To**) to choose the participant groups to whom you want to make the administration service available.

This setting determines which Lombardi users will be able to access the new page in the Admin console.



When you create or edit participant groups in the Designer, you can define which users are part of those groups.

Removing functions from the Process Admin Console

To remove default pages from the Process Admin console:

1. Open the [Lombardi_home]\process-server\config\console.xml file.
2. If the Process Admin console is open in a browser window or tab, close the window or tab.
3. Find the item that corresponds to the page that you want to remove.

For example, you may want only your database administrators to perform cleanup of data generated by Lombardi Process Server in the task table and so you decide to remove the Task Cleanup functionality from the Process Admin console. In this case, you need to find the following item:

```
<item name="Task Cleanup" link="cs_cleanup.lsw" codeType="JSP"><constraint type="role" value="tw_admins"/></item>
```

4. Comment out the item so that the corresponding page is not displayed in the Process Admin console.

Use the following syntax for comments: `<!-- -->`

5. Save the console.xml file.

- Open the Process Admin console and log in as described in [Accessing the Process Admin console](#).

The Task Cleanup page is no longer available.

Restricting access to the Process Admin Console

You can restrict access to both default pages and pages that you add to the Process Admin console.



To restrict access to pages that you add, be sure to select only those Participant Groups that contain the appropriate users when you expose the service as described in [Adding functions to the Process Admin Console using services](#).

By default, only the internal `tw_admins` group has access to all pages of the Process Admin console. For each page in the Process Admin console, you can change the access restriction or grant access to additional users as described in the following procedure.

To grant access to additional users:

- Open the `[Lombardi_home]\process-server\config\console.xml` file.
- If the Process Admin console is open in a browser window or tab, close the window or tab.
- Find the item that corresponds to the page for which you want to change access restriction.

For example, you may want to grant users in the internal `tw_authors` group access to the Process Monitor page. If so, you need to find the following item:

```
<item name="Process Monitor" link="cs_processmonitor/summary.lsw"
codeType="JSP"><constraint type="role" value="tw_admins"/></item>
```

- Add an additional constraint to the item. For this example, your constraint would be:

```
<constraint type="role" value="tw_authors"/>
```

So the item now has two constraints as follows:

```
<item name="Process Monitor" link="cs_processmonitor/summary.lsw"
codeType="JSP"><constraint type="role" value="tw_admins"/><constraint
type="role" value="tw_authors"/></item>
```

- Stop and restart the Process Server.

Any user included in the internal `tw_authors` group should now be able to log in to the Process Admin console and access the Process Monitor.

To change access restrictions for a particular page, you can remove one of the constraints if multiple constraints exist. You can also change the value of a constraint if you want to change the group of users who can access a page. For example, if you want members of the internal `tw_authors` group to have exclusive access to the Task Cleanup page, you can change:

```
<item name="Task Cleanup" link="cs_cleanup.lsw" codeType="JSP"><constraint
type="role" value="tw_admins"/></item>
```

To:

```
<item name="Task Cleanup" link="cs_cleanup.lsw" codeType="JSP"><constraint  
type="role" value="tw_authors"/></item>
```

Changing preferences

To specify the preferred language for Lombardi Process Admin Console:

1. Click the **Preferences** link at the top right of the console.
2. From the **Locale preferences** list box, select the language that you want.

The language packs selected during WebSphere Lombardi Edition installation establish the languages that are available in this list.

The locale preference selected applies to the user who is currently logged in. Each Lombardi interface started by the same user in the same environment uses this preference setting.

3. Click the **Save Changes** button. You can log out and then log back in for the change to take effect.

Managing Lombardi Performance Data Warehouses

The Performance Data Warehouses in your IBM Websphere Lombardi Edition configuration retrieve and store tracked performance data, which enables users in Lombardi Authoring Environment to create reports and also analyze processes using the Optimizer. To learn more about tracked data and how Lombardi enables you to analyze your processes and performance using this data, see:

Section	Publication
Creating reports	<i>Lombardi Authoring Environment User Guide</i> or online help
Simulating and optimizing processes	<i>Lombardi Authoring Environment User Guide</i> or online help

The following sections explain how to access the Performance Admin Console to perform administrative tasks and also provide a list of the types of tasks that you can perform in the console with links to detailed information and procedures.

Accessing the Performance Admin Console

To access the Performance Admin Console, use one of the following options:

- Point your Web browser to `http://[host_name]:[port]/PerformanceAdmin`, providing the name of the host where the Performance Data Warehouse is installed and the port designated for the Performance Data Warehouse during Lombardi installation.
- If you are working on a Windows host where the Performance Data Warehouse is installed, choose **IBM WebSphere Lombardi Edition > Performance Admin Console** from your **Start** menu.

To log in to the Performance Admin Console, use the default account for Lombardi administrators:

Default account	Default password
tw_admin	tw_admin

Understanding administrative tasks

The following table describes the types of tasks that you can complete in the Performance Admin Console, with links to step-by-step procedures.

Task	Description	See...
Managing queues	As part of Lombardi maintenance, you may need to view the Performance Data Warehouse load queue to determine what records have yet to be loaded to the database. You may also need to view the error queue to determine if any errors have occurred while data is being loaded from the Process Server to the Performance Data Warehouse.	Viewing and managing Performance Data Warehouse queues
Managing data transfer errors	To analyze issues with the Performance Data Warehouse, you can view all errors	Viewing and managing data transfer errors

Task	Description	See...
	generated due to failed data transfer from the Process Server.	
Viewing Performance Data Warehouse database statistics	You can check the size of the physical tables in the Performance Data Warehouse.	Viewing Performance Data Warehouse statistics
Monitoring the Performance Data Warehouse	To assess overall performance, you can view statistics (such as duration) for data transfer and other functions executed in the Performance Data Warehouse.	Monitoring the Performance Data Warehouse
Using the Performance Data Warehouse command-line tool	To ensure that performance databases are performing optimally, you can use the command-line tool to resolve records that are pending.	Using the Performance Data Warehouse command-line tool

Viewing and managing Performance Data Warehouse queues

The Performance Admin Console provides access to both the Load Queue and the Error Queue as described in the following sections.

Before performing any of the tasks in the following sections, go to the Performance Admin Console and log in as described in [Accessing the Performance Admin Console](#).

Viewing performance records waiting to be loaded

The Performance Data Warehouse's Load Queue holds database records that are waiting to be loaded. The View Load Queue page in the Performance Admin Console enables you to view the pending records in this queue. You can also see if an error is preventing the records from loading. If no records are pending, the Load Queue is empty.

The Load Queue provides the following information about each pending record:

Type	The type of record. For example, <code>Tracking Data</code> is a record type and indicates that data for a tracking group is waiting to be loaded. To learn more about tracking groups, see <i>Creating Reports in Lombardi Authoring Environment User Guide</i> or online help.
Date	The date that the record started to load.
Properties	The properties of the record.
Failure Reason	If applicable, a description of why the load is in error.

To access and use the View Load Queue page:

1. In the Performance Admin Console, click the **View Load Queue** option.
2. Use the **Previous** and **Next** links to navigate through the pages of records if more than one record is waiting to be loaded.

Viewing and managing error records

The Performance Data Warehouse's Error Queue lists all database records that failed to load because of an error. The Error Queue is similar to the Load Queue, except that it shows *only* those records that failed

to load. Plus, the View Error Queue page enables you to remove selected records or you can attempt to reprocess them.

You might be able to reprocess a record if you had a configuration problem on the Performance Data Warehouse that, for example, led to a disconnect between the server and its database. To reprocess records using the View Error Queue page:

1. In the Performance Admin Console, click the **View Error Queue** option.



Use the **Previous** and **Next** links to navigate through the pages of records.

2. Do one of the following:

To reprocess selected records	Enable the check box next to each record that you want to reprocess and click the Reprocess Checked button.
To reprocess all records	Click the Reprocess All button.

Consider deleting records when you have investigated and repaired the cause of a failure and the repair you implemented does not allow you to reprocess the record. To delete records using the View Error Queue page:

1. In the Performance Admin Console, click the **View Error Queue** option.



Use the **Previous** and **Next** links to navigate through the pages of records.

2. Do one of the following:

To delete selected records	Enable the check box next to each record that you want to remove and click the Delete Checked button.
To delete all records	Click the Delete All button.

Viewing and managing data transfer errors

The View Errors page in the Performance Admin Console shows all errors resulting from data transfer between the Process Server and Performance Data Warehouse. For each error, you can see the following information:

Select	Use this check box to select an error message for removal or reprocessing as described in the following section.
Claimed	If someone has claimed this error to investigate, this check box is enabled. If not, you can claim the error for investigation by enabling the check box.
Date Claimed	If the error has been claimed, this column shows the date of the claim.
Reprocess	If a reprocess has been attempted for this error, the check box is enabled.
Error Date	Shows the date on which the error occurred.
Error Reason	Shows the reason for the error.

Before performing any of following tasks, go to the Lombardi Performance Admin Console and log in as described in [Accessing the Performance Admin Console](#).

To reprocess errors using the View Errors page:

1. In the Performance Admin Console, click the **View Errors** option.



Use the **Prev** and **Next** links to navigate through the pages of errors.

2. Do one of the following:

To reprocess selected errors	Enable the Select check box next to each error that you want to reprocess and click the Reprocess Checked button.
To reprocess all errors	Click the Reprocess All button.

To delete errors using the View Errors page:

1. In the Performance Admin Console, click the **View Errors** option.



Use the **Prev** and **Next** links to navigate through the pages of errors.

2. Do one of the following:

To delete selected errors	Enable the Select check box next to each error that you want to reprocess and click the Delete Checked button.
To delete all errors	Click the Delete All button.

Viewing Performance Data Warehouse statistics

The Performance Admin console includes a View Statistics page that enables you to see the number of rows in the tables and views in the Performance Data Warehouse.



To learn more about the tables and views in the Performance Data Warehouse, see *Performance Database Architecture* in *Lombardi Authoring Environment User Guide* or online help.

Before performing the following task, go to the Performance Admin console and log in as described in [Accessing the Performance Admin Console](#).

To access and use the View Statistics page:

1. In the Performance Admin console, click the **View Statistics** option.
2. Note the number of rows in each of the tables and views.

For housekeeping purposes, you can see how big your tables are becoming and decide when you should archive.

Monitoring the Performance Data Warehouse

The Performance Admin Console includes a View Instrumentation page to help identify performance bottlenecks in your Performance Data Warehouse and to capture instrumentation data that you can use to further analyze any performance issues.

Before performing any of following tasks, go to the Lombardi Performance Admin Console and log in as described in [Accessing the Performance Admin Console](#).

To access the View Instrumentation page and display the most recent data:

1. In the Performance Admin Console, click the **View Instrumentation** option.
2. Click the **Refresh** button.

To automatically refresh the displayed data, select the time interval that you want from the drop-down menu.

To log instrumentation data to an external .dat file:

1. In the Performance Admin Console, click the **View Instrumentation** option.
2. Click the **Start Logging** button.

The View Instrumentation page displays the path and file to which the data is saved.

3. Click the **Stop Logging** button to end data capture to the log file.

Using the Performance Data Warehouse command-line tool

The Performance Data Warehouse command-line tool enables you to perform maintenance tasks on your database to ensure optimal run-time performance. When you run the command available with the tool, it generates a SQL script that, when executed, makes the appropriate database changes. You can execute resulting SQL scripts using the database application appropriate for your environment or you can use the `execute` argument included with the command-line tool.

To use the command-line tool, go to the following directory:

```
[Lombardi_home]\performance-data-warehouse\tools\perfsvrtool
```

The syntax for invoking the command-line tool is:

```
perfsvrtool[.cmd or .sh] command-name -[command-arg] [-groups
tracking-group-name-1 tracking-group-name-2 ...]
```

The tool includes the following commands:


archive	Archives the snapshots that you specify and marks all the metadata in those snapshots with an ARCHIVED timestamp. Lombardi does not use archived metadata when generating Performance Data Warehouse schema and views. To specify snapshots, use the ID for each snapshot from the SNAPSHOTS view in the performance database. (See <i>Performance Data Warehouse database architecture</i> in <i>Lombardi Authoring Environment User Guide</i> or online help for more information.)
---------	---

restore	Restores the snapshots that you specify by nulling out the ARCHIVED timestamp and allowing the snapshots' metadata to contribute to the Performance Data Warehouse physical schema and views. To specify snapshots, use the ID for each snapshot from the SNAPSHOTS view in the performance database. (See <i>Performance Data Warehouse database architecture</i> in <i>Lombardi Authoring Environment User Guide</i> or online help for more information.)
pending	Identifies failed definition records and resolves their pending state. Also enables you to review and then commit pending schema changes from the <code>archive</code> and <code>restore</code> commands.

The following arguments are available for use with the `pending` command:



The `archive` and `restore` commands leave the system with pending representation actions, so you must use the `pending` command to either preview or execute the schema changes.

-preview	Generates a preview of the SQL script generated as a result of the invoked command. No changes are made to the database.
-prepare	Generates a preview of the SQL script and prepares the database for the pending actions.
-execute	<p>Invokes the command without providing a preview SQL script.</p>  <p>Use the <code>-execute</code> argument with extreme caution. It is executed when the Performance Data Warehouse is running (online), without the ability to review the SQL script prior to its execution. If the scope of changes is complex there is a chance of data loss because during the execution of the command, data might become out of sync, and this might cause a failure from which the system is not be able to recover.</p>

Use the optional `-groups` attribute to specify individual tracking groups. This attribute is useful when the scope of changes to your tracked performance data is limited to known tracking groups. If you do not specify tracking groups, all groups in the database are processed when the command is executed.

Before running a command

Before running a command, complete the following:

- Ensure that you have installed or upgraded your Performance Data Warehouses to the latest version of Lombardi.
- Start the Performance Data Warehouse. If you are running in a clustered environment, ensure that all servers in the cluster are running.
- Create a backup of the performance database.
- Go to the following directory:
`[Lombardi_home]\performance-data-warehouse\tools\perfsvrtool`

Using the archive command

You can invoke the `archive` command as shown in the following example:

```
perfsvrtool.cmd archive [snapshot-id-1 snapshot-id-2 ...]
```

Where `[snapshot-id]` is the `SNAPSHOT_ID` for each snapshot from the `SNAPSHOTS` view in the Performance Data Warehouse database. See *Performance Data Warehouse database architecture* in *Lombardi Authoring Environment User Guide* or online help for more information.

Use the pending command to complete the archive. You can use the pending command with the `-preview` argument to review the changes before executing them. Or you can simply execute the archive using the pending command with the `-execute` argument. Both options are described in [Using the pending command](#).

Using the restore command

You can invoke the restore command as shown in the following example:

```
perfsvrtool.cmd restore [snapshot-id-1 snapshot-id-2 ...]
```

Where `[snapshot-id]` is the `SNAPSHOT_ID` for each snapshot from the `SNAPSHOTS` view in the Performance Data Warehouse database. See *Performance Data Warehouse database architecture* in *Lombardi Authoring Environment User Guide* or online help for more information.

Use the pending command to complete the restore. You can use the pending command with the `-preview` argument to review the changes before executing them. Or you can simply execute the restore using the pending command with the `-execute` argument. Both options are described in [Using the pending command](#).

Using the pending command

To invoke the pending command with the `-preview` argument:

1. Run the `pending -preview` command against the performance database as shown in the following example:

```
perfsvrtool.cmd pending -preview c:\temp\PS_pending_script.sql
```

2. Review the SQL script that was saved to the specified output file (`c:\temp\PS_pending_script.sql`).

To invoke the pending command with the `-prepare` argument:

1. Run the `pending -prepare` command against the performance database as shown in the following example:

```
perfsvrtool.cmd pending -prepare c:\temp\PS_pending_script.sql
```

The command-line tool creates the SQL script and prepares to move the pending records to the database. During this time, data loading is disabled until the pending actions are complete.

2. Stop all Performance Data Warehouses.
3. Review the SQL script that was saved to the specified output file (`c:\temp\PS_pending_script.sql`).
4. Execute the SQL script against the performance database using the database maintenance tool of your choice.

The pending records are added to the database.

5. Restart all Performance Data Warehouses.



Use the `pending -execute` command only in a development environment where potential data loss is not a concern.

To invoke the pending command with the `-execute` argument:

- Run the `pending -execute` command against the performance database as shown in the following example:

```
perfsvrtool.cmd pending -execute
```

The command-line tool executes the SQL script against the performance database so that tracked data records that were in a pending state are successfully transferred to the database.

Understanding Performance Data Warehouse architecture

To understand the Performance Data Warehouse tables and associated views that you can query to create reports in Lombardi, see *Creating and configuring reports* in the *Authoring Environment User Guide* or online help. When you send tracking definitions to the Performance Data Warehouse from Lombardi Authoring Environment and when you install process applications that include tracking definitions on Process Servers in runtime environments, Lombardi creates views to hold the data that it tracks when you run your process instances. Understanding the naming conventions and architecture of these tables and views will help you manage and maintain them.

Managing Lombardi configuration settings

In some cases, administrators may need to make changes to the IBM Websphere Lombardi Edition configuration that require additions or edits to various configuration files. The topics in this section explain how to make such changes. Review the following table to determine if these configuration options apply to your environment:

Task	Description	See...
Setting up user access to critical path management features	If users in your environment want to take advantage of critical path management features in Lombardi Process Portal, you need to ensure those users have access. You can also change the default duration for critical path analysis.	Settings for Critical Path Management
Configuring proxy settings	If you use a proxy server for internet connections, you can configure Lombardi so that it uses the appropriate server and protocol for internet connections, such as when connecting to Blueprint.	Configuring proxy settings
Encoding credentials in URLs	You can control whether the credentials passed in a Lombardi URL that implements <code>redirect-login.jsp</code> are encoded. For example, you can encode credentials in a URL that is used to start a service directly from Lombardi Authoring Environment.	Encoding credentials in URLs
Changing the maximum string length for tracked data	By default, the maximum number of characters allowed for tracked performance data is 64. You may need to extend this maximum to meet the needs of the users in your environment.	Extending the maximum number of characters in tracked performance data
Controlling who can debug Lombardi services	You may need to limit access to debugging functionality for services in the Inspector in Lombardi Authoring Environment.	Restricting access to debugging for services



Pathnames to configuration files and other resources in the following topics are specific to Process Servers installed in staging, test, and production environments. These pathnames are different when you are administering the Process Center Server. For example, the pathname to the Process Center Server's `100Custom.xml` file is `[Lombardi_home]/process-center/config/100Custom.xml`. So, you can simply replace `process-server` with `process-center` to find the same files and resources for the Process Center Server.

Configuring proxy settings

If you use a proxy server for internet connections, you can configure Lombardi so that it uses the appropriate server and protocol for internet connections, such as when connecting to Blueprint. The `connection` section of the `[Lombardi_home]\process-server\config\system\99Local.xml` contains the proxy settings for Lombardi.



To edit the proxy settings in the `99Local.xml` file, copy the `connection` section to the `100Custom.xml` file, uncomment the section or sections that you want to use, and then make necessary changes. (You can find the `100Custom.xml` file in the `[Lombardi_home]\process-server\config` directory.) This way, all settings that you have customized are located in a single configuration file, enabling you to more easily upgrade to new versions of Lombardi product components.

If you want proxy settings to be applied for all known protocols, use the `<proxy-settings>` section. If you want to establish settings for specific protocols, use the `<proxy-settings protocol="http">` and `<proxy-settings protocol="https">` sections.



If you use the `<proxy-settings>` section, any protocol-specific settings established in other sections are ignored.

Setting	Description
<code><host></host></code>	IP address of the proxy server. This setting is required.
<code><port></port></code>	Port number that is used by the proxy server for client connections. This setting is required.
<code><user-name></user-name></code>	(Optional) User name used by the proxy server for client connections.
<code><password></password></code>	(Optional) Password used by the proxy server for client connections.
<code><excluded-hosts></excluded-hosts></code>	(Optional) IP addresses of any hosts for which proxy settings should not be applied. <code>localhost</code> , <code>127.0.0.1</code> , and <code>0:0:0:0:0:0:0:1</code> are excluded by default. Use a comma-separated string of IP addresses to exclude additional hosts.

Settings for Critical Path Management

The following sections describe administrative settings for the Critical Path Management tools available in Teamworks Process Portal.

Setting up user access to Critical Path Management tools

The following entry in the `[Lombardi_home]\[process-center|process-server]\config\system\99Local.xml` configuration file defines the Lombardi user group that is allowed to access the Critical Path Management features in Lombardi Process Portal. By default, this group is `tw_process_owners`:

```
<action type="ACTION_CHANGE_CRITICAL_PATH">
<role>tw_process_owners</role>
</action>
```

The `tw_process_owners` group includes the `tw_admin` user by default.

If you want to change the default group for Critical Path Management access, you should make the change in the `[Lombardi_home]\[process-center|process-server]\config\100Custom.xml` configuration file as follows (do not edit the `99Local.xml` file):

1. Stop Lombardi Process Center Server or Process Server if already running.
2. Open the `100Custom.xml` file in a text editor.
3. Copy and paste the example code inside the `<properties>` element, and then set the value of the `<role>` element to the appropriate group name. The final result should resemble the following example:

```
<server>
  <portal>
    <default-action-policy>
      <action merge="mergeChildren" type="ACTION_CHANGE_CRITICAL_PATH">
        <role merge="replace">my_role_name</role>
      </action>
    </default-action-policy>
  </portal>
</server>
```

4. Save your changes.
5. Start Lombardi Process Center Server or Process Server.
6. Start Lombardi Process Admin Console in your Web browser and then log on.
7. Navigate to the **Group Management** page and add users to the group that you specified for Critical Path Management access.



For more information about setting up Lombardi users and groups, see [Managing Lombardi users](#).

Setting the default duration for critical path analysis

The following code block in the

`[Lombardi_home]\[process-center|process-server]\config\system\99Local.xml` configuration file defines the default duration for the critical path. By default, it is two days.

```
<critical-path>
  <default-duedate-increment-amount>2</default-duedate-increment-amount>
  <!-- Must be either 1, 2, 3 or 4 (1=Months, 2=Days, 3=Hours, 4=Minutes) -->
  <default-duedate-increment-type>2</default-duedate-increment-type>
</critical-path>
```

If you want to change the default duration, you should make the change in the

`[Lombardi_home]\[process-center|process-server]\config\100Custom.xml` configuration file as follows (do not edit the `99Local.xml` file):

1. Stop Lombardi Process Center Server or Process Server if already running.

- Open the `100Custom.xml` file in a text editor.
- Copy and paste the example code inside the `<properties>` element, and then change the value inside the `<default-duedate-increment-amount>` element to the appropriate number of months, days, hours, or minutes. Change the value inside the `<default-duedate-increment-type>` element to 1, 2, 3, or 4 for months, days, hours, or minutes, respectively.

```
<common>
  <critical-path merge="mergeChildren">
    <default-duedate-increment-amount
merge="replace">3</default-duedate-increment-amount>
    <!-- Must be either 1, 2, 3 or 4 (1=Months, 2=Days, 3=Hours, 4=Minutes)
-->
    <default-duedate-increment-type
merge="replace">1</default-duedate-increment-type>
  </critical-path>
</common>
```

- Save your changes.
- Start Lombardi Process Center Server or Process Server.

Encoding credentials in URLs

You can control whether the credentials passed in a Lombardi URL that implements `redirect-login.jsp` are encoded. For example, you can encode credentials in a URL that is used to start a service directly from Lombardi Authoring Environment. To control encoding, use the `<encode-redirect-url-credentials>` property in the `00Static.xml` file, which you can find in the following directory:

```
[Lombardi_home]\process-server\config\system
```

By default, this property is set to `true` so that credentials passed in a Lombardi URL are encoded. If you change the setting to `false`, the URL is composed with credentials in plain text.

To edit the properties in the `00Static.xml` file, copy each property to the `100Custom.xml` file and then make the changes. (You can find the `100Custom.xml` file in the `[Lombardi_home]\process-server\config` directory.) This way, all properties that you have customized are located in a single configuration file, enabling you to more easily upgrade to new versions of Lombardi.

Extending the maximum number of characters in tracked performance data

By default, the maximum number of characters that is allowed in performance data (variable fields that are tracked to the Performance Data Warehouse for reporting purposes) is 64. You can extend this limit by making the following changes to the property file for your Lombardi Performance Data Warehouse. The changes that you make to this property affect the column sizes in the tracking group tables.



For more information about how performance data is tracked, see *Lombardi Authoring Environment User Guide* or online help.

1. From the [Lombardi_home]\performance-data-warehouse\config\system directory, open the 00Static.xml property file in a text editor. Copy and paste the following property into the 100Custom.xml property file (located in [Lombardi_home]\performance-data-warehouse\config):

```
<max-length-of-string-columns>64</max-length-of-string-columns>
```

To change the value, use the merge="replace" command as shown in the following example. In this example, the maximum desired length of a string is 200.

```
<max-length-of-string-columns  
merge="replace">200</max-length-of-string-columns>
```



You need to make this change globally in the Performance Data Warehouse because the server does not have field- or group-level specificity for the maximum string length setting. Although you can use a larger string length for a field, you should be somewhat conservative and apply this setting across the board.

2. In the performance database, change the column width of all tracking group fields in the TG_* tables that are VARCHAR parameters. You must also change the column width of the STRING_VALUE column in the LSW_OPTIMIZER_DATA table. Both of these values should be the same size as the value of the max-length-of-string-columns property that you specified in preceding step. For example, if you have a tracking group called Test and a tracked string in Test called longString that should be able to send 200 characters to the Performance Data Warehouse, you should alter the TG_Test table to extend TG_Test.longString to be 200 characters long. For example:

```
ALTER TABLE TG_Test  
MODIFY longString VARCHAR2 (200)
```



Consult your database administrator for the specific command that will need to be run on your performance database. If you apply the alter table command to your tracking group fields, you still need to apply the change for the maximum string length to the Performance Data Warehouse configuration in order for Lombardi to write data larger than the default maximum string length. Anything larger than the default maximum string length value will go into the errors list in the Performance Admin Console. If you increase the maximum string length value but do not increase the size of the other string fields, the amount of data written could exceed the capacity of these fields.

3. After altering the TG_* tables, send definitions to the Performance Data Warehouse to recreate the corresponding view(s).
4. Restart the Performance Data Warehouse.

You will see errors in your tw-perf.log file if you attempt to send data to the Performance Data Warehouse that is greater than the maximum allowed number of characters. For example:

```
2007-08-08 18:05:26,156 [DataTransfer Thread #2] ERROR  
com.lombardisoftware.server.ejb.tracking.APIServicesBean  
- Exception in EJB call  
com.lombardisoftware.core.TeamWorksException: (PFS-0062) The tracked field with  
external ID t193b943b74411 has a value that is 96 characters long. The maximum  
is 64.
```

...

You will only see these errors in the performance logs and Performance Admin console when this occurs. No indication of an error is displayed in the Process Server. These errors are stored in the error queue where you can reprocess them using the Performance Admin Console. See [Viewing and managing data transfer errors](#) for additional information about reprocessing messages in the error queue.

Restricting access to debugging for services

You can use the Lombardi configuration file, `[Lombardi_home]\process-server\config\system\99Local.xml`, to control which Lombardi users have the ability to debug services.

The following elements in the debug section of the `99Local.xml` file enable you to configure debugging functionality for services.



To edit the settings in the `99Local.xml` file, copy the debug section to the `100Custom.xml` file and then make the changes. (You can find the `100Custom.xml` file in the `[Lombardi_home]\process-server\config` directory.) This way, all properties that you have customized are located in a single configuration file, enabling you to more easily upgrade to new versions of Lombardi.

Element	Default setting	Description
<code><enabled>true</enabled></code>	<code>true</code>	Establishes whether debugging of services is enabled. If set to <code>false</code> , when you attempt to debug a service in the Inspector in Lombardi Authoring Environment, Lombardi simply runs the service without providing any debugging feedback.
<code><enforce-debug-role>false</enforce-debug-role></code>	<code>false</code>	Establishes whether Lombardi users who do not belong to the Debug group (defined in the following setting) can access debugging functionality. By default, this element is set to <code>false</code> , which allows users who do not belong to the Debug group to access debugging functionality. So, by default, all users have access to debugging for services. If you want to limit access to users who are members of the Debug group, set this element to <code>true</code> .
<code><debug-role>Debug</debug-role></code>	<code>Debug</code>	<p>Specifies the role membership that users must have in order to access debugging functionality. Only one debug role can be defined.</p> <p>If one or both of the preceding settings is <code>false</code> (<code>enabled</code> and <code>enforce-debug-role</code>), then this setting has no effect.</p> <p>If both of the preceding settings are <code>true</code>, then:</p> <ul style="list-style-type: none"> • A user who belongs to this role will have access to debugging functionality. • A user who does not belong to this role will not have access to debugging functionality. • If you do not specify any value for <code>debug-role</code>, debugging functionality is disabled.

Notices and Trademarks

Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this documentation does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan*

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*Intellectual Property Dept. for WebSphere Software
IBM Corporation
3600 Steeles Ave. East
Markham, Ontario
Canada L3R 9Z7*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:

© (your company name) (year). Portions of this code are derived from IBM Corp. Sample Programs.

© Copyright IBM Corp. `_enter the year or years_`. All rights reserved.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Trademarks and service marks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at <http://www.ibm.com/legal/copytrade.shtml>.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.