BLAZENT

BLAZENT IT INTELLIGENCE SOFTWARE

Administration Guide

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INTRODUCTION

Blazent enables IT executives to operate their businesses more efficiently and more profitably by optimizing their information technology resources. Blazent IT Intelligence Software delivers complete, consistent and real-time information to allow enterprises with a significant investment in information technology to quickly reduce costs, control complexity and improve service levels.

Blazent IT Intelligence Software can be used to drive a number of major IT business initiatives, such as server optimization, software license rationalization, desktop migration, asset intelligence, security, and help desk integration. For more information please visit us at http://www.blazent.com.

ABOUT IT INTELLIGENCE SOFTWARE PRODUCT DOCUMENTATION

The Blazent IT Intelligence Software product documentation includes two manuals and one online help system. Each of these documents is updated as needed, with late-breaking changes included in a set of release notes.

INSTALLATION GUIDE

The *Blazent Installation Guide* is intended for IT administrators and professional services personnel who install and configure Blazent IT Intelligence Software. It is designed to be used in conjunction with the appropriate installation and configuration manuals for your existing hardware and software.

NOTE: Please follow the configuration recommendations that are suggested in this guide. If specific instructions do not appear for a particular configuration step or option, default values are acceptable.

ADMINISTRATION GUIDE

The *Blazent Administration Guide* is intended for IT administrators who are charged with maintaining the Blazent IT Intelligence Software system. This manual includes information on adding new users and hardware, categorizing existing hardware and software, administration tools, and troubleshooting.

ANALYTICS ONLINE HELP

Blazent Analytics Online Help is intended for IT professionals who view Blazent IT Intelligence Software data through the Blazent Analytics web interface. This online help system provides information on the content of each of the built-in reports, as well as information on how to manipulate these reports to gain new insight into the data.

BLAZENT ADMINISTRATION ONLINE HELP

Blazent Administration Online Help is intended for users of Blazent Administration, including IT administrators and Professional Service people. This context-sensitive online help system provides information on each part of the Blazent Administration tool.

Viewing Product Documentation Online

You can view Blazent IT Intelligence Software manuals on any computer that has Acrobat Reader installed. Blazent Analytics Online Help is available by clicking the ? button within the Blazent Analytics interface.

Technical Support

The Blazent Technical Support organization provides support services for all current releases of Blazent products. Support staff are available Monday through Friday from 8:00am to 5:00pm Pacific Time, excluding holidays.

You can contact the Support group by phone at (650) 286 5588, or by e-mail at support@blazent.com.

For more information on Support services, see Appendix C, "Technical Support."

Contacting Blazent

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1820 Gateway Drive, Suite 200
San Mateo, CA 94404

650.286.5500 (Main)
650.286.1956 (Fax)

http://www.blazent.com/

OVERVIEW

Blazent IT Intelligence Software allows users to automatically collect data about enterprise-wide hardware and software resources. IT professionals can use this information to:

- optimize the way that servers are used within the organization or across the enterprise.
- determine the appropriate number and type of software licenses that should be purchased based on application usage and utilization.
- understand the resources and cost that are required to upgrade users to a new software package or version.
- plan software and hardware upgrade strategies that minimize impact on service levels.
- understand the differences in hardware and software utilization between different employee groups.
- track the amount of time that different software applications are used by employees and the amount of IT resources that these applications consume.
- discover all hardware assets that are connected to a specific network or to your entire network.

System Architecture

As Figure 1, on page 11, illustrates, Blazent IT Intelligence Software consists of the following major components:

- Blazent Collectors
- Blazent Intelligence Platform
- Blazent Analytics

Each component is described in detail in the sections that follow.

Blazent Collectors

Blazent Collectors bring data from individual IT resources, such as personal computers (PCs), servers, and printers, into the Blazent Intelligence Platform. Blazent collectors include Blazent Agents and Blazent Discovery.

Blazent Agents

Blazent Agents (1a) are lightweight applications (~3-5 MB) that are deployed on client machines and servers for which IT needs data. Blazent Agents unobtrusively gather detailed information about hardware and software assets that are installed on a machine, including:

- Detailed vendor and version information about all hardware and software components.
- Software and hardware usage information, such as whether a hardware component is being used at all.
- Software utilization information, such as the number of minutes that software applications are open and actively used by a particular user.
- Hardware utilization information, such as the amount of memory and CPU power that is used over time.

When a new version of Blazent Agent software becomes available, administrators can use an optional software distribution module (PowerUpdate) or third-party products such as SMS and CA Unicenter. These solutions allow administrators to automatically deploy the updated software version to all Blazent Agents in the organization. Installation and configuration details for the PowerUpdate software distribution module are included in this guide and the *Installation Guide.*

BLAZENT DISCOVERY

Blazent Discovery (1b) identifies and tracks all assets that are connected to your network, including PCs and servers that do not have Blazent Agents installed, printers, network equipment, and other peripherals. Each instance of Discovery uses the NMAP utility to rapidly scan a unique range of IP addresses. Each scan returns information about the hosts that are available at those addresses, including:

- Host name
- IP address
- MAC address and vendor
- Operating system and service pack
- Domain name

BLAZENT INTELLIGENCE PLATFORM

Blazent Intelligence Platform compiles data from Blazent Collectors and other third-party data sources and processes it so that it can be used in Blazent Analytics reports. Blazent Intelligence Platform consists of the following components:

COLLECTION SERVER

The *Collection Server (2)* collects data directly from Blazent Agents and Blazent Discovery with XML messages over HTTP. Depending on the number of deployed Blazent Collectors, one or more Collection Servers can be installed within an organization.

Blazent Administration (3) allows administrators to maintain the IT Intelligence Software installation, view the status of all deployed Collection Servers, and configure rules that specify:

- Information about purchased software licenses.
- Available software packages.
- Software package, application, and hardware categorization rules.

COLLECTION DATABASE

The *Collection Database (4)* stores all of the raw data that is collected by the Collection Server.

BLAZENT SOFTWARE CATALOG

The *Blazent Software Catalog (4)* contains a list of commercially available software items and packages. Each software item is mapped to the appropriate package, and each software package is assigned to a category. When a Blazent Agent discovers a new software item, it is assigned to a package and category based on the contents of the catalog.

Blazent regularly updates the software catalog with new application and package names and categories. In addition, Blazent Professional Services can customize the software catalog for your organization by altering the package or category mappings.

BLAZENT CONNECTORS

Blazent Connectors (5) bring in data from third party data sources, such as Human Resource Management Systems (HRMS) and IT Operations databases, and make it available to the Blazent Intelligence Platform. For more information on implementing Connectors in your installation, contact Blazent Professional Services.

DATA INTEGRATION SERVICES

Data Integration Services (6) cleanses, filters, maps, and categorizes the raw data from the Blazent Collection Database and from Blazent Connectors according to customizable rules. This component makes use of a product from Embarcadero and is managed through the Embarcadero Console administrative tool.

DATA WAREHOUSE

The *Data Warehouse (7)* stores all of the optimized data that was processed by Data Integration Services. This refined data is then used in Blazent Analytics to produce dynamic reports.

ANALYTICS SERVER

The *Analytics Server (8)* uses the processed data from the Data Warehouse to provide intelligent reports for CIOs and other IT executives and managers. This component makes use of a product from MicroStrategy and is managed through the MicroStrategy Desktop administrative tool.

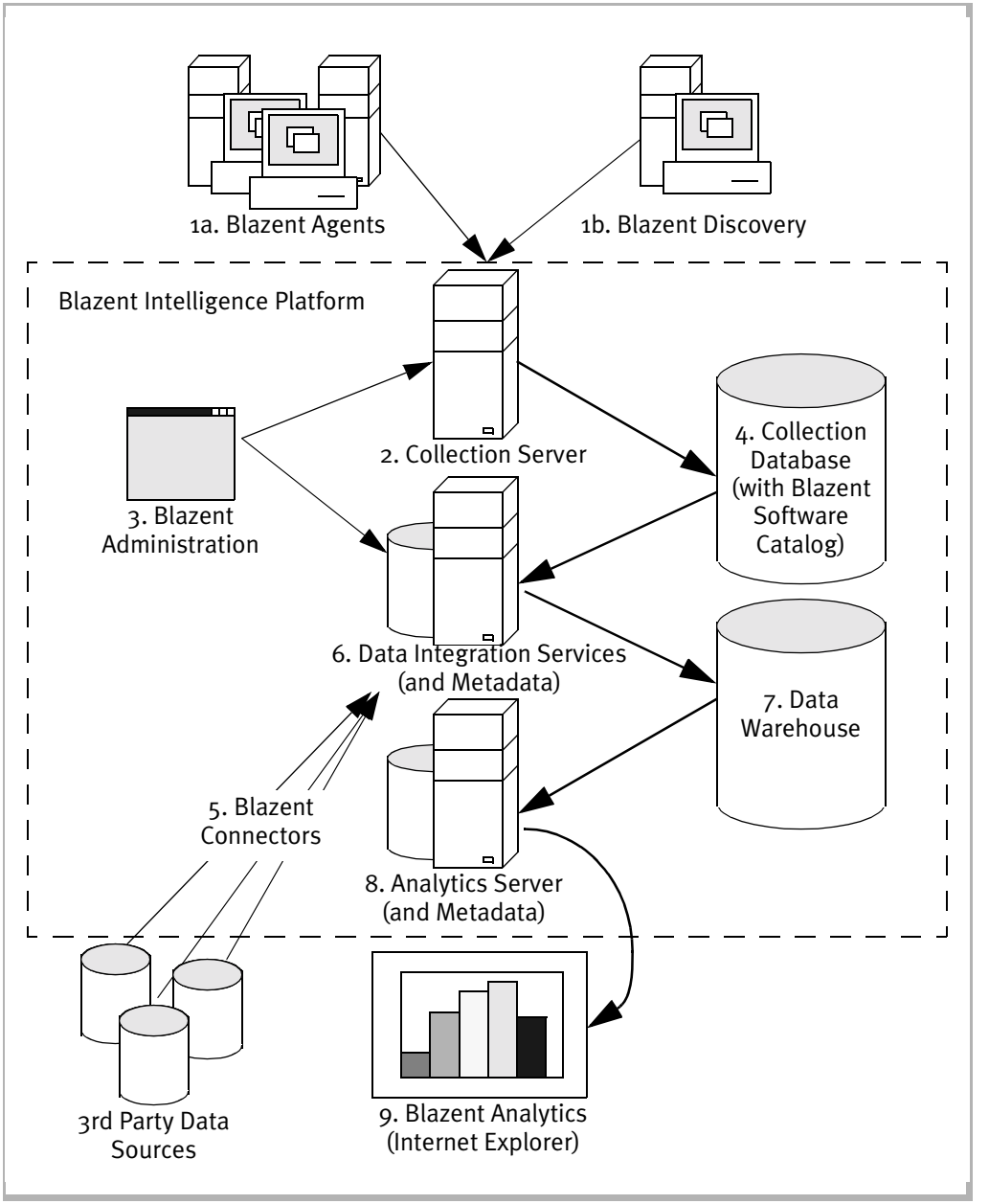
BLAZENT ANALYTICS

Blazent Analytics (9) is a web application that allows IT professionals to understand the hardware and software deployments in their organization, including where they are located, if they are actually being used, and how they are being utilized. This application includes pre-built reports, and allows custom reports to be created by the user. Blazent Analytics includes the following pre-built report categories:

- *Blazent CIO.* Executive overviews of the software and hardware needs of your organization.
- *Blazent Servers.* Reports on the servers in your organization.
- *Blazent PCs.* Reports on the personal computers used by individuals in your organization.
- *Blazent Help Desk*. Reports that profile server and software usage that are tailored for the Help Desk environment.
- *Blazent Assets.* Reports that provide information about all hardware on your network, including items without installed Blazent Agents.

For more information, see Chapter 6, "Using Blazent Analytics," or use the built-in Blazent Analytics online help.

Figure 1: Blazent IT Intelligence Software System Architecture



ADMINISTRATIVE TOOLS

This chapter includes information about the administrative tools that allow you to configure and maintain your Blazent IT Intelligence Software implementation. These tools include:

- *Blazent Administration*. Allows administrators to control the Collection Server and configure rules for data categorization and utilization filtering.
- *Embarcadero Console.* Allows administrators to control Data Integration Services and data-mapping tasks.
- *Configuration Files (servers.csv, users.csv, ip-locations.csv, OsCleansing.xml, OSNameCleansing.xml, AssetCategorization.xml).* Allow administrators to define additional mapping, data cleansing, and categorization rules.
- *Oracle DBA Studio (8i) and Oracle Enterprise Manager Console (9i).* Allows administrators to control the Collection and Data Warehouse database instances.
- *MicroStrategy Desktop.* Allows administrators to control and configure the Analytics Server.
- *PowerUpdate Controller.* Allows administrators to control and configure the PowerUpdate Server, if installed.
- *Blazent Database Diagnostics - bzbs_run_diagnostics.bat .* A database diagnostic tool that allows administrators to verify the integrity of the Collection and Data Warehouse databases.

Blazent Administration

Blazent Administration is a web-based application that you can use to control the Collection Server and configure rules for data categorization and utilization filtering.

Opening Blazent Administration

To open Blazent Administration, access the following URL:

`http://<CollectionServerName>:8080/blazentadmin/`

where *`CollectionServerName`* is the name of a Collection Server. Blazent Administration opens to the screen displayed in Figure 2, on page 15.

Navigating Blazent Administration

Blazent Administration is split into six areas. You can navigate directly to each area by clicking the appropriate link in the left side bar:

- Server Status. Allows you to view the status of Collection servers in your Blazent IT Intelligence Software configuration.
- Software Catalog Import. Allows you to import a new software catalog into your Data Warehouse.
- Software License Management. Allows you to manage the list of software licenses that have been purchased by your organization.
- Hardware Categorization. Allows you to manage rules that specify how hardware should be categorized in Blazent Analytics.
- Utilization Tracking. Allows you to track utilization data for specific applications, or for applications that are consuming the most resources.
- Blazent Analytics. Provides a direct link to the Blazent Analytics log in screen.

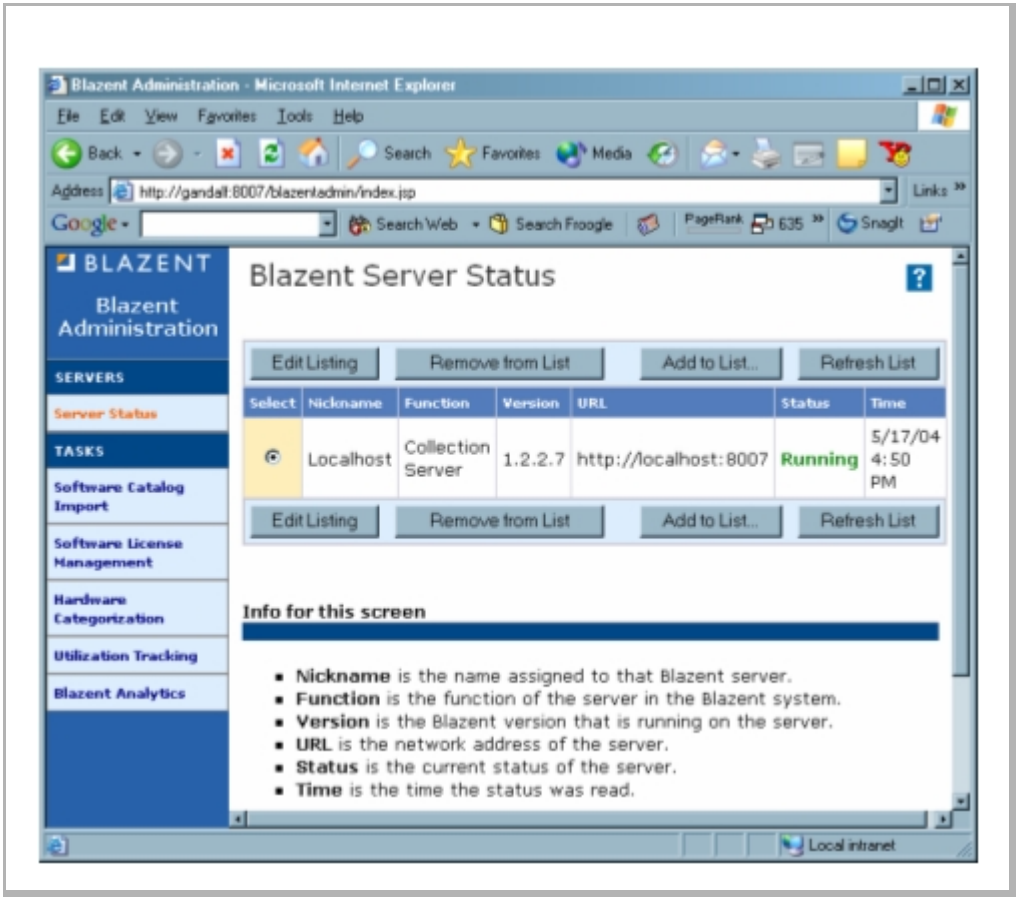
Each area is further described in the sections that follow. For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

SERVER STATUS

The Server Status area of Blazent Administration (Figure 2) allows you to view the status of all Collection Servers in your configuration. In a single Collection Server configuration, this list is pre-populated with information about that server. In a multiple Collection Server configuration, you must manually register each additional server.

For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

FIGURE 2: BLAZENT ADMINISTRATION: SERVER STATUS



SOFTWARE CATALOG IMPORT

The Software Catalog Import wizard allows you to update the software package and item catalog that is built into your Blazent IT Intelligence Software application (see "Blazent Software Catalog," on page 8).

Blazent regularly updates the software catalog with new application and package names and categories. In addition, Blazent Professional Services can customize the software catalog for your organization by altering the package or category mappings. You can use the Software Catalog Import wizard to merge these updates with the catalog that was originally installed with your Blazent IT Intelligence Software application. The wizard allows you to review the old and new software mappings, and decide which to keep.

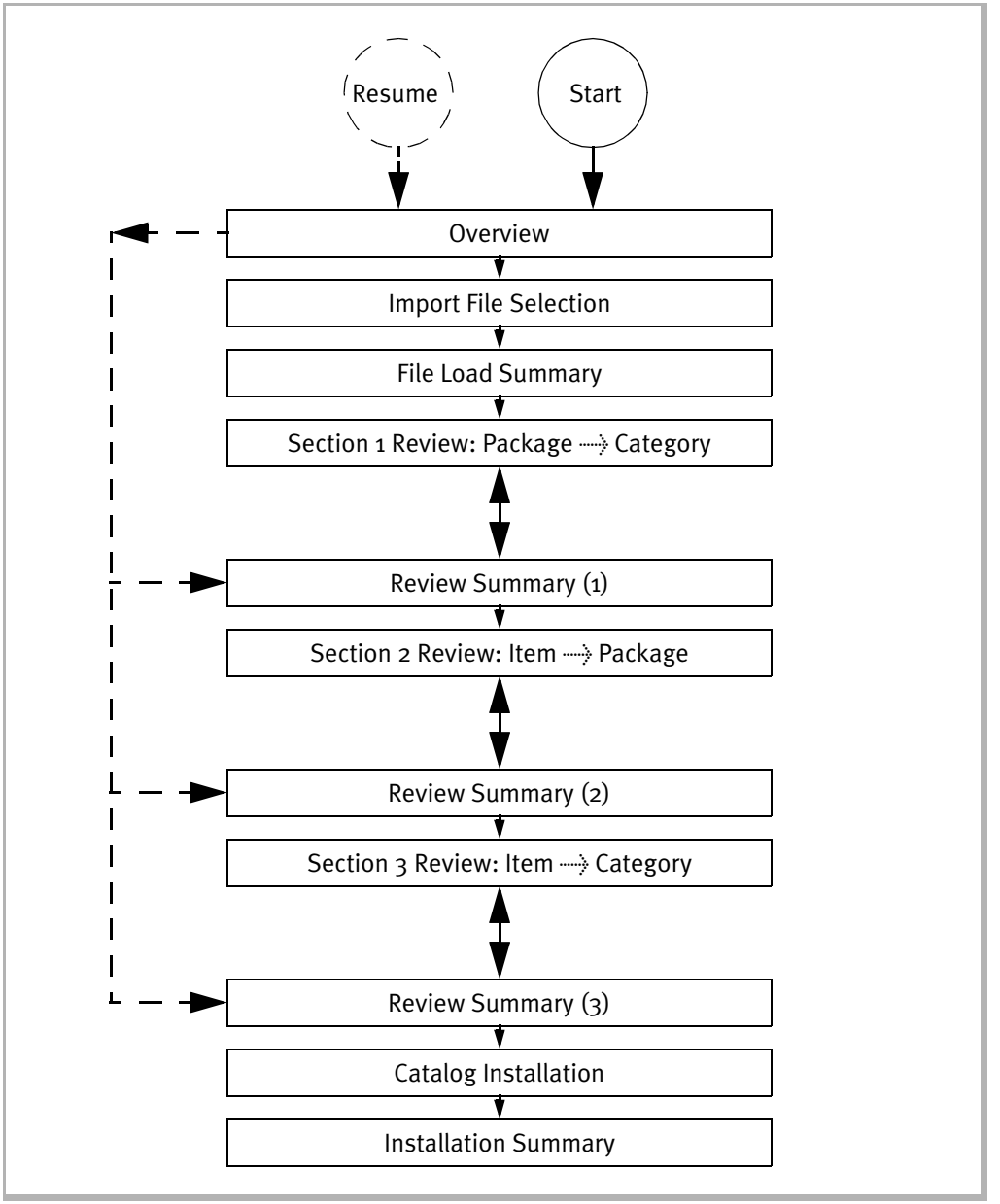
Figure 3, on page 17 displays the flow of operation of the Software Catalog Import wizard. The wizard runs by loading a catalog import file into a workspace on the Collection Server. When the catalog import file is loaded, the wizard compares the data in the new file with the contents of the existing catalog:

- All software items and packages that did not previously exist in the catalog are identified as entries that should be automatically added.
- All software items and packages that previously existed in the catalog but that were not customized for your organization are identified as entries that should be automatically updated.
- All software items and packages that previously existed in the catalog and were customized for your organization are flagged for review in the wizard.

The Software Catalog Import wizard then allows you to review the flagged entries, section by section, in order of mapping type. Once all flagged entries have been reviewed, you can install the catalog updates in the Collection database.

For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

Figure 3: Software Catalog Import Wizard Flow

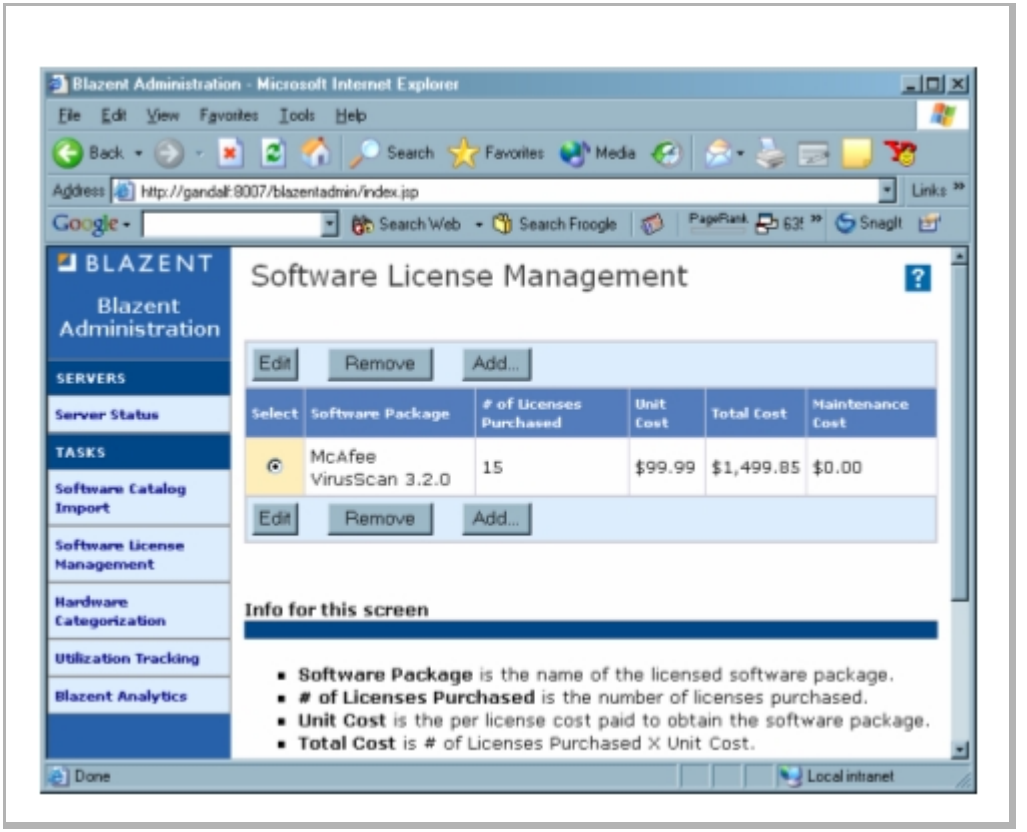


SOFTWARE LICENSE MANAGEMENT

The Software License Management area of Blazent Administration (Figure 4 on page 18) allows you to manage the list of software licenses that have been purchased by your organization. You can add, edit, and delete software licenses from this list.

For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

FIGURE 4: BLAZENT ADMINISTRATION: SOFTWARE LICENSE MANAGEMENT



HARDWARE CATEGORIZATION

The Hardware Categorization area of Blazent Administration (Figure 5, on page 20) allows you to manage the categorization rules that are applied to hardware items. These rules determine the category to which a hardware item is assigned.

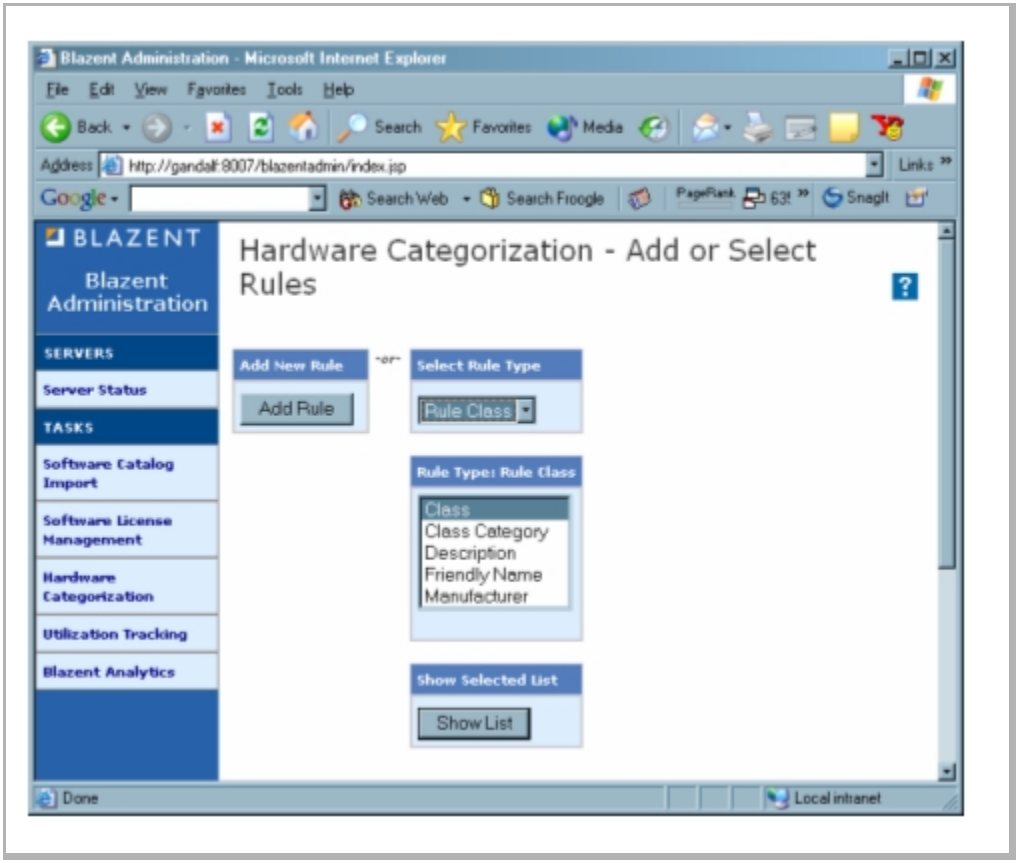
NOTE: Unlike hardware items, software packages and applications are categorized with a built-in catalog. See "Software Catalog Import," on page 16 for more information.

You can define hardware categorization rules based on the following types of information:

- Class. The hardware classification returned by the operating system. For example, when memory capacity is collected, the class name returned by the operating system is "MEM."
- Class Category. The hardware classification returned by the operating system in a more user-friendly format. In the memory capacity example from above, the class category is "memory." Most hardware categorization rules use this rule class.
- Description. This class of rule specifies that all hardware items that match a particular description should be assigned to a certain category.
- Friendly Name. The device name (for example, LITEON DVD-ROM LTD163).
- Manufacturer. This class of rule specifies that all hardware items that are built by a particular manufacturer should be assigned to a certain category. For example, all hardware made by Linksys could be assigned to a "Network Equipment" category.

For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

FIGURE 5: BLAZENT ADMINISTRATION: HARDWARE CATEGORIZATION



UTILIZATION TRACKING

The Utilization Tracking area of Blazent Administration (Figure 6, on page 22) allows you to track utilization data for software that meets one of the following conditions:

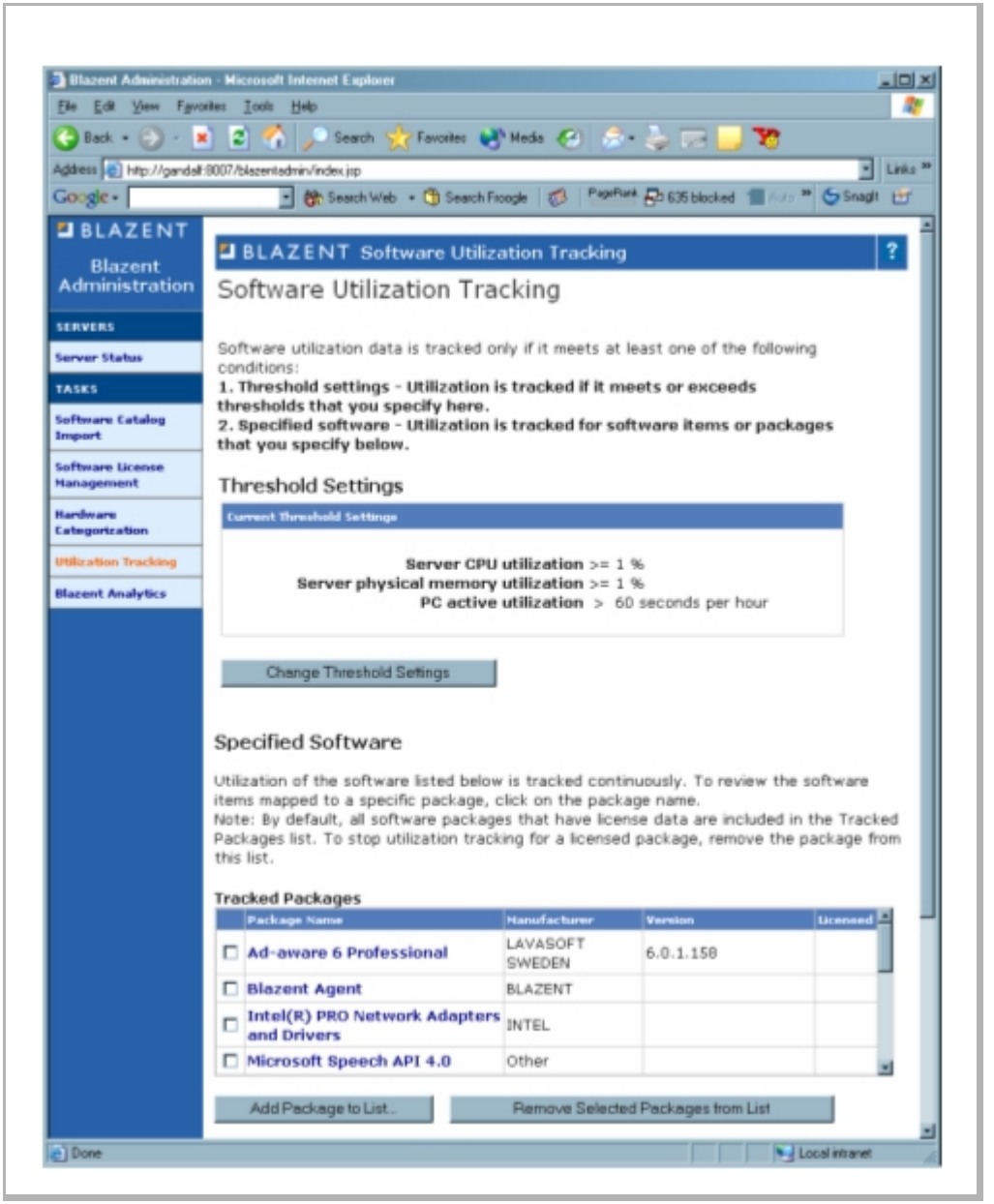
- Threshold settings. Data is tracked if it exceeds threshold values that you specify. These settings allow you to quickly determine which software applications are consuming the most resources.
- Specified software. Data is tracked if it is for software items or packages that you specify in the Specified Software list. This list allows you to track utilization for software applications and packages that are particularly important to your organization.

For more information, refer to the Blazent Administration context-sensitive online help system, available by clicking the ? button in any screen.

BLAZENT ANALYTICS

The Blazent Analytics area of Blazent Administration provides a direct link to the Blazent Analytics log in screen. For more information about Blazent Analytics, see Chapter 6, “Using Blazent Analytics.”

FIGURE 6: BLAZENT ADMINISTRATION: UTILIZATION TRACKING



EMBARCADERO CONSOLE

The Embarcadero Console is an application that administrators can use to control Data Integration Services and all data-mapping tasks. To access this application from the Data Integration Services machine, open the Start menu and choose Programs > Embarcadero DTStudio 2.1.1 > Embarcadero DT Console 2.1.1 > DT Console 2.1.1.

NOTE: Embarcadero does not currently offer support for running their products remotely through Windows Terminal Services. If you wish to administer your DT/Engine from a remote machine, install another instance of DT/Console on the remote machine and configure it to connect to the DT/Engine on the Data Integration Services server.

See "Installing DT/Console on Remote Administration Machines," on page 53 of the Installation Guide for details.

Built-in Data Integration Services tasks and task chains are automatically installed with Data Integration Services and can be viewed and executed in Embarcadero Console once you have logged into your Data Integration Server (DT/Engine) (see Figure 7). These tasks and task chains are used to cleanse and map the data in the Collection Database to make it ready for use in Blazent Analytics.

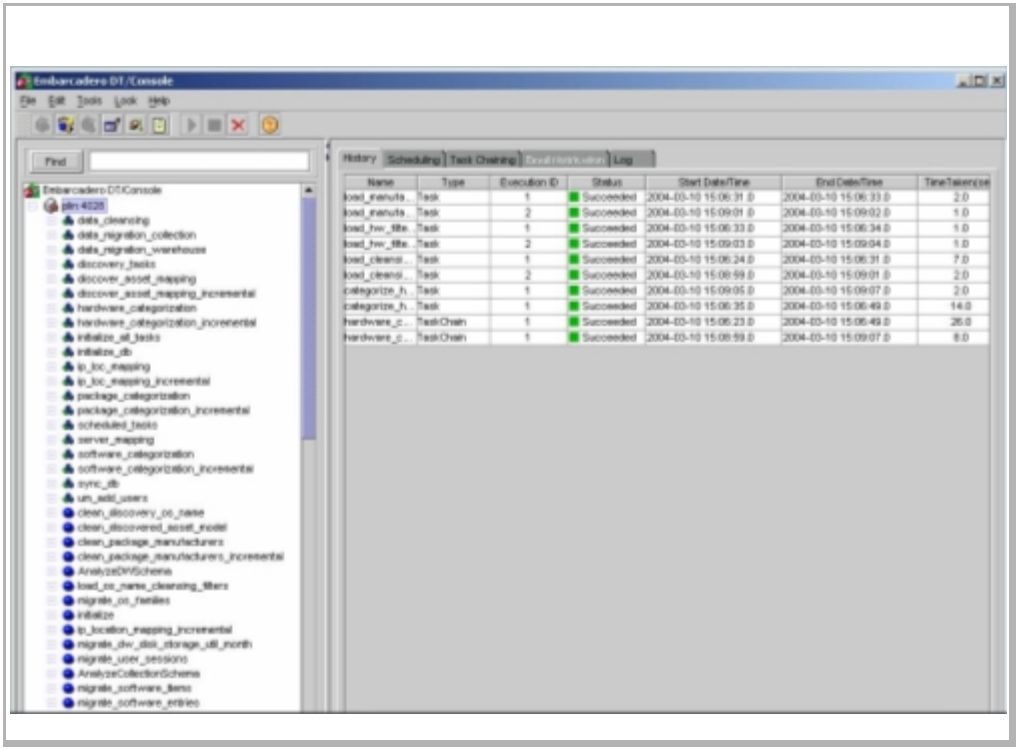
In most installations, the only tasks or task chains that should be scheduled to run are:

- initialize_all_tasks. This task chain must be run once after Data Integration Services is first installed. This task chain runs all data processing tasks and loads the Data Warehouse for the first time.
- scheduled_tasks. This task chain processes new data and updates the Data Warehouse. Blazent recommends that this task chain be scheduled to run at least once a day (see "Scheduling a Task or Task Chain," on page 26). This task chain should not run concurrently with discovery_tasks or data_cleansing.

- discovery_tasks. This task chain performs all data cleansing processes for Blazent Discovery. Schedule this task chain to run on an interval based on how often Blazent Discovery collects new data. This task chain should not run concurrently with scheduled_tasks or data_cleansing.
- AnalyzeCollectionDB. This task optimizes the performance of the Collection Database. Schedule this task chain to run once a week on a non-work day (such as Saturday).
- AnalyzeWarehouseDB. This task optimizes the performance of the Data Warehouse. Schedule this task chain to run once a week on a non-work day (such as Saturday). To make the best use of this task, run it for the first time only after you have run several reports in Blazent Analytics.
- (Optional) data_cleansing. This task chain improves the performance of the sync_all task. Although optional, Blazent recommends that you schedule this task chain every two hours, but this task chain should not run concurrently with discovery_tasks or scheduled_tasks. For example, if scheduled_tasks runs every day at 10 PM, then data_cleansing should run at 9 PM and 11 PM.
- purgeUtilDataHourly. This task deletes outdated hourly utilization data from the Collection Database. Schedule this task to run once a day after scheduled_tasks completes.
- purgeUtilDataMonthly. This task deletes outdated monthly utilization data from the Collection Database. Schedule this task to run on the first weekend of every month after scheduled_tasks completes.

Table 1, on page 27 describes the built-in tasks and task chains in detail.

FIGURE 7: EMBARCADERO CONSOLE



EXECUTING A TASK OR TASK CHAIN

To execute a task or a task chain in Embarcadero Console, right-click the task or task chain and choose Start. This action executes this task or task chain immediately.

SCHEDULING A TASK OR TASK CHAIN

To schedule a task or a task chain to run on a recurring basis:

1. Right-click the task or task chain and choose New Schedule. This action opens the Schedule Properties dialog box.
2. In the Schedule Name text box, enter a name for the schedule that you are creating.
3. Select a Date and Time for the task or task chain to begin.
4. If you wish to schedule a recurring task or task chain:
   a) Select Recurring Task.
   b) Specify the interval in months, days, or any combination of hours, minutes and seconds.
   c) If you wish to schedule an end date for the recurrence, enter the appropriate end date and time.
5. Click OK. A message appears that says the schedule was added successfully, and a schedule icon appears under the task or task chain. The task or task chain will run automatically based on the schedule that you created as long as the DT/Engine is running.

NOTE: In normal installations, the only tasks or task chains that should be scheduled on a recurring basis are those listed on Page 23.

VIEWING TASK EXECUTION HISTORY AND LOGS

To view the execution history for a task or task chain:

1. Select the task or task chain in the left pane, or choose the DT/Engine server icon if you wish to view all tasks and task chains at once.
2. Review the Status column for each task or task chain.
3. Click on the History tab in the right pane. All completed or currently running task records associated with that task or task chain are displayed.

To view the progress of a task or task chain you can also examine its associated log file. One log is created every time a task or task chain is executed. Log files are stored in the `task` or `task chain` directories in:

```
<install_dir>\Program Files\Embarcadero\DTStudio\DTEngine2.1.1\
logs\
```

TASK AND TASK CHAIN LISTINGS

Table 1 lists the task chains and tasks that are included with Data Integration Services.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (1 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
data_cleansing	• load_cleansing_filters • load_manufacturer_filters • clean_package_manufacturer_incremental • clean_software_manufacturer_incremental	A task chain that cleanses the manufacturer name value for software package, software, and hardware items. For example, similar manufacturer names such as Microsoft and Microsoft Corporation are recognized as one manufacturer instead of two. Blazent recommends that you schedule this task chain every two hours, but this task chain should not run concurrently with discovery_tasks or scheduled_tasks. For example, if scheduled_tasks runs every day at 10 PM, then data_cleansing should run at 9 PM and 11 PM.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (2 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
data_migration_ collection	• migrate_departments • migrate_employee_positions • migrate_hardware_entries • migrate_hardware_items • migrate_locations • migrate_machine_categories • migrate_machine_category_map • migrate_machine_info • migrate_machines • migrate_os_entries • migrate_os_families • migrate_personnel_status • migrate_software_entries • migrate_software_items • migrate_software_licenses_ purchased • migrate_sw_package_items • migrate_user_machine_profiles • migrate_user_machines • migrate_user_sessions • migrate_users	This task chain is not used in V. 2.2.
data_migration_ warehouse	• migrate_dw_sw_util_month • migrate_dw_sw_util_day • migrate_dw_sw_util_hour • migrate_dw_disk_storage_util_ month	This task chain is not used in V. 2.2.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (3 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
discover_asset_mapping	• load_asset_filters • categorize_assets	A task chain that assigns each discovered asset to a specific type according to rules in the `AssetCategorization.xml` file. Default discovered asset type definitions include Server, PC, Wireless Device, Network Equipment, Printer, and Others. REQUIRED EXTERNAL DATA SOURCES • `AssetCategorization.xml` • `AssetCategorization.dtd` See "Discovered Asset Categorization - AssetCategorization.xml," on page 51 for information.
discover_asset_mapping_incremental	• load_asset_filters • categorize_assets_incremental	A task chain that performs the same functionality as discover_asset_mapping, but for new discovered assets only. REQUIRED EXTERNAL DATA SOURCES • `AssetCategorization.xml` • `AssetCategorization.dtd` See "Discovered Asset Categorization - AssetCategorization.xml," on page 51 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (4 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
discovery_tasks	• load_asset_filters • categorize_assets • load_cleansing_filters • load_manufacturer_filters • clean_discovery_manufacturers • load_operating_system_filters • clean_discovery_os_name • load_os_name_cleansing_filters • os_name_cleansing • clean_discovered_asset_model	A task chain that performs data cleansing and mapping for discovered assets. This task chain should not run concurrently with scheduled_tasks or data_cleansing. REQUIRED EXTERNAL DATA SOURCES • `AssetCategorization.xml` • `AssetCategorization.dtd` • `OSCleansing.xml` • `OSCleansing.dtd` • `OSNameCleansing.xml` • `OSNameCleansing.dtd` See "Configuration Files," on page 41 for information.
hardware_categorization	• load_cleansing_filters • load_manufacturer_filters • load_hw_filters • categorize_hardware	A task chain that assigns each hardware item to a specific type according to rules that are set in Blazent Administration. This task chain also cleanses hardware item data. See "Hardware Categorization," on page 19 for details.
hardware_categorization_incremental	• load_cleansing_filters • load_manufacturer_filters • load_hw_filters • categorize_hardware_incremental	A task chain that performs the same functionality as hardware_categorization, but for new hardware items only.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (5 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
initialize_all_tasks	• load_hw_filters • categorize_hardware • load_ip_range • ip_location_mapping • add_server_dimensions • map_servers • add_user_dimensions • add_users • map_users • initialize • load_manufacturer_filters • load_cleansing_filters • clean_package_manufacturers • clean_software_manufacturers • clean_discovery_manufacturers • load_operating_system_filters • clean_discovery_os_name • load_os_name_cleansing_filters • os_name_cleansing • clean_discovery_asset_models • sync_all	A task chain that rebuilds the Collection databasea and then populates the Data Warehouse. All existing data is deleted from the Collection database. This task chain should only be run once when Blazent IT Intelligence Software is first installed. All subsequent data processing should be performed with the scheduled_tasks task chain. REQUIRED EXTERNAL DATA SOURCES • `AssetCategorization.xml` • `AssetCategorization.dtd` • `OSCleansing.xml` • `OSCleansing.dtd` • `OSNameCleansing.xml` • `OSNameCleansing.dtd` • `ip-locations.csv` • `users.csv` • `servers.csv` See “Configuration Files,” on page 41 for information.
ip_loc_mapping	• load_ip_range • ip_location_mapping	A task chain that assigns each discovered asset to a physical location based on user-defined IP range - location mappings in the `ip-locations.csv` file. See “IP-Location Mapping - IP-Location.csv,” on page 44 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (6 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
ip_loc_mapping_ incremental	• load_ip_range • ip_location_mapping_ incremental	A task chain that performs the same functionality as ip_loc_mapping, but for new discovered assets only.
initialize_db	• load_hw_filters • load_manufacturer_filters • load_cleansing_filters • categorize_hardware • initialize	A task chain that initializes the Data Warehouse without performing data mapping or cleansing.
scheduled_tasks	• load_ip_range • ip_location_mapping_ incremental • add_user_dimensions • add_users • map_users • add_server_dimensions • map_servers • load_cleansing_filters • load_manufacturer_filters • clean_package_manufacturers_ incremental • clean_software_manufacturers_ incremental • load_hw_filters • categorize_hardware_ incremental • sync_all	A task chain that performs all data processing functions on new items and then calls the sync task to update the Data Warehouse. This task chain should be scheduled to run at least once a day to keep the Data Warehouse and Blazent Analytics current with the latest data. This task chain should not run concurrently with discovery_tasks or data_cleansing. REQUIRED EXTERNAL DATA SOURCES • `ip-locations.csv` • `users.csv` • `servers.csv` See "Configuration Files," on page 41 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (7 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
server_mapping	• add_server_dimensions • map_servers	A task chain that maps server names to specific locations, departments, and roles based on entries in the `servers.csv` file. REQUIRED EXTERNAL DATA SOURCES • `servers.csv` See "Server Mapping - Servers.csv," on page 42 for information.
sync_db	• load_hw_filters • load_manufacturer_filters • load_cleansing_filters • categorize_hardware • sync_all	A task chain that synchronizes the Data Warehouse without performing data mapping or cleansing.
um_add_users	• add_user_dimensions • add_users • map_users	A task chain that maps users to specific names, departments, and job titles based on entries in the `users.csv` file. REQUIRED EXTERNAL DATA SOURCES • `users.csv` See "User Mapping - Users.csv," on page 43 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (8 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
add_server_dimensions	add_server_dimensions	A task that reads the `servers.csv` file and checks that all locations, departments, server functions, and roles already exist in the Data Warehouse. If they do not, the new data is added to the appropriate tables. REQUIRED EXTERNAL DATA SOURCES • `servers.csv` See "Server Mapping - Servers.csv," on page 42 for information.
add_user_dimensions	add_user_dimensions	A task that reads the `users.csv` file and checks that all locations, departments, and job titles already exist in the Data Warehouse. If they do not, the new data is added to the appropriate tables. REQUIRED EXTERNAL DATA SOURCES • `users.csv` See "User Mapping - Users.csv," on page 43 for information.
add_users	add_users	A task that reads the `users.csv` file and checks that all listed users exist in the user table. If they do not, the new users are added. REQUIRED EXTERNAL DATA SOURCES • `users.csv` See "User Mapping - Users.csv," on page 43 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (9 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
AnalyzeCollectionDB	AnalyzeCollectionDB	A task that optimizes the performance of the Collection Database. Schedule this task chain to run once a week on a non-work day (such as Saturday).
AnalyzeWarehouseDB	AnalyzeWarehouseDB	A task that optimizes the performance of the Data Warehouse. Schedule this task chain to run once a week on a non-work day (such as Saturday).
categorize_assets	categorize_assets	Assigns all discovered assets that are listed in the `discovered_asset` table to a category according to the rules that are stored in the DT/Engine memory.
categorize_assets_ incremental	categorize_assets_incremental	A task that performs the same functionality as categorize_assets, but for new discovered assets only.
categorize_hardware	categorize_hardware	Assigns all hardware items that are listed in the `hardware_items` table to a category according to the rules that are stored in the DT/Engine memory.
categorize_hardware_ incremental	categorize_hardware_incremental	A task that performs the same functionality as categorize_hardware, but for new hardware items only.

Table 1: Data Integration Services Tasks and Task Chains (10 of 15)

Task/Task Chain Name	Tasks Invoked	Description
clean_discovery_manufacturers	clean_discovery_manufacturers	A task that cleanses the manufacturer field in the `discovered_assets` table. The cleansing process both attempts to assign manufacturers to empty fields, and ensures that manufacturer field values use a consistent format.
clean_hardware_manufacturers	clean_hardware_manufacturers	A task that cleanes the manufacturer field in the `hardware_items` table. The cleansing process both attempts to assign manufacturers to empty fields, and ensures that manufacturer field values use a consistent format.
clean_hardware_manufacturers_incremental	clean_hardware_manufacturers_incremental	A task that performs the same functionality as clean_hardware_manufacturers, but for new hardware items only.
clean_package_manufacturers	clean_package_manufacturers	A task that cleanses the manufacturer field in the `sw_package_items` table. The cleansing process both attempts to assign manufacturers to empty fields, and ensures that manufacturer field values use a consistent format.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (11 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
clean_software_ manufacturers	clean_software_manufacturers	A task that cleanses the manufacturer field in the `software_items` table. The cleansing process both attempts to assign manufacturers to empty fields, and ensures that manufacturer field values use a consistent format.
initialize	initialize	A task that calls the database PL/SQL function to initalize the Data Warehouse.
ip_location_mapping	ip_location_mapping	A task that assigns all assets in the `discovered_assets` table to a physical location according to the IP address of the asset and the IP range - location mappings that are stored in the DT/Engine memory.
ip_location_mapping_ incremental	ip_location_mapping_ incremental	A task that performs the same functionality as ip_location_mapping, but for new discovered assets only.
load_asset_filters	load_asset_filters	A task that loads the DT/Engine memory with discovered asset categorization rules from the `AssetCategorization.xml` file. REQUIRED EXTERNAL DATA SOURCES • `AssetCategorization.xml` See "Discovered Asset Categorization - AssetCategorization.xml," on page 51 for information.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (12 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
load_cleansing_filters	load_cleansing_filters	A task that loads the DT/Engine memory with manufacturer name cleansing rules from the `bzc_data_cleaning` file.
load_hw_filters	load_hw_filters	A task that loads the DT/Engine memory with hardware item categorization rules from the `admin_category_ruleset` table in the Collection Database. The rules in this table are defined in the Blazent Administration user interface. See "Hardware Categorization," on page 19 for information.
load_ip_range	load_ip_range	A task that loads the `ip-locations.csv` file into the DT/Engine. REQUIRED EXTERNAL DATA SOURCES • `ip-locations.csv` See "IP-Location Mapping - IP-Location.csv," on page 44 for information.
load_manufacturer_filters	load_manufacturer_filters	A task that loads the contents of the `bzc_manufacturers` table into the DT/Engine. This list is used during data cleansing to provide possible entries for items without a known manufacturer.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (13 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
map_servers	map_servers	A task that reads the `servers.csv` file and uses that information to update the `machine_info` and `machine_category_map` tables with the appropriate machine names, locations, and departments. REQUIRED EXTERNAL DATA SOURCES • `servers.csv` See "Server Mapping - Servers.csv," on page 42 for information.
map_users	map_users	A task that reads data from the `user_machines` table and maps the data to the appropriate user in the `user` table.
migrate_departments	migrate_departments	This task is not used in V. 2.2.
migrate_dw_disk_storage_util_month	migrate_dw_disk_storage_util_month	This task is not used in V. 2.2.
migrate_dw_sw_util_day	migrate_dw_sw_util_day	This task is not used in V. 2.2.
migrate_dw_sw_util_hour	migrate_dw_sw_util_hour	This task is not used in V. 2.2.
migrate_dw_sw_util_month	migrate_dw_sw_util_month	This task is not used in V. 2.2.
migrate_employee_positions	migrate_employee_positions	This task is not used in V. 2.2.
migrate_hardware_entries	migrate_hardware_entries	This task is not used in V. 2.2.

Table 1: Data Integration Services Tasks and Task Chains (14 of 15)

Task/Task Chain Name	Tasks Invoked	Description
migrate_hardware_items	migrate_hardware_items	This task is not used in V. 2.2.
migrate_locations	migrate_locations	This task is not used in V. 2.2.
migrate_machine_ categories	migrate_machine_categories	This task is not used in V. 2.2.
migrate_machine_ categories_map	migrate_machine_categories_ map	This task is not used in V. 2.2.
migrate_machine_info	migrate_machine_info	This task is not used in V. 2.2.
migrate_machines	migrate_machines	This task is not used in V. 2.2.
migrate_os_entries	migrate_os_entries	This task is not used in V. 2.2.
migrate_os_families	migrate_os_families	This task is not used in V. 2.2.
migrate_personnel_ status	migrate_personnel_status	This task is not used in V. 2.2.
migrate_software_entries	migrate_software_entries	This task is not used in V. 2.2.
migrate_software_items	migrate_software_items	This task is not used in V. 2.2.
migrate_software_ licenses_purchased	migrate_software_licenses_ purchased	This task is not used in V. 2.2.
migrate_sw_package_ items	migrate_sw_package_items	This task is not used in V. 2.2.
migrate_user_machine_ profiles	migrate_user_machine_profiles	This task is not used in V. 2.2.
migrate_user_machines	migrate_user_machines	This task is not used in V. 2.2.
migrate_user_sessions	migrate_user_sessions	This task is not used in V. 2.2.
migrate_users	migrate_users	This task is not used in V. 2.2.

TABLE 1: DATA INTEGRATION SERVICES TASKS AND TASK CHAINS (15 OF 15)

TASK/TASK CHAIN NAME	TASKS INVOKED	DESCRIPTION
purgeUtilDataHourly	purgeUtilDataHourly	A task that deletes outdated hourly utilization data from the Data Warehouse. Schedule this task to run once a day after scheduled_tasks completes.
purgeUtilDataMonthly	purgeUtilDataMonthly	A task that deletes outdated monthly utilization data from the Data Warehouse. Schedule this task to run on the first weekend of every month after scheduled_tasks completes.
reload	reload	A task that calls the RELOAD_ALL Data Warehouse ETL function.
sync_all	sync_all	A task that calls the SYNC_ALL Data Warehouse ETL function.

CONFIGURATION FILES

Some configuration tasks are also performed by editing rules within files. The following files are described in this section:

- Server mapping (`servers.csv`)
- User mapping (`users.csv`)
- IP-location mapping (`ip-location.csv`)
- OS data cleansing (`OSCleansing.xml` and `OSNameCleansing.xml`)
- Discovered Asset categorization (`AssetCategorization.xml`)

SERVER MAPPING - SERVERS.CSV

The `servers.csv` file allows administrators to map server names to their physical location, department, server function, and role. To add new servers to this file:

1. Open the `servers.csv` file in `<install_directory>\\BlazentIntegrationServices\tasks\data` . This file contains the list of new servers that should be added to Blazent IT Intelligence Software.
2. To define a server, enter the following information on a single line, with each item separated by a comma:
   - Machine Name
   - Location (City)
   - Location (State)
   - Location (Country)
   - Department
   - Function (The primary application function of the server. For example, database server, DNS server, file server, and so on.)
   - Role (The role that the server plays in your organization. For example, Test, Development, Production, and so on.)

   If a field is not relevant, use a blank space in place of the field. For example:

   ```
   TRON,Toronto, ,Canada,Product Development,Database
   Server,Production
   ```
3. Stop and restart the Embarcadero DT/Engine and service:
   a) Open a command line console and execute

      `commandlineconsole <Embarcadero_Machine_Name> <port> -e stop`

   b) Use the Windows Services control panel to restart the DT/Engine service.

   c) Use the command line console to execute

      `commandlineconsole <Embarcadero_Machine_Name> <port> -e start`

4. Run the scheduled_tasks task chain in the Embarcadero Console to add the new servers to your Data Warehouse.
5. Restart the Analytics Server to refresh Blazent Analytics with the new data.

USER MAPPING - USERS.CSV

The `users.csv` file allows administrators to map users to their computers. To add new users to this file:

1. Open the `users.csv` file in `<install_directory>\BlazentIntegrationServices\tasks\data` . This file contains the list of new users that should be added to Blazent IT Intelligence Software.
2. To define a user, enter the following information on a single line, with each item separated by a comma:
   - Last Name
   - First Name
   - Logon Name
   - Job Title
   - Location (City)
   - Location (State)
   - Location (Country)
   - Department

   If a field is not relevant, use a blank space in place of the field. For example:

   ```
   Broquet,Alex,abroquet,Manager,Toronto, ,Canada,Product Development
   ```
3. Stop and restart the Embarcadero DT/Engine and service:
   a) Open a command line console and execute

      `commandlineconsole <Embarcadero_Machine_Name> <port> -e stop`

   b) Use the Windows Services control panel to restart the DT/Engine service.

c) Use the command line console to execute

```
commandlineconsole <Embarcadero_Machine_Name> <port>
-e start
```

4. Run the scheduled_tasks task chain in the Embarcadero Console to add the new users to your Data Warehouse.
5. Restart the Analytics Server to refresh Blazent Analytics with the new data.

IP-LOCATION MAPPING - IP-LOCATION.CSV

The `ip-location.csv` file allows administrators to map IP address ranges to physical locations for discovered assets. This file is located in the `<install_dir>\BlazentIntegrationServices\tasks\data` directory. To add new IP ranges to this file:

1. Open the `ip-location.csv` file in `<install_dir>\BlazentIntegrationServices\tasks\data`. This file contains the list of IP address range - location mappings for discovered assets.
2. To define an IP address range, enter the following information on a single line, with each item separated by a comma:
   - Range Start
   - Range End
   - Location (City)
   - Location (State)
   - Location (Country)

   If a field is not relevant, use a blank space in place of the field. For example:

   ```
   10.25.200.1,10.25.1.255,Toronto, ,Canada
   ```

   For a sample `ip-location.csv` file, see `<install_dir>\BlazentIntegrationServices\tasks\data\ip-location-example.csv`

3. Stop and restart the Embarcadero DT/Engine and service:
   a) Open a command line console and execute

      `commandlineconsole <Embarcadero_Machine_Name> <port> -e stop`

   b) Use the Windows Services control panel to restart the DT/Engine service.
   c) Use the command line console to execute

      `commandlineconsole <Embarcadero_Machine_Name> <port> -e start`

4. Run the scheduled_tasks task chain in the Embarcadero Console to add the new IP location mappings to your Data Warehouse.
5. Restart the Analytics Server to refresh Blazent Analytics with the new data.

OS DATA CLEANSING - OSCLEANSING.XML AND OSNAMECLEANSING.XML

The `OSCleansing.xml` and `OSNameCleansing.xml` files allow administrators to add or modify rules for cleansing operating system names for discovered assets. These files are located in the `<install_dir>\BlazentIntegrationServices\tasks\data` directory:

- `OSCleansing.xml` is used to populate the `OS Asset Platform` field for all discovered assets. This field can be assigned a value of `Windows`, `Unix`, or `Other`.
- `OSNameCleansing.xml` is used to populate the `Asset Operating System` field for all discovered assets. This field specifies the exact operating system and patch that was found through Discovery.

OSCLEANSING.XML FORMAT AND PARAMETERS

`OSCleansing.xml` has the following format:

```
<FilterList>
   <Filter>
      <Action>Modify</Action>
      <Pattern><OS_FAMILY>...</OS_FAMILY></Pattern>
      <CaseSensitive>...</CaseSensitive>
      <ElementList>
         <Element>
            <Name>OS_NAME</Name>
            <Value>...</Value>
            <Desc>...</Desc>
         </Element>
         ...
      </ElementList>
   </Filter>
   ...
</FilterList>
```

OS cleansing rules are defined by applying regular expressions to the `OS_FAMILY` field that was returned by Discovery. The `OS_FAMILY` field typically contains a substring that identifies the operating system type of the relevant discovered asset.

To add a new cleansing rule, add a filter to the filter list and specify values for the XML tags described in Table 2.

NOTE: If you make a change to `OSCleansing.xml` you must stop and restart the Embarcadero DT/Engine for the changes to take effect. To do so:

1. Open a command line console and execute

   `commandlineconsole <`*`Embarcadero_Machine_Name`*`> <`*`port`*`> -e stop`

2. Use the Windows Services control panel to restart the DT/Engine service.
3. Use the command line console to execute

   `commandlineconsole <`*`Embarcadero_Machine_Name`*`> <`*`port`*`> -e start`

TABLE 2: OSCLEANSING.XML TAG DESCRIPTIONS

TAG NAME	DESCRIPTION
<Action>	Specifies how the rule should be executed: • Modify. This action updates the value of items that match the search pattern. This is the most commonly used action and is used for every categorization rule to assign categories or groups to an item. • Remove. This action prevents matching items from being added to the Data Warehouse. This action is rarely used, but can be implemented to filter out specific items from being stored. For example, by default there is a filter rule that prevents zero-byte size files from being added.
<Pattern>	A regular expression that specifies the string that should be matched in the `OS_FAMILY` field returned by Discovery. This regular expression should always be wrapped in `<OS_FAMILY>` tags. For example, `<OS_FAMILY>.*Mac OS.*</OS_FAMILY>` would return all strings with one or more characters (including spaces), followed by "Mac OS" followed by one or more characters (including spaces). The rules for regular expressions are described at http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html.
CaseSensitive	Specifies whether this rule is case sensitive (True) or not (False). For example, if the rule is not case sensitive and `.*Mac OS.*` is the regular expression in your <Pattern> tag, both "Mac OS" and "mac os" would match the rule. If the rule is case sensitive, only "Mac OS" would match.
Element List	The list of parameters that should be assigned a value for all discovered assets that match the pattern rule. The element list generally only contains a single element for the `OS_NAME` parameter.
Element > Name	The name of the parameter that should be modified for this discovered asset. This value is always `OS_NAME`.
Element > Value	The value that should be assigned to `OS_NAME` for this filter element. Built-in values include `Windows`, `Unix`, and `Other`.
Element > Desc	(Optional) A space for comments that describe the purpose of the rule.

OSNAMECLEANSING.XML FORMAT AND PARAMETERS

`OSNameCleansing.xml` has the following format:

```
<FilterList>
   <Filter>
      <Action>Modify</Action>
      <Pattern><MAC>...</MAC></Pattern>
      <CaseSensitive>...</CaseSensitive>
      <ElementList>
         <Element>
            <Name>OS_TYPE</Name>
            <Value>...</Value>
            <Desc>...</Desc>
         </Element>
         ...
      </ElementList>
   </Filter>
   ...
</FilterList>
```

OS name cleansing rules are defined by applying regular expressions to the `MAC` field that was returned by Discovery. This field contains the discovered MAC address for the discovered asset. The MAC address typically contains a substring that identifies the discovered asset vendor, which can then be used to determine the OS type value.

To add a new cleansing rule, add a filter to the filter list and specify values for the XML tags described in Table 3.

NOTE: If you make a change to `OSNameCleansing.xml` you must stop and restart the Embarcadero DT/Engine for the changes to take effect. To do so:

1. Open a command line console and execute

   ```
   commandlineconsole <Embarcadero_Machine_Name>
   <port> -e stop
   ```

2. Use the Windows Services control panel to restart the DT/Engine service.
3. Use the command line console to execute

   ```
   commandlineconsole <Embarcadero_Machine_Name>
   <port> -e start
   ```

TABLE 3: OSNAMECLEANSING.XML TAG DESCRIPTIONS (1 OF 2)

TAG NAME	DESCRIPTION
<Action>	Specifies how the rule should be executed: • Modify. This action updates the value of items that match the search pattern. This is the most commonly used action and is used for every categorization rule to assign categories or groups to an item. • Remove. This action prevents matching items from being added to the Data Warehouse. This action is rarely used, but can be implemented to filter out specific items from being stored. For example, by default there is a filter rule that prevents zero-byte size files from being added.
<Pattern>	A regular expression that specifies the string that should be matched in the MAC field returned by Discovery. This regular expression should always be wrapped in <MAC> tags. For example, <MAC>.*Hewlett.*</MAC> would return all strings with one or more characters (including spaces), followed by "Hewlett" followed by one or more characters (including spaces). The rules for regular expressions are described at http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html.

TABLE 3: OSNAMECLEANSING.XML TAG DESCRIPTIONS (2 OF 2)

TAG NAME	DESCRIPTION
CaseSensitive	Specifies whether this rule is case sensitive (True) or not (False). For example, if the rule is not case sensitive and `.*Hewlett.*` is the regular expression in your <Pattern> tag, both "Hewlett" and "hewlett" would match the rule. If the rule is case sensitive, only "Hewlett" would match.
Element List	The list of parameters that should be assigned a value for all discovered assets that match the pattern rule. The element list generally only contains a single element for the `OS_TYPE` parameter.
Element > Name	The name of the parameter that should be modified for this discovered asset. This value is always `OS_TYPE`.
Element > Value	The value that should be assigned to `OS_TYPE` for this filter element. Built-in values include `Windows`, `Unix`, and `Other`.
Element > Desc	(Optional) A space for comments that describe the purpose of the rule.

DISCOVERED ASSET CATEGORIZATION - ASSETCATEGORIZATION.XML

The `AssetCategorization.xml` files allow administrators to add or modify rules for categorizing discovered assets. This file is located in the `<install_dir>\BlazentIntegrationServices\tasks\data` directory and has the following format:

```
<FilterList>
    <Filter>
        <Action>Modify</Action>
        <Pattern><OS_FAMILY>...</OS_FAMILY></Pattern>
        <CaseSensitive>...</CaseSensitive>
        <ElementList>
            <Element>
                <Name>OS_NAME</Name>
                <Value>...</Value>
                <Desc>...</Desc>
            </Element>
            ...
        </ElementList>
    </Filter>
    ...
</FilterList>
```

Discovered asset categorization rules are defined by applying regular expressions to the `OS` field that was returned by Discovery. The `OS` field typically contains a substring that identifies the type of asset that was discovered.

To add a new asset categorization rule, add a filter to the filter list and specify values for the XML tags described in Table 4.

NOTE: If you make a change to `AssetCategorization.xml` you must stop and restart the Embarcadero DT/Engine for the changes to take effect. To do so:

1. Open a command line console and execute

   `commandlineconsole <Embarcadero_Machine_Name> <port> -e stop`

2. Use the Windows Services control panel to restart the DT/Engine service.
3. Use the command line console to execute

   `commandlineconsole <Embarcadero_Machine_Name> <port> -e start`

TABLE 4: ASSETCATEGORIZATION.XML TAG DESCRIPTIONS (1 OF 2)

TAG NAME	DESCRIPTION
<Action>	Specifies how the rule should be executed: • Modify. This action updates the value of items that match the search pattern. This is the most commonly used action and is used for every categorization rule to assign categories or groups to an item. • Remove. This action prevents matching items from being added to the Data Warehouse. This action is rarely used, but can be implemented to filter out specific items from being stored. For example, by default there is a filter rule that prevents zero-byte size files from being added.
<Pattern>	A regular expression that specifies the string that should be matched in the `OS` field returned by Discovery. This regular expression should always be wrapped in `<OS>` tags. For example, `<OS>.*Fileserver.*</OS>` would return all strings with one or more characters (including spaces), followed by "Fileserver" followed by one or more characters (including spaces). The rules for regular expressions are described at http://java.sun.com/j2se/1.4.2/docs/api/java/util/regex/Pattern.html.

TABLE 4: ASSETCATEGORIZATION.XML TAG DESCRIPTIONS (2 OF 2)

TAG NAME	DESCRIPTION
CaseSensitive	Specifies whether this rule is case sensitive (True) or not (False). For example, if the rule is not case sensitive and `.*Fileserver.*` is the regular expression in your <Pattern> tag, both "Fileserver" and "fileserver" would match the rule. If the rule is case sensitive, only "Fileserver" would match.
Element List	The list of parameters that should be assigned a value for all discovered assets that match the pattern rule. The element list generally only contains a single element for the ASSET_TYPE parameter.
Element > Name	The name of the parameter that should be modified for this discovered asset. This value is always ASSET_TYPE.
Element > Value	The value that should be assigned to ASSET_TYPE for this filter element. Built-in values include `Server`, PC, `Network Equipment`, `Printer`, `Printer Server`, and `Wireless Device`.
Element > Desc	(Optional) A space for comments that describe the purpose of the rule.

ORACLE DBA STUDIO AND ENTERPRISE MANAGER CONSOLE

Oracle DBA Studio (8i) and Oracle Enterprise Manager Console (9i) are applications that administrators can use to control the Collection and Data Warehouse database instances.

- To access Oracle DBA Studio, open the Start menu of the database server and choose Programs > Oracle - OraHome81 > Database Administration > DBA Studio.
- To access Oracle Enterprise Manager Console, open the Start menu of the database server and choose Programs > Oracle - OraHome91 > Database Administration > Enterprise Manager Console.

For additional information, consult your Oracle documentation.

MicroStrategy Desktop

MicroStrategy Desktop is an application that administrators can use to control and configure the Analytics Server. To access this application, open the Start menu of the Analytics Server and choose Programs > MicroStrategy 7 > Desktop > Desktop. For additional information, consult your MicroStrategy documentation.

PowerUpdate Controller

PowerUpdate Controller is a web-based application that allows administrators to control and configure the PowerUpdate Server, if installed. To access this application, open the following URL in a web browser:
`http://<PowerUpdateServer>:8000/powerupdate/`

For additional information, consult your PowerUpdate documentation.

The Blazent Database Diagnostic Tool: bzbs_run_diagnostics.bat

BZBS_Run_Diagnostics.bat is the Blazent database diagnostic tool that allows you to verify the integrity of your Collection and Data Warehouse databases. To run this tool:

1. Navigate to your Oracle bin directory (`C:\oracle\ora<release>\bin`).
2. Run `bzbs_run_diagnostics.bat`, and specify Exit twice to exit.

The Database Diagnostic batch file produces two files:

- `bzc_diagnostics.lst` includes information about the Collection Database.
- `bzw_diagnostics.lst` includes information about the Data Warehouse.

Review these files and work with Blazent Support to resolve all failed items. (See Appendix C, "Technical Support.")

CONFIGURING BLAZENT COLLECTORS

To customize Blazent IT Intelligence Software you can configure the two Blazent Collectors: Blazent Agents and Blazent Discovery.

CONFIGURING BLAZENT AGENTS

Blazent Agents are configured through the `clientconfig_<type>.xml` files that are stored on the Collection Server in `<install_drive>\BlazentCollectionServer\webapps\blazent\Configuration\Client`. Separate versions of `clientconfig` exist in this directory for every Blazent Agent operating system type and for Blazent Agents that are enabled for Discovery. This configuration allows different parameter values to be specified for each type of deployed Blazent Agent.

Each Blazent Agent periodically downloads a new copy of `clientconfig_<type>.xml` in order to stay current with the most recent updates to the configuration. After installation and after every machine reboot, a Blazent Agent downloads `clientconfig_<type>.xml` from the Collection Server that is specified in the Blazent Agent's `bootstrap.xml` file. `Bootstrap.xml` is installed with every Blazent Agent and only contains the name of a single Collection Server, or a Collection Server contained in the address aliased behind a load balancer. After the initial version of `clientconfig_<type>.xml` is downloaded, all subsequent downloads are from the Collection Server named in `clientconfig_<type>.xml` until the Blazent Agent machine is rebooted again. The frequency with which downloads occur is controlled by another parameter.

Because each Blazent Agent periodically downloads `clientconfig_<type>.xml`, you can edit the configuration parameters on the Collection Server at any time without necessitating manual upgrade of all Blazent Agent configuration files. For example, suppose you deployed IT Intelligence Software at an organization with two Collection Servers, Server A and Server B:

- When you install a Blazent Agent at this organization, the `bootstrap.xml` file that is installed with the Blazent Agent specifies one of those servers (for example, Server A). After the Blazent Agent is installed and reboots, it reads the name of the server from `bootstrap.xml` and downloads the appropriate `clientconfig` file from that source.

  For example, if the Blazent Agent runs on an AIX platform, it would download `clientconfig_aix.xml` from Server A.

- If you wish to change Blazent Agent parameters for a particular operating system type, you can do so by editing the appropriate `clientconfig_<type>.xml` file on the Collection Server. All Blazent Agents of the specified type will then download this new version the next time they update their file.

- If you wish to change the source of the configuration file from Server A to Server B:

  1. Edit `bootstrap.xml` on the Blazent Agent to reference Server B.
  2. Edit `clientconfig_<type>.xml` on Server A to reference Server B by editing the `s` parameter in the `LogonModule`.

NOTE: You must restart the Collection Server service for changes to `clientconfig.xml` to take effect.

CLIENTCONFIG.XML FORMAT

The `clientconfig` files are located in `<install_drive>\BlazentCollectionServer\webapps\blazent\Configuration\Client`. One clientconfig file exists for every operating system, and an additional one exists for Blazent Agents that are enabled for Discovery (see "Configuring Blazent Discovery," on page 64 for information):

- `clientconfig_aix.xml` (Blazent Agents with AIX operating systems)
- `clientconfig_disc.xml` (Blazent Agents that are enabled for Discovery)
- `clientconfig_hpux.xml` (Blazent Agents with HP-UX operating systems)
- `clientconfig_linux.xml` (Blazent Agents with Linux operating systems)
- `clientconfig_mac_desktop.xml` (Blazent Agents with Macintosh desktop operating systems)
- `clientconfig_mac_server.xml` (Blazent Agents with Macintosh server operating systems)
- `clientconfig_solaris.xml` (Blazent Agents with Solaris operating systems)
- `clientconfig_win_desktop.xml` (Blazent Agents with Windows desktop operating systems)
- `clientconfig_win_server.xml` (Blazent Agents with Windows server operating systems)

Clientconfig files have the following format:

```
<COMMANDLIST>
   <COMMAND ENABLED="[1|0]" NAME="..." EI="[1|0]" TSI="..."
            RASYNC="[1|0]">
      <CMD>...</CMD>
      <ARGS>...</ARGS>
   </COMMAND>
   <COMMAND ...>
      ...
   </COMMAND>
</COMMANDLIST>
```

A list of <COMMAND> statements are nested inside a <COMMANDLIST>. Each <COMMAND> contains the configurable attributes described in Table 5.

TABLE 5: COMMAND ATTRIBUTES

COMMAND ATTRIBUTE	DESCRIPTION
ENABLED	A Boolean value that determines whether this command will execute or not.
NAME	A unique label for the command.
EI	A Boolean value that determines whether the command should execute as soon as the command is parsed, without waiting for the timer.
TSI	The frequency (in seconds) that this command should execute. The default value of 86400 is equivalent to 24 hours.
RASYNC	A Boolean value that determines whether this command should run asynchronously, without blocking the next set of commands.
<CMD>	The command line executable name (see "Clientconfig.xml Parameters," on page 58).
<ARGS>	The arguments for the specified command name (see "Clientconfig.xml Parameters," on page 58). Arguments should be enclosed in the <ARGS></ARGS> tags for each command. If no <ARGS> are specified, the Blazent Agent runs with the default settings.

CLIENTCONFIG.XML PARAMETERS

Table 6 lists the commands and arguments that can be set in a `clientconfig` file. Commands are displayed with a light grey background, while command arguments are displayed with a clear background. Use an XML editor to make your changes.

TABLE 6: CLIENTCONFIG.XML COMMANDS AND ARGUMENTS

COMMAND NAME	ARGUMENT	DESCRIPTION
<Supported by all commands>	l	An integer between 0 and 20 that specifies the verbosity of log messages. The default value for this property is 3.
	lfs	The maximum size (in MB) of a log file before a new file is created. The default value for this property is 2.
	resend	A Boolean value that specifies whether a collector should resend its cached data. The default value for this property is false (0).
	suppress	A Boolean value that specifies whether to suppress error messages from being displayed on the Blazent Blazent Agent machine or not. If set to false (0), Blazent Agent users may see a dialog box if the Blazent Agent crashes. The default value for this property is true (1).
CommandList Refresh		If enabled, this command refreshes the list of commands that should be executed by the Blazent Agent.
LogonModule		If enabled, this command causes the Blazent Agent to log on to the specified Collection Server and download the latest version of clientconfig.xml.
	s	(Required) The address of the Collection Server from which the Blazent Agent should download clientconfig.xml. For example, s="http://collectionserver:8080/blazent/data"
Hardware Inventory Collector		If enabled, this command causes the Blazent Agent to collect hardware inventory information.
	cfn	Specifies the name of the file to which the cache should be written.

TABLE 6: CLIENTCONFIG.XML COMMANDS AND ARGUMENTS

COMMAND NAME	ARGUMENT	DESCRIPTION
`Software Inventory Collector`		If enabled, this command causes the Blazent Agent to collect software application inventory information.
	`dff`	The name of the XML file that contains the exclusive regular expression filters for directories.
	`cdel`	The comma-delimited list of file extensions that should be included as software inventory. The default value of this property is ".exe".
	`tcs`	The number of software inventory items to aggregate before transmitting. The default value of this property is 100.
	`scs`	The number of files that consistute a "scan chunk." The default value of this property is 100. (See also scdsi.)
	`isdsi`	The time to wait (sleep) before starting the disk scan, in seconds. The default value of this property is 900.
	`scdsi`	The time to wait (sleep) between "scan chunks" during a disk scan, in seconds. The default value of this property is 120.
	Example: `tcs="100" scs="250" isdsi="0" scdsi="0" cdel=".exe, .bat" dff="SoftwareDirectoryFilterList.xml"`	
`Package Inventory Collector`		If enabled, this command causes the Blazent Agent to collect software package inventory information.
`BlazentTime`		If enabled, this command synchronizes the Blazent Agent's internal time with the current Collection Server time. Note: This command does not affect the Blazent Agent's machine time.

Table 6: Clientconfig.xml Commands and Arguments

Command Name	Argument	Description
	`local`	A Boolean value that specifies whether the BlazentTime function should retrieve the local copy of ServerTime and print the string representation to stdout. The default value for this property is false (0).
	`resynch`	The Collection Server from which the BlazentTime function should resynchronize its time. If a server is not specified, BlazentTime does not resynchronize its time. The default value for this property is null.
`Environment Variable Collector`		If enabled, this command causes the Blazent Agent to collect system environment variable information.
	`cfn`	Specifies the name of the file to which the cache should be written.
`Utilization Collector`		If enabled, this command causes the Blazent Agent to collect utilization information (for example, the number of hours that a particular software application is used).
	`dff`	The name of the XML file that contains the exclusive regular expression filters for directories.
	`cdel`	The comma-delimited list of file extensions that should be included as software inventory. The default value of this property is ".exe".
	`emt`	A Boolean value that specifies whether the Blazent Agent should track mouse movement. The default value of this property is true (1).
	`ekt`	A Boolean value that specifies whether the Blazent Agent should track keyboard use. The default value of this property is true (1).
	`uidsi`	The amount of time (in seconds) that must elapse between keyboard and mouse events for the user to be judged "inactive." The default value for this property is 300.

TABLE 6: CLIENTCONFIG.XML COMMANDS AND ARGUMENTS

COMMAND NAME	ARGUMENT	DESCRIPTION
	`esut`	A Boolean value that specifies whether software utilization tracking should be enabled. The default value for this property is true (1).
	`emut`	A Boolean value that specifies whether memory utilization tracking should be enabled. The default value for this property is true (1).
	`eput`	A Boolean value that specifies whether processor utilization tracking should be enabled. The default value for this property is true (1).
	`dtsp`	The number of seconds that should elapse between data transmissions. The default value of this property is 3600 (one hour).
	`drrt`	The reference date-time value that should be used to calculate data roll-up times. The default value of this property is 10-01-2001 8:00:00.
	`drmp`	The number of minutes between data roll-ups, as based on the drrt. The default value of this property is 30.
	Example: `cdel=".exe,.bat" dff="SoftwareDirectoryFilterList.xml" dtsp="600" drrt="10-01-2002 8:15:00" drmp="5"`	
`Discovery Collector`		If enabled, this command instantiates an instance of Discovery (see "Configuring Blazent Discovery," on page 64 for information). Note: Discovery should only be enabled on machines that were installed with files from the Discovery installation folder (as described in "Installing Blazent Discovery," on page 63 of the *Installation Guide*).
	cfg	The path to the `DiscoveryCollectorConfig.xml` file. If this value is not specified, the default value of `cache\DiscoveryCollectorConfig.xml` is used.

TABLE 6: CLIENTCONFIG.XML COMMANDS AND ARGUMENTS

COMMAND NAME	ARGUMENT	DESCRIPTION
`Transmitter`		If enabled, this command causes the data that is collected by the Blazent Agent to be transmitted to the specified Collection Server.
	`s`	(Required) The address of the Collection Server with which the Blazent Agent should communicate.
	`transmit`	A Boolean value that specifies whether data files should be transmitted to the Collection Server from this Blazent Agent. The default value for this property is false (0).
	`o`	The file to which Collection Server responses should be saved.
	`post`	The file that should be sent to the Collection Server.
	`delay`	The number of seconds (between 0 and 600) that the Blazent Agent should wait after transmitting a file when transmitting multiple data files to the Collection Server. The default value for this property is 10.
	`flimit`	The maximum number of files to transmit during a session. A value of 0 specifies no limit. The default value for this property is 10.
	Download example: `s="http://www.yahoo.com" o="yahoo.html"`	
	Transmit example: `s="http://collectionserver:8080/blazent/data" transmit="1" delay="10" flimit="5"`	
`BZUpdate`		If enabled, this command runs the BZUpdate.bat file, which sends collected data to the specified Collection Server.

Bootstrap.xml Format

`Bootstrap.xml` specifies the name of the Collection Server from which `clientconfig.xml` should be downloaded whenever a Blazent Agent machine is rebooted. This file is found in each of the Agent installation directories in `<install_drive>\BlazentCollectionServer\AgentInstallers`, and has the following format:

```
<SessionModule>
<LoginServerAddress>
http://<Collection_server_name>:8080/blazent/login/
<LoginServerAddress>
</SessionModule>
```

Configuring Blazent Discovery

Blazent Discovery is configured through both the `clientconfig_disc.xml` file that is stored on the Collection Server in `<install_drive>\BlazentCollectionServer\webapps\blazent\Configuration\Client`, and the `DiscoveryCollectorConfig.xml` file that is stored on the Discovery Agent machine in `<install_drive>\Program Files\Blazent\BlazentAgent\cache`.

CLIENTCONFIG_DISC.XML

Like Blazent Agents, Blazent Discovery periodically downloads `clientconfig_disc.xml` from a specified Collection Server to get the most recent updates to this file. This file contains the same commands and arguments as Blazent Agent `clienconfig.xml` files, but with the Discovery command enabled (see "Clientconfig.xml Format," on page 57 and "Clientconfig.xml Parameters," on page 58 for information). This file is used to control the logging verbosity of the Blazent Discovery instance, as well as the location of the active `DiscoveryCollectorConfig.xml` file.

NOTE: If you enable the other commands in `clientconfig_disc.xml`, the Discovery installation also gathers the same information as a Blazent Agent for the machine on which Discovery is installed. Disabling these other commands prevents information about this machine from being included in Blazent Analytics reports.

DISCOVERYCOLLECTORCONFIG.XML

The `DiscoveryCollectorConfig.xml` file is stored on the Discovery machine and controls the main operation of the installed Discovery application. Unlike `clientconfig_disc.xml`, this file is not periodically downloaded from the Collection Server and must be updated manually if you wish to make changes.

`DiscoveryCollectorConfig.xml` files have the following format. Each tag is described in Table 7:

```
<BLAZENTDISCOVERY ...>
   <CLIENT_ID>...</CLIENT_ID>
   <VERSION>
      <file_update_version>...</file_update_version>
      <client_version>...</client_version>
   </VERSION>
   <SCAN_IP_DETAILS>
      <POLL_IP>
         <START_IP>...</START_IP>
         <END_IP>...</END_IP>
      </POLL_IP>
   </SCAN_IP_DETAILS>
   <SCAN_IP_DETAILS>
      ...
   </SCAN_IP_DETAILS>
   ...
   <SNMP_POLL_FLAG>...</SNMP_POLL_FLAG>
   <SOCKET_TIMEOUT>...</SOCKET_TIMEOUT>
   <SOCKET_NUM_RETRIES>...</SOCKET_NUM_RETRIES>
   <NMAP_PORT_LIST>...</NMAP_PORT_LIST>
   <SIMULTANEOUS_NUM_IP_POLL>...</SIMULTANEOUS_NUM_IP_POLL>
   <SCAN_WAIT_TIME>...</SCAN_WAIT_TIME>
</BLAZENTDISCOVERY>
```

TABLE 7: DISCOVERYCOLLECTORCONFIG.XML PARAMETERS (1 OF 3)

TAG	DESCRIPTION
CLIENT_ID	The name assigned to this instance of Discovery. Make this ID unique if you have more than one instance of Discovery installed in your organization.
VERSION	The current version numbers for components in this Discovery instance.

TABLE 7: DISCOVERYCOLLECTORCONFIG.XML PARAMETERS (2 OF 3)

TAG	DESCRIPTION
SCAN_IP_DETAILS	Information about the IP address ranges that should be scanned by this instance of Discovery. You can include multiple SCAN_IP_DETAILS tags in DiscoveryCollectorConfig.xml. *Important Note*: Two instances of Discovery should not poll the same IP addresse range, or poll overlapping IP address ranges. If this occurs, synchronization issues can occur in your Collection Database.
SCAN_IP_DETAILS > POLL_IP	<START_IP>: The beginning of the IP address range that should be scanned by this Discovery instance. <END_IP>: the end of the IP address range that should be scanned by this Discovery instance. *Important Note*: Two instances of Discovery should not poll the same IP addresse range, or poll overlapping IP address ranges. If this occurs, synchronization issues can occur in your Collection Database.
SNMP_POLL_FLAG	If true, specifies that Discovery will use SNMP to gather MAC addresses for non-Windows assets. If false, this information will not be gathered.
SOCKET_TIMEOUT	The number of seconds that should elapse before the socket that is used for communication with the Collection Server can time out.
SOCKET_NUM_RETRIES	The number of retry attempts that should occur after a socket times out.
NMAP_PORT_LIST	A list of standard port numbers that should be used for NMAP communication between the Discovery instance and the IP addresses it is polling. The default values for this list include: 7,21,23,25,53,80,110,135,139,445,514,515,1977,1066

TABLE 7: DISCOVERYCOLLECTORCONFIG.XML PARAMETERS (3 OF 3)

TAG	DESCRIPTION
SIMULTANEOUS_NUM_IP_POLL	The number of IP addresses that can be polled simultaneously by this instance of Discovery. Increasing this value increases the amount of system resources and network bandwidth that will be used by Discovery.
SCAN_WAIT_TIME	The number of seconds that this instance of Discovery must wait between scans.

PERFORMANCE TUNING

This chapter includes information on the parameters that should be adjusted to improve the performance of your Blazent IT Intelligence Software installation. In several cases, these requirements change depending on the number of Blazent Agents that are deployed. For the purposes of this chapter, deployment sizes are grouped into the following categories:

- Small (less than 2,000 Blazent Collectors)
- Medium (2,000 - 10,000 Blazent Collectors)
- Large (10,000 - 30,000 Blazent Collectors)
- Extra-Large (30,000 - 60,000 Blazent Collectors)
- Custom (more than 60,000 Blazent Collectors)

The remainder of the chapter discusses performance tuning parameters, organized by Blazent component.

BLAZENT AGENTS

A Blazent Agent can be configured to collect more or less data by altering its `clientconfig.xml` file. See "Configuring Blazent Agents," on page 55 for details.

DATABASE SERVER PERFORMANCE TUNING

To tune an Intelligence Platform Database Server for better performance, you should configure the following types of parameters:

- Machine-level parameters
  - arraySize guidelines
  - Windows
  - Solaris
- Database instance parameters
  - Tablespace sizing guidelines
  - Combined instance (both Collection database and Data Warehouse)
  - Collection database only
  - Data Warehouse only
- Physical table parameters

MACHINE-LEVEL PARAMETERS

The following sections describe the machine settings that should be configured for Oracle servers on Windows and Solaris machines.

SETTING AN ARRAY SIZE

Based on the amount of memory that is allocated to your database server, you should tune the Oracle `arraySize` parameter so that Data Integration Services displays better performance. Although the default value is 5, you can set this parameter up to 10,000. Contact Blazent Customer Support for help with determining the best value for your particular installation.

To edit this parameter:

1. Navigate to the Oracle bin directory and open `bzwLib_pkg.sql`.
2. Find arraySize NUMBER := 5;, and set it to the appropriate value.

WINDOWS

Use the following guidelines to configure the Windows machine on which your Oracle 8i or 9i server runs:

- Oracle 8i and 9i require special configuration settings to run on Windows 2000 machines. Please refer to the Oracle Platform Deployment Guide for information.
- The Windows machine on which Oracle 9i release 2 (9.2) is installed must have more than 4 GB of memory.
- Windows must have Physical Address Extensions (PAE) enabled. To do so, see Microsoft Knowledge Base article Q268363 for instructions on how to modify `boot.ini` to enable PAE.
- Blazent recommends that you enable 4GT support by adding the `/3GB` parameter in `boot.ini`. See Microsoft Knowledge Base article Q171793 for information on enabling 4GT support.
- The user account under which Oracle 9i release 2 (9.2) runs (typically `LocalSystem`) must have the `Lock memory pages` Windows 2000 privilege.
- The initialization parameter file for an Oracle 9i database instance that uses VLM support must include `USE_INDIRECT_DATA_BUFFERS=TRUE`. If this parameter is not set, Oracle behaves in the same way as previous releases.
- The `DB_BLOCK_BUFFERS` and `DB_BLOCK_SIZE` initialization parameters must be set to the same values that were chosen for your Oracle 9i database.

SOLARIS

Blazent IT Intelligence Software can run on Solaris versions 8 and 9. See the Oracle Installation Guide for information on the latest patches that are necessary to run Oracle 8.1.7.4 and Oracle 9.2.0.5.

Table 8 shows configuration parameters that are set in the `/etc/system` file. Use the values that are appropriate for the number of Blazent Collectors that are deployed in your installation.

TABLE 8: SOLARIS DATABASE SERVER CONFIGURATION PARAMETERS (1 OF 2)

OS PARAMETER	SMALL (< 2,000)	MEDIUM (2,000 - 10,000)	LARGE (10,000 - 30,000)	X-LARGE (30,000 - 60,000)	CUSTOM (> 60,000)
`ts_sleep_promote`	1	1	1	1	1
`autoup`	60	100	300	300	300
`rlim_fd_max`	4096	4096	4096	4096	4096
`rlim_fd_cur`	1024	1024	1024	1024	1024
`sd_max_throttle`	24	24	24	24	24
`sd_io_time`	0x3c	0x3c	0x3c	0x3c	0x3c
`sd_retry_count`	10	10	10	10	10
`tune_t_gpgslo`	250	250	250	250	250
`tune_t_minarmem`	100	100	100	100	100
`tune_t_minasmem`	250	250	250	250	250
`msgsys:msginfo_msgmap`	200	200	200	200	200
`msgsys:msginfo_msgmni`	100	100	100	100	100
`msgsys:msginfo_msgtql`	80	80	80	80	80
`msgsys:msginfo_msgseg`	2048	2048	2048	2048	2048

TABLE 8: SOLARIS DATABASE SERVER CONFIGURATION PARAMETERS (2 OF 2)

OS PARAMETER	SMALL (< 2,000)	MEDIUM (2,000 - 10,000)	LARGE (10,000 - 30,000)	X-LARGE (30,000 - 60,000)	CUSTOM (> 60,000)
shmsys:shminfo_shmmax	0xFFFFFFFF	0xFFFFFFFF	0xFFFFFFFF	0xFFFFFFFF	0xFFFFFFFF
shmsys:shminfo_shmmin	1	1	1	1	1
shmsys:shminfo_shmmni	1000	1000	1000	1000	1000
shmsys:shminfo_shmseg	200	200	200	200	200
semsys:seminfo_semmns	3400	3400	3400	3400	3400
semsys:seminfo_semmni	2000	2000	2000	2000	2000
semsys:seminfo_semmsl	500	500	500	500	500
semsys:seminfo_semmap	500	500	500	500	500
semsys:seminfo_semmnu	600	600	600	600	600
semsys:seminfo_semume	600	600	600	600	600

DATABASE INSTANCE PARAMETERS

You can deploy your Collection Database and Data Warehouse in multiple configurations. For small, medium and large installations, you can combine both sets of schema into a single database instance. For extra-large and custom installations, separate the Collection database and Data Warehouse into different instances on the same machine. The following sections outline tablespace sizing requirements for each instance type, and parameters for both combined and separate database instance configurations.

INSTANCE-LEVEL TABLESPACE SIZING GUIDELINES

Table 9 includes tablespace sizing requirements that will allow your Blazent IT Intelligence Software application to function correctly.

NOTE: The `System` tablespace size does not include the space allocated to other default Oracle tablespaces, such as `Users`, `Tools`, `Example`, and so on.

NOTE: The number of disks that are allocated to the `Rollback` tablespace should be the same as the number allocated to data segments because there are as many IO operations occuring in the `Rollback` tablespace as there are write operations on the data segments. The capacity of the disks that are used for `Rollback` are much larger than the size of the rollback segments themselves.

TABLE 9: DATABASE INSTANCE TABLESPACE SIZING REQUIREMENTS

TABLESPACE NAME	SMALL (‹ 2,000)	MEDIUM (2,000 - 10,000)	LARGE (10,000 - 30,000)	X-LARGE (30,000 - 60, 000)	CUSTOM (› 60,000)
System	300 MB	350 MB	350 MB	500 MB	500 MB
Rollback or Undo Tablespace	2 GB	4 GB	10 GB	20 GB	30 GB
Temp Tablespace	4 GB	8 GB	16 GB	24 GB	36 GB

Combined Collection Database and Data Warehouse Instance Parameters

Table 10 shows the parameters that should be used for a database instance that contains both the Collection Database and Data Warehouse schemas. This configuration can be used for installations that deploy up to 30,000 Blazent Collectors.

Table 10: Combined Collection Database and Data Warehouse Instance Parameters (1 of 4)

Oracle Parameter Name	V. 8.1.7.4 Small (< 2,000)	V. 8.1.7.4 Medium (2,000 - 10, 000)	V. 8.1.7.4 Large (10,000 - 30, 000)	V. 9.2.0.4 Small (< 2,000)	V. 9.2.0.4 Medium (2,000 - 10, 000)	V. 9.2.0.4 Large (10,000 - 30, 000)
bitmap_merge_area_size				1048576	1048576	1048576
buffer_pool_keep	500 MB	1 GB	2 GB			
buffer_pool_recycle						
circuits						
compatible	8.1.7	8.1.7	8.1.7	9.2.0	9.2.0	9.2.0
create_bitmap_area_size				8388608	8388608	8388608
cursor_sharing	EXACT	EXACT	EXACT	EXACT	EXACT	EXACT
cursor_space_for_time	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
db_block_buffers	2 GB	6 GB	12 GB			
db_block_checksum	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
db_block_size	8192	8192	8192	8192	8192	8192

TABLE 10: COMBINED COLLECTION DATABASE AND DATA WAREHOUSE INSTANCE PARAMETERS (2 OF 4)

ORACLE PARAMETER NAME	V. 8.1.7.4 SMALL (< 2,000)	V. 8.1.7.4 MEDIUM (2,000 - 10, 000)	V. 8.1.7.4 LARGE (10,000 - 30, 000)	V. 9.2.0.4 SMALL (< 2,000)	V. 9.2.0.4 MEDIUM (2,000 - 10, 000)	V. 9.2.0.4 LARGE (10,000 - 30, 000)
db_cache_ advice				ON	ON	ON
db_cache_size				2 GB	6 GB	12 GB
db_file_ multiblock_ read_count	16	16	16	16	16	16
db_files	200	200	200	200	200	200
db_keep_cache_ size				1 GB	2 GB	4 GB
db_recycle_ cache_size						
db_writer_ processes					2	4
dbwr_io_slaves						
disk_asynch_io	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
dml_locks	768	768	768	768	768	768
enqueue_ resources	968	968	968	968	968	968
hash_area_size				10 MB	10 MB	15 MB
hash_join_ enabled	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
java_pool_size	20 MB	20 MB	20 MB	20 MB	20 MB	20 MB

Table 10: Combined Collection Database and Data Warehouse Instance Parameters (3 of 4)

Oracle Parameter Name	V. 8.1.7.4 Small (< 2,000)	V. 8.1.7.4 Medium (2,000 - 10, 000)	V. 8.1.7.4 Large (10,000 - 30, 000)	V. 9.2.0.4 Small (< 2,000)	V. 9.2.0.4 Medium (2,000 - 10, 000)	V. 9.2.0.4 Large (10,000 - 30, 000)
large_pool_size				400 MB	800 MB	1200 MB
log_parallelism	1	1	1	1	1	1
log_buffer	200 MB	200 MB	400 MB	200 MB	200 MB	400 MB
log_checkpoint_interval	9600	9600	14400	9600	9600	14400
log_checkpoint_timeout	1800	1800	1800	1800	1800	1800
nls_language	American	American	American	American	American	American
open_cursors	1000	1000	1000	1000	1000	1000
parallel_execution_message_size	32 kB	32 kB	32 kB	32 kB	32 kB	32 kB
parallel_automatic_tuning	FALSE	FALSE	FALSE	TRUE	TRUE	TRUE
parallel_max_servers	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs
parallel_threads_per_cpu	2	2	2	2	2	2

TABLE 10: COMBINED COLLECTION DATABASE AND DATA WAREHOUSE INSTANCE PARAMETERS (4 OF 4)

ORACLE PARAMETER NAME	V. 8.1.7.4 SMALL (< 2,000)	V. 8.1.7.4 MEDIUM (2,000 - 10, 000)	V. 8.1.7.4 LARGE (10,000 - 30, 000)	V. 9.2.0.4 SMALL (< 2,000)	V. 9.2.0.4 MEDIUM (2,000 - 10, 000)	V. 9.2.0.4 LARGE (10,000 - 30, 000)
pga_aggregate_target	1.4 GB	1.4 GB	2.0 GB	1.4 GB	1.4 GB	2.0 GB
processes	300	400	600	300	400	600
sort_area_retained_size	4 MB	10 MB	40 MB	4 MB	10 MB	40 MB
shared_pool_reserved_size	50 MB	100 MB	200 MB	50 MB	100 MB	200 MB
shared_pool_size	200 MB	400 MB	800 MB	200 MB	400 MB	800 MB
sort_area_size	25 MB	50 MB	200 MB	AUTO	AUTO	AUTO
undo_management				TRUE	TRUE	TRUE
workarea_size_policy				AUTO	AUTO	AUTO

COLLECTION DATABASE INSTANCE PARAMETERS

Table 11 shows the database instance parameters that should be used for a stand-alone Collection database.

TABLE 11: STAND-ALONE COLLECTION DATABASE INSTANCE PARAMETERS (1 OF 3)

ORACLE PARAMETER NAME	V. 8.1.7.4 X-LARGE (30,000 - 60, 000)	V. 8.1.7.4 CUSTOM (› 60,000)	V. 9.2.0.4 X-LARGE (30,000 - 60, 000)	V. 9.2.0.4 CUSTOM (› 60,000)
bitmap_merge_area_size			1048576	1048576
buffer_pool_keep	1 GB	2 GB		
buffer_pool_recycle				
circuits				
compatible	8.1.7	8.1.7	9.2.0.0	9.2.0.0
create_bitmap_area_size			8388608	8388608
cursor_sharing	EXACT	EXACT	EXACT	EXACT
cursor_space_for_time	FALSE	FALSE	FALSE	FALSE
db_block_buffers	3 GB	6 GB		
db_block_checksum	TRUE	TRUE	TRUE	TRUE
db_block_size	8192	8192	8192	8192
db_cache_advice			ON	ON
db_cache_size			3 GB	6 GB
db_file_multiblock_ read_count	16	16	16	16
db_files	200	200	200	200
db_keep_cache_size			1 GB	2 GB

TABLE 11: STAND-ALONE COLLECTION DATABASE INSTANCE PARAMETERS (2 OF 3)

ORACLE PARAMETER NAME	V. 8.1.7.4 X-LARGE (30,000 - 60, 000)	V. 8.1.7.4 CUSTOM (› 60,000)	V. 9.2.0.4 X-LARGE (30,000 - 60, 000)	V. 9.2.0.4 CUSTOM (› 60,000)
db_recycle_cache_size				
db_writer_processes	4	6	4	6
dbwr_io_slaves				
disk_asynch_io	TRUE	TRUE	TRUE	TRUE
dml_locks	768	768	768	768
enqueue_resources	968	968	968	968
hash_area_size			10 MB	15 MB
hash_join_enabled	TRUE	TRUE	TRUE	TRUE
java_pool_size	20 MB	20 MB	20 MB	20 MB
large_pool_size			1200 MB	1200 MB
log_parallelism	1	1	1	1
log_buffer	200 MB	400 MB	200 MB	400 MB
log_checkpoint_interval	9600	14400	9600	14400
log_checkpoint_timeout	1800	1800	1800	1800
nls_language	American	American	American	American
open_cursors	1000	1000	1000	1000
parallel_execution_ message_size	32 kB	32 kB	32 kB	32 kB
parallel_automatic_ tuning	FALSE	FALSE	FALSE	FALSE

TABLE 11: STAND-ALONE COLLECTION DATABASE INSTANCE PARAMETERS (3 OF 3)

ORACLE PARAMETER NAME	V. 8.1.7.4 X-LARGE (30,000 - 60, 000)	V. 8.1.7.4 CUSTOM (› 60,000)	V. 9.2.0.4 X-LARGE (30,000 - 60, 000)	V. 9.2.0.4 CUSTOM (› 60,000)
parallel_max_servers	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs
parallel_threads_per_cpu	2	2	2	2
pga_aggregate_target	1.4 GB	2.0 GB	1.4 GB	2.0 GB
processes	400	600	400	600
sort_area_retained_size	20 MB	40 MB	20 MB	40 MB
shared_pool_reserved_size	200 MB	200 MB	200 MB	200 MB
shared_pool_size	600 MB	800 MB	600 MB	800 MB
sort_area_size	200 MB	200 MB	AUTO	AUTO
undo_management	-	-	TRUE	TRUE
workarea_size_policy	-	-	AUTO	AUTO

DATA WAREHOUSE INSTANCE PARAMETERS

Table 12 shows the database instance parameters that should be used for a stand-alone Data Warehouse.

TABLE 12: STAND-ALONE DATA WAREHOUSE INSTANCE PARAMETERS (1 OF 3)

ORACLE PARAMETER NAME	V. 8.1.7.4 X-LARGE (30,000 - 60,000)	V. 8.1.7.4 CUSTOM (› 60,000)	V. 9.2.0.4 X-LARGE (30,000 - 60,000)	V. 9.2.0.4 CUSTOM (› 60,000)
bitmap_merge_area_size			1048576	1048576
buffer_pool_keep	4 GB	6 GB		
buffer_pool_recycle				
circuits				
compatible	8.1.7	8.1.7	9.2.0.0	9.2.0.0
create_bitmap_area_size			8388608	8388608
cursor_sharing	EXACT	EXACT	EXACT	EXACT
cursor_space_for_time	FALSE	FALSE	FALSE	FALSE
db_block_buffers	8 GB	12 GB		
db_block_checksum	TRUE	TRUE	TRUE	TRUE
db_block_size	16 kB	16 kB	16 kB	16 kB
db_cache_advice			ON	ON
db_cache_size			8 GB	12 GB
db_file_multiblock_read_count	16	16	16	16
db_files				
db_keep_cache_size			2 GB	4 GB

Table 12: Stand-Alone Data Warehouse Instance Parameters (2 of 3)

Oracle Parameter Name	V. 8.1.7.4 X-Large (30,000 - 60,000)	V. 8.1.7.4 Custom (› 60,000)	V. 9.2.0.4 X-Large (30,000 - 60,000)	V. 9.2.0.4 Custom (› 60,000)
db_recycle_cache_size				
db_writer_processes	4	6	4	6
dbwr_io_slaves				
disk_asynch_io	TRUE	TRUE	TRUE	TRUE
dml_locks	768	768	768	768
enqueue_resources	968	968	968	968
hash_area_size			10 MB	15 MB
hash_join_enabled	TRUE	TRUE	TRUE	TRUE
java_pool_size	20 MB	20 MB	20 MB	20 MB
large_pool_size			1200 MB	1200 MB
log_parallelism	1	1	1	1
log_buffer	200 MB	400 MB	200 MB	400 MB
log_checkpoint_interval	9600	14400	9600	14400
log_checkpoint_timeout	1800	1800	1800	1800
nls_language	American	American	American	American
open_cursors	1000	1000	1000	1000
parallel_execution_message_size	32 kB	32 kB	32 kB	32 kB
parallel_automatic_tuning	FALSE	FALSE	TRUE	TRUE

TABLE 12: STAND-ALONE DATA WAREHOUSE INSTANCE PARAMETERS (3 OF 3)

ORACLE PARAMETER NAME	V. 8.1.7.4 X-LARGE (30,000 - 60,000)	V. 8.1.7.4 CUSTOM (› 60,000)	V. 9.2.0.4 X-LARGE (30,000 - 60,000)	V. 9.2.0.4 CUSTOM (› 60,000)
parallel_max_servers	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs	Twice the number of CPUs
parallel_threads_per_cpu	2	2	2	2
pga_aggregate_target	1.4 GB	2.0 GB	1.4 GB	2.0 GB
processes	150	200	150	200
sort_area_retained_size	20 MB	40 MB	20 MB	40 MB
shared_pool_reserved_size	200 MB	200 MB	200 MB	200 MB
shared_pool_size	800 MB	800 MB	800 MB	800 MB
sort_area_size	200 MB	400 MB	AUTO	AUTO
undo_management	-	-	TRUE	TRUE
workarea_size_policy	-	-	AUTO	AUTO

Physical Table Parameters

Table 13 lists physical table parameters that should be changed to support parallel query and DML operations. For more information, see the Oracle Administration Guide, or the Oracle SQL Reference Manual.

Table 13: Physical Table Parameters

Parameter	Small (< 2,000)	Medium (2,000 - 10,000)	Large (10,000 - 30,000)	X-Large (30,000 - 60,000)	Custom (> 60,000)
ini_trans	2	2	2	4	8
pct_free	5	5	5	5	5
pct_used	90	90	90	90	90
freelists	32	32	32	32	32
cache	Yes	Yes	Yes	Yes	Yes

Collection Server Performance Tuning

One Collection Server can support up to 10,000 Blazent Agents. Therefore, a large, extra-large, or custom installation requires deployment of multiple Collection Servers.

To tune a Collection Server for better performance, you should configure parameters for the Windows machine on which it runs, as well as the actual Collection Server application.

MACHINE PARAMETERS

Table 14 describes the parameters that should be configured on a Collection Server Windows 2000 machine.

TABLE 14: COLLECTION SERVER MACHINE PARAMETERS

PARAMETER	LOCATION	DESCRIPTION
Maximize Data Throughput for Network Applications	1. Right-click My Network Places and choose Properties. 2. Right-click Local Area Connection and choose Properties. 3. Select File and Printer Sharing for Microsoft Networks. and click Properties. 4. Select Maximize data throughput for network applications.	This setting significantly reduces the number of page faults that occur under high-load conditions. This setting also improves cache management.
Disable Performance Optimization for Applications	1. Right-click My Computer and choose Properties. 2. In the Advanced tab, click Performance Options. 3. In the Application Response area, choose Background services.	If the Collection Server is a dedicated machine, disable this parameter so that Windows maximizes the number of CPU cycles that are available to the Collection Server.
Modify the Number of TCP/IP User Ports	Use regedit to set `HKEY_LOCAL_MACHINE/System/CurrentControlSet/Services/Tcpip/Parameters/MaxUserPort` to `0xFFFE`.	This setting increases the number of ports so that one is available whenever a request arrives.

Application Parameters

Table 15 describes the settings that should be configured during Collection Server installation. You can also modify these settings after installation by editing `<install_dir>\BlazentCollectionServer\conf\server.xml`.

Table 15: Collection Server Application Settings (1 of 3)

Setting	Post-Installation Setting Location	Value
Minimum JRE Heap Size	In `<install_dir>\BlazentCollectionServer\conf\jk\wrapper.properties`, edit the following line: `wrapper.cmd_line=$(wrapper.javabin) -Xms32m -Xmx64m ...` Replace the 32 with the minimum JRE heap size, in Megabytes. For example, if you have 2GB of total memory, enter -Xms256m Save the properties file and restart the Blazent Server service.	256 MB for 1 GB total memory, 512 MB for 2 GB total memory, 2 GB for 4 GB total memory, and so on.

TABLE 15: COLLECTION SERVER APPLICATION SETTINGS (2 OF 3)

SETTING	POST-INSTALLATION SETTING LOCATION	VALUE
Maximum JRE Heap Size	In <*install_dir*>\BlazentCollection Server\conf\jk\wrapper.properties, edit the following line: `wrapper.cmd_line= $(wrapper.javabin) -Xms32m -Xmx64m ...` Replace the 64 with the maximum JRE heap size, in Megabytes. For example, if you have 2GB of total memory, enter -Xmx512m Save the properties file and restart the Blazent Server service.	256 MB for 1 GB total memory, 512 MB for 2 GB total memory, 1024 MB for 4 GB total memory, and so on.
Swap space		2 GB
Minimum processors	minProcessors setting in <install_dir>\BlazentCollection Server\conf\server.xml	
Maximum processors	maxProcessors setting in <install_dir>\BlazentCollection Server\conf\server.xml	
Accept count	acceptCount setting in <install_dir>\BlazentCollection Server\conf\server.xml	

TABLE 15: COLLECTION SERVER APPLICATION SETTINGS (3 OF 3)

SETTING	POST-INSTALLATION SETTING LOCATION	VALUE
Timeout	connectionTimeout setting in `<install_dir>\BlazentCollection Server\conf\server.xml`	
Database connection pool size	In `<install_dir>\BlazentCollection Server\webapps\blazent\Configuration\dbconfig.xml`, edit the `MAXPOOL` parameter.	200 per processor

DATA INTEGRATION SERVICES PERFORMANCE TUNING

The amount of memory (JVM heap size) that is allocated to the Embarcadero DT/Engine changes with the size of the installation. The minimum and maximum heap sizes (which should be identical) should be equivalent to half of the total physical memory that is available to Embarcadero.

- During Embarcadero installation, you can set the minimum and maximum heap size in the JVM Settings screen. Set both Min. heap size (MB) and Max. heap size to half of the value for Total physical memory (MB).
- After installation, you can configure these settings by editing the `dtengine.ja` file under `DT_HOME/bin`. For example, if you want to specify a minimum and maximum heap size of 512 MB, edit `dtengine.ja` as follows:

```
%IF_EXISTS%("INIT_JAVA_HEAP", "@INIT_JAVA_HEAP@512m")
%IF_EXISTS%("MAX_JAVA_HEAP", "@MAX_JAVA_HEAP@512m")
```

ANALYTICS SERVER PERFORMANCE TUNING

To tune an Analytics Server for better performance, you should:

- run the `AnalyzeWarehouseDB` task in Embarcadero to optimize the Data Warehouse for reports.
- configure parameters for the Windows machine on which it runs.
- configure parameters for the MicroStrategy application.
- configure parameters for the web server.

THE ANALYZEWAREHOUSEDB TASK

To fully optimize the Data Warehouse for reporting, Blazent Data Integration Services includes a task called `AnalyzeWarehouseDB`. Normally scheduled to run once a week on a non-work day, this task should be initially executed after running several reports in Blazent Analytics. Running several reports before running `AnalyzeWarehouseDB` provides the task with enough data to tune the Data Warehouse more effectively.

MACHINE PARAMETERS

Table 16 describes the parameters that should be configured on an Analytics Server Windows 2000 machine. See the Tuning Guidelines for MicroStrategy 7.x PDF document for additional details.

TABLE 16: ANALYTICS SERVER MACHINE PARAMETERS (1 OF 3)

PARAMETER	LOCATION	DESCRIPTION
Maximize Data Throughput for Network Applications	1. Right-click My Network Places and choose Properties. 2. Right-click Local Area Connection and choose Properties. 3. Select File and Printer Sharing for Microsoft Networks, and click Properties. 4. Select Maximize data throughput for network applications.	This setting significantly reduces the number of page faults that occur under high-load conditions. This setting also improves cache management.
Disable Performance Optimization for Applications	1. Right-click My Computer and choose Properties. 2. In the Advanced tab, click Performance Options. 3. In the Application Response area, choose Background services.	If the Analytics Server is a dedicated machine, disable this parameter so that Windows maximizes the number of CPU cycles that are available to MicroStrategy.
Modify the Number of TCP/IP User Ports	Use regedit to set `HKEY_LOCAL_MACHINE/System/CurrentControlSet/Services/Tcpip/Parameters/MaxUserPort` to `0xFFFE`.	This setting increases the number of ports so that one is available whenever a request arrives.
Modify the TCP/IP Window Size	Use regedit to set `HKEY_LOCAL_MACHINE/System/CurrentControlSet/Services/Tcpip/Parameters/TCPWindowSize` to `0x4470`.	Increasing this setting prevents the MicroStrategy service from stopping because of a full window.

TABLE 16: ANALYTICS SERVER MACHINE PARAMETERS (2 OF 3)

PARAMETER	LOCATION	DESCRIPTION
Modify HeapMaxSize	1. Use regedit to set `HKEY_LOCAL_MACHINE/Software/MicroStrategy/JNI Bridge/Configuration/JVM Options/HeapMaxSize` to 256 MB or larger. 2. Use the Windows Services control panel to restart IIS, the World Wide Publishing Service, and MicroStrategy Intelligence Server 7.	This setting prevents java.lang.OutOfMemoryErrors from occurring when a user is running a report that returns a large amount of data.
Tune ProcessorThreadMax	1. Open a command prompt and navigate to the `inetpub\adminscripts` directory. 2. Type: `adsutil.vbs set w3svc/aspprocessorthreadmax 10`	This setting defines the number of threads that IIS allocates for ASP processing for each CPU. To tune this value, begin with 10 (20 for large, extra-large, and custom installations), and then adjust it according to the level of CPU utilization at peak hours. You should aim to observe 50-60% CPU utilization during off-peak hours, and close to 100% utilization during peak times.

TABLE 16: ANALYTICS SERVER MACHINE PARAMETERS (3 OF 3)

PARAMETER	LOCATION	DESCRIPTION
Tune RequestQueueMax	1. Open a command prompt and navigate to the `inetpub\adminscripts` directory. 2. Type: `adsutil.vbs set w3svc/asprequestqueuemax 10`	This setting controls the queue that allows the web server to keep requests that could not be immediately processed by the ASP threads. A request queue that is too small results in "Server Too Busy" errors, while a request queue that is too large results in a site that appears to hang. The ideal setting ensures good response time, while minimizing the "Server Too Busy" condition. Requests should also be processed within the response time limit of 20 seconds. To tune this setting, start with a value equal to ten times the value for ProcessorThreadMax. (Use twenty times the number of total threads for large, extra-large, and custom installations.) Monitor the web server's queue size and response times and adjust the setting accordingly.
Modify the Number of Script Engine Caches	1. Open a command prompt and navigate to SystemRoot\System32\inetsrv\adminsamples. 2. Type: `adsutil.vbs SET W3SVC/AspScriptEngineCacheMax N` where *N* is equal to `ProcessorThreadMax` x the number of CPUs in the machine.	This setting controls the number of ASP threads that can cache a script engine. ASP pages are processed more efficiently if a script engine cache is in place. To tune this setting, start with the default value.

MICROSTRATEGY PARAMETERS

Table 17 describes the parameters that can be tuned within the MicroStrategy application.

TABLE 17: MICROSTRATEGY PARAMETERS (1 OF 2)

PARAMETER	SMALL (< 2,000)	MEDIUM (2,000 - 10,000)	LARGE (10,000 - 30,000)	X-LARGE (30,000 - 60,000)	CUSTOM (> 60,000)
Maximum Number of Caches The number of caches that the MicroStrategy Intelligence Server will store.	10000	10000	10000	10000	10000
Number of Database Connections The number of database connections. Blazent recommends that you keep this value between 40 and 60. Each connection that you add uses more server resources.	10	10	20	40	60
Number of Connection Threads The number of network threads that can take requests from a web client. Each network thread can manage 64 connections.	10	10	10	10	10
Max Number of Elements to Display	2000	2000	2000	2000	2000
Max Report Execution Time	600	600	1200	1200	1200
Max Number of Report Result Rows	32000	32000	32000	32000	32000

Table 17: MicroStrategy Parameters (2 of 2)

Parameter	Small (< 2,000)	Medium (2,000 - 10,000)	Large (10,000 - 30,000)	X-Large (30,000 - 60,000)	Custom (> 60,000)
Max Number of Element Rows	32000	32000	32000	32000	32000
Max Number of Intermediate Rows	32000	32000	32000	128000	320000
Max Jobs Per User	100	100	100	100	100
Max Jobs Per User Session	100	100	100	100	100
Max Jobs Per Project	1000	1000	1000	1000	1000

Web Server Parameters

Table 18 describes the parameters that should be configured on the Blazent Analytics web server.

Table 18: Web Server Machine Parameters (1 of 2)

Parameter	Location	Description
Tune Web Server Performance	1. From the Start menu, choose Programs > Administrative Tools> Internet Services Manager. 2. Expand the name of the machine in the left navigation bar. 3. Right-click Default Web Site and choose Properties. 4. In the Performance tab, set the Performance Tuning bar to More than 100,000.	This setting optimizes the web server for a large number of hits.

TABLE 18: WEB SERVER MACHINE PARAMETERS (2 OF 2)

PARAMETER	LOCATION	DESCRIPTION
Disable IIS Logging	1. From the Start menu, choose Programs > Administrative Tools> Internet Services Manager. 2. Expand the name of the machine in the left navigation bar. 3. Right-click Default Web Site and choose Properties. 4. In the Web Site tab, unselect the Enable Logging option.	This setting disables web server logging. By disabling logging, more resources are available to support Blazent Analytics users. If you need to keep logging enabled, make sure that the path to the log file maps to a partition with a controller that allows write-back caching.
Minimize the Session Timout value	1. From the Start menu, choose Programs > Administrative Tools> Internet Services Manager. 2. Expand the name of the machine in the left navigation bar. 3. Right-click Default SMTP Virtual Server and choose Properties. 4. In the General tab, click Connection. 5. Modify the two Time-out (minutes) text boxes to an appropriate value.	This setting specifies how quickly a session will time out during user inactivity. The sooner an idle session times out, the sooner more system resources are available for active users. Blazent recommends that you set this value between 5-10 minutes.
Increase the Request Timeout value	In the Blazent Analytics Administrator page (accessible with a link from the Analytics Home page, or by using `http://<AnalyticsServer>/blazent/admin`), change Request timeout to `300`.	This setting specifies how long the web server should wait for a prompt to load before issuing a time out error. Blazent recommends that you set this value to 300 seconds (5 minutes).

MAINTENANCE

This chapter describes common procedures for maintaining your IT Intelligence Software installation.

RUNNING THE ANALYZE TASKS

To fully optimize the Data Warehouse and Collection Database, Blazent provides two tasks in Data Integration Services that analyze normal use patterns to make the databases more efficient:

- AnalyzeCollectionDB. This task optimizes the performance of the Collection Database. Schedule this task chain to run once a week on a non-work day (such as Saturday).
- AnalyzeWarehouseDB. This task optimizes the performance of the Data Warehouse. Schedule this task chain to run once a week on a non-work day (such as Saturday). To make the best use of this task, run it for the first time only after you have run several reports in Blazent Analytics.

RUNNING THE PURGE UTILIZATION TABLE TASKS

Blazent also provides tasks in Data Integration Services that delete outdated utilization information from the Collection Database. Regularly removing outdated data ensures consistent database performance:

- purgeUtilDataHourly. This task deletes outdated hourly utilization data from the Collection Database. Schedule this task to run once a day after scheduled_tasks completes.
- purgeUtilDataMonthly. This task deletes outdated monthly utilization data from the Collection Database. Schedule this task to run on the first weekend of every month after scheduled_tasks completes.

REMOVING OUTDATED MICROSTRATEGY TEMP TABLES

When generating reports, MicroStrategy uses temporary tables in the Data Warehouse to improve performance. These tables are prefixed with the letters ZZ, and are deleted at the end of each report query. If a report quits unexpectedly, the temporary tables are not deleted and must be removed manually to release the disk space.

To reclaim disk storage, Blazent recommends that database administrators periodically cleanse the Data Warehouse of all tables that begin with the letters ZZ and that are more than one week old.

Backing Up Blazent Databases

Blazent recommends that you schedule regular backups of all databases according to the backup procedure that is currently in use at your organization. Since Blazent databases run in `NOARCHIVELOG` mode to improve performance, you must rely on the backups that you create in case of a fatal server crash.

You can back up data in your Collection Database and Data Warehouse by periodically exporting the contents of the databases to other files. Use the import and export procedures below for these tasks.

Exporting Data from the Collection and Data Warehouse Databases

Blazent provides standard scripts for backing up the Collection Database and Data Warehouse. These scripts use the Oracle export utility:

- To export the Collection Database, run `bzbs_export_blazent_db.bat` from the Oracle `bin\blazent` directory (for example, `C:\oracle\ora<release>\bin\blazent`). The data is saved to `blazent_db.dmp` in the same directory.
- To export the Data Warehouse, run `bzbs_export_blazent_dw_db.bat` from the Oracle `bin\blazent` directory (for example, `C:\oracle\ora<release>\bin\blazent`). The data is saved to `blazent_dw_db.dmp` in the same directory.

IMPORTING DATA INTO A COLLECTION OR DATA WAREHOUSE DATABASE

To import standard category data and other tables from an export (`.dmp`) file, use the following procedure:

NOTE: Importing overwrites existing data, and may cause invalid data if not done properly. If you import over an existing database, all previous data is lost. This procedure should only be performed to restore a database that was backed up, or to duplicate an instance for troubleshooting purposes.

- To import the Collection Database, run `bzbs_import_blazent_db.bat` from the Oracle `bin\blazent` directory (for example, `C:\oracle\ora<release>\bin\blazent`). The `blazent_db.dmp` file must exist in the same directory with the same name.
- To import the Data Warehouse, run `bzbs_import_blazent_dw_db.bat` from the Oracle `bin\blazent` directory (for example, `C:\oracle\ora<release>\bin\blazent`). The `blazent_dw_db.dmp` file must exist in the same directory with the same name.

USING BLAZENT ANALYTICS

The Blazent Analytics web application displays interactive reports that allow IT professionals to understand the hardware and software deployments within an organization.

This chapter introduces this application, and describes various features that appear throughout the Analytics web interface. For more detailed information about the features that are described here, or for information on specific reports, see the *Blazent Analytics Online Help*.

OPENING BLAZENT ANALYTICS

To open Blazent Analytics:

1. Use Internet Explorer to open the following URL:

   `http://<AnalyticsServerName>/blazent`

   where <*AnalyticsServerName*> is the name of your Analytics Server.

2. Enter a valid User name and Password, and click Login.

   If your system administrator has enabled the Guest user, you can click the Log In as Guest link to log in as an anonymous user. When you do, you are subject to the permissions established for this user as set by the administrator. See "Using Blazent Analytics as the Guest User," on page 102 for more information.

USING BLAZENT ANALYTICS AS THE GUEST USER

When accessing Blazent Analytics through the Guest user account, all modifications and requests are saved only for the duration of the session. Different Guest users are identified by session ID so that no Guest user can view the History List from any other Guest user session. When a Guest user terminates a Web session, Blazent Analytics releases all data associated with that session.

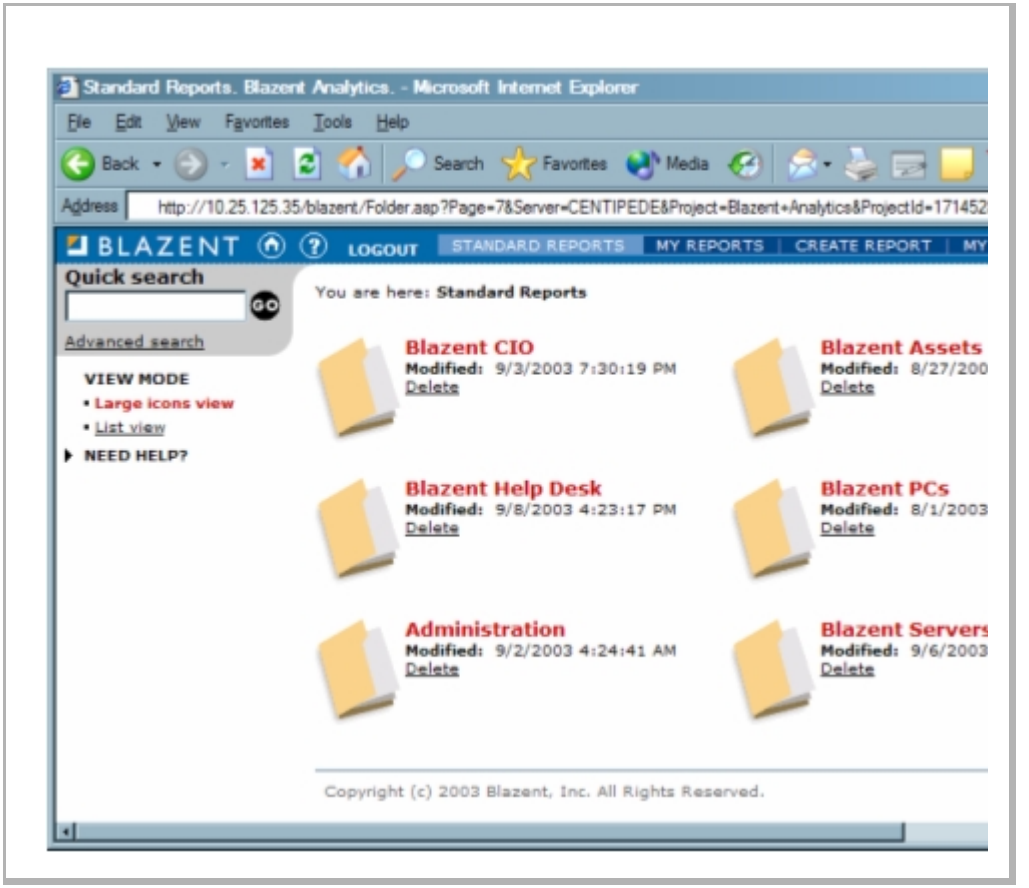
Although the Guest user is treated differently, the security settings for this user are configured in the same way as for other users. The permissions granted to the Guest user are determined by the administrator.

BLAZENT ANALYTICS APPLICATION WINDOW

The Blazent Analytics Application window (Figure 8, on page 103) is composed of the following areas:

- The Toolbar, located in the blue band at the top of the screen, allows you to access report creation and subscription tools, and preferences.
- The Quick Search box, located in the grey area under the toolbar on the left, allows you to search for reports either in the Blazent Analytics or My Reports folders.
- The left side bar provides access to the View Mode preference and Blazent Analytics online help.
- The main navigation window displays the contents of the area that you are currently viewing (often report directories or a report or document).

Figure 8: Blazent Analytics Application Window



THE TOOLBAR

Table 19 displays descriptions of the toolbar buttons that appear at the top of the application window.

TABLE 19: BLAZENT ANALYTICS TOOLBAR OPTIONS

BUTTON	DESCRIPTION
	The Blazent Analytics application page from which you log in.
	The Blazent Analytics online help system.
Logout	A button that allows you to log out of the Blazent Analytics system.
Standard Reports	The default start page for Blazent Analytics.
My Reports	A location that you can use for saving personal reports.
Create Report	An area that allows you to define customized reports.
My Subscriptions	A list of all of the reports to which you have subscribed.
History List	A list of the reports that were executed recently, with status information.
Preferences	User preferences that allow you to customize the look, feel and functionality of your Blazent Analytics application.

THE QUICK SEARCH BOX

Blazent Analytics allows you to search for folders, reports, and documents anywhere within a project:

- Simple Search allows you to search for objects (folders, reports and documents) by name in all folders, Blazent Analytics, My Reports, or in the folder currently open.

- Advanced Search provides additional options, such as searching by object type, owner, description, or creation/modification date.

To perform a quick search, type the report, folder, or document name (or part of the name) in the Quick search field at the top left of the page. If you are in either Standard Reports or My Reports, your search is limited to reports stored in that folder. If you are in another location (such as the History List or the Preferences page), Blazent Analytics searches the entire project.

NOTE: By default, Blazent Analytics limits the maximum number of reports, documents, and folders returned in any search to 50.

VIEW MODE

When you select Standard Reports, My Reports, or My Subscriptions from the toolbar, the left side bar displays the View Mode heading, where you can specify how the reports in this area should be displayed:

- Select List view to display objects in a list. This view does not require as much screen space.
- Select Large Icons to display objects with large icons.

YOU ARE HERE

While you are browsing folders, Blazent Analytics displays the full folder path on the top of your page. You should see You are here: followed by the folder path. You can navigate to any folder in the path by clicking the name of that folder in the path.

NOTE: In the History List and Preferences pages, the You are here: folder path is replaced by a Return to: link, which allows you to return to the last folder visited or to the last report or document displayed.

My Reports

The My Reports folder (available from the toolbar) is the location that you can use for saving personal reports. Under My Reports, you can also create subfolders to organize your reports.

You may not have access to the My Reports folder if:

- You are logged in as the Guest user.
- Your administrator has imposed restrictions on users or user groups regarding access to the My Reports folder.

Create Report

The Create Report area of Blazent Analytics allows you to define a customized report either with the Report Builder or the Report Wizard.

- The Report Builder allows you to build a new Blazent Analytics report by defining your own report attributes, metrics, and filters.
- The Report Wizard allows you to build a new Blazent Analytics report by selecting from a collection of pre-built templates and filters.

My Subscriptions

The My Subscriptions web page (available from the toolbar) lists each document or report to which you are subscribed. You can click on the icon next to the document name to view the most recent report or document results.

Each row of the subscriptions list specifies the following information:

- Name. The name of the report. You can click this link to open the most recently generated results.
- Personalized. Specifies whether the report is personalized with default prompt responses.
- Schedule. Specifies how often the report is executed.

Click Edit to change your subscription options.

To delete a subscription for a report or document, select the checkbox to the right of the report and click Unsubscribe at the top of the section.

HISTORY LIST

The History List (available from the toolbar) displays messages about every report and document that was executed in Blazent Analytics. Each message shows the status of the request and other identifying information, such as the report or document name, and the time at which the message was created:

- A status of Ready means that a report or document has been fully executed. Click the report or document name in the History List to view it.
- A status of Error means that the report or document did not execute successfully. Click the report or document name to display the error page.

If the report or document is either not ready or not in error, click the report or document name to be directed to the wait page, where you can further track the status of your request.

If a plus sign (+) is displayed to the left of a document message, click it to see the underlying children reports for that document.

NOTE: Reports do not remain in the History List indefinitely. The number of reports that each user can have in the History List and the length of time that the reports remain there can be controlled by the administrator.

PREFERENCES

User preferences (available from the toolbar) allow you to customize the look, feel and functionality of Blazent Analytics. You can set preferences in the following areas:

- General. Controls DHTML, start page, language, and accessibility settings.
- Grid display. Controls default display options for report grids.
- Graph display. Controls default display options for report graphs.
- Print. Controls default settings for printing reports.
- Export. Controls default settings for exporting reports.
- PDF. Controls defaults settings for producing PDF versions of reports.
- Drill mode. Controls whether to always keep or hide the parent report when drilling down.
- Prompts. Controls whether application prompts are displayed one step at a time, or all at once.
- Logout. Controls the handling of running reports and report histories when you log out of Blazent Analytics.
- Change my password. Allows you to change the password that you use to log into Blazent Analytics.

USING REPORTS

Blazent Analytics reports are powerful tools that allow you to analyze and understand the software and hardware needs of your organization. Through the approximately 75 reports that are available in the Standard Reports directories, you can access thousands of additional reports by drilling into the data through the links that are provided.

For example, starting from the PC Inventory Analysis report which displays counts of the numbers of desktop and laptop PCs in your organization, you could drill-down until you uncovered details about an individual hardware device on a single machine in that group.

You can also refine reports by moving data columns to different locations in a grid,and by filtering out data that does not interest you. All report data can also be sorted on any report column.

REPORTS START PAGE

The Standard Reports start page includes six directories of reports that allow you to analyze and understand the software and hardware needs of your organization. Reports are organized into the following directories:

- Blazent CIO. Executive overviews of the software and hardware needs of your organization.
- Blazent Assets. Reports that provide limited information about all machines on your network, including those without installed Blazent Agents.
- Blazent Help Desk. Reports that profile server and software usage by user.
- Blazent PCs. Reports on the personal computers used by individuals in your organization.
- Administration. Diagnostics of your Blazent Analytics application, including agent, user, data warehouse, and software categorization reports.
- Blazent Servers. Reports on the servers in your organization.

For complete information on specific reports, see the *Blazent Analytics Online Help.*

REPORTS AND DOCUMENTS

Blazent Analytics reports are executed either as reports or documents:

- Reports are displayed as a single grid or graph. All drilling options and menus are available.
- Documents are used to display multiple reports on the same page. Documents include the default drill links (when available), but do not offer the other drill options or menus. You must navigate to a report version of the document for those features to be available (click the link at the bottom of the report area in the document page).

EXECUTING REPORTS

To execute a report, click the name of the report either while browsing through the Standard Reports, My Reports, or History List directories, or when viewing a document with multiple reports.

When a report is executing, a Wait page is sometimes displayed if results are not immediately returned. The Wait page contains the report or document name and its current execution status. When your report or document is ready, the report results page automatically replaces the wait page. You can perform the following actions while viewing the Wait page:

- Check Status Again. Manually refreshes the status of the Wait page. The page normally refreshes itself about every five seconds.
- Add to My History List. Adds information regarding the execution status of this report to your History List. You can browse to other areas of the application while the report executes, and return to the report results by accessing the History List page at a later time.
- Cancel this Request. Cancels the report during execution and returns you to the folder from which you made the request.

Saving Reports

Blazent Analytics allows you to make changes to reports and save them for easy access at a later time. To save a report:

1. In the current report, click the Save icon. The Save page opens with the original report name as the default in the Save report as field.
2. For the Save report within option, select the location in which you want to save your report. Choose Standard Reports or My Reports (depending on your user privileges), and browse to any folder under one of these locations. The default location is the folder from which you selected the current report.

   For example, if you are saving a report that was located in the Blazent PCs folder, the default location is Blazent PCs.

   If you wish to create a new folder for your saved report, enter a name for the folder in the Create a new folder text box and click Create Folder. The new folder appears under Save report within.
3. In the Save report as field, enter a report name. To save the original report with any changes you might have made, leave the default name. To save the report as a new, distinct report, enter a new name in this box.
4. In the Description text box, you can enter a description of your report.
5. If you are saving a prompted report, select one of the Save prompt options:
   - Save the report as a static definition. If you select this option, the report is saved with the current template and filter information. Upon executing the report, you are not prompted again.
   - Save the report with any prompts embedded in the filter. If you select this option, the report is saved with the current template intact. Upon executing the report, you are prompted for the filter information only.
   - Save report with all the embedded prompts. If you select this option, you are prompted on all the original prompts, with your last selections saved as default values.
   - Save modifications to report filter. If you modify the report filter of a prompted report, this option attempts to save those manipulations in addition to the prompts. Because some manipulations may depend on the answers given to the prompts, some prompt questions may not be saved.

- Embed filter and template into saved report definition. The report is saved with the filter and template embedded into the definition of the report. When selected, the new report will not access the report cache of the original report, even if the original definition included a linked filter and template.

  Note: You are only prompted on the template if you have object prompts associated with your report. If there are no object prompts, or if the template is static, the behavior appears to be the same as Save report and prompt on filter only.

6. Click Save Report.

NOTE: If you chose the name of a report that already exists in the selected folder, you are asked if you want to overwrite the original report. To save your changes, click Overwrite

SUBSCRIBING TO REPORTS

You can choose to have a report or document automatically executed on a regular schedule or when a specific event occurs. After execution, the results are accessible in the History List or My Subscriptions web pages when you need them, without the wait time required for processing reports on demand.

To subscribe to a report or document:

1. If you are viewing the report or document, select Report > Subscribe, or Document > Subscribe.

   If you have not yet executed the report and are viewing it in the Standard Reports or My Reports folder, click the Subscriptions link below the report icon (in Large Icons view), or in the Subscriptions column. A subscription panel displays.

2. In the Choose a schedule field, select a schedule or event from the drop-down list.

3. If the report includes prompts, all prompts are displayed if you are not subscribing to an open report. The selections you make for these prompts are used whenever the subscribed report is run.
4. Click OK.

To make any changes to a saved subscription, use the My Subscriptions web page available from the toolbar.

MANIPULATING REPORT FORMAT AND DATA

The power of the Blazent Analytics application lies in the multiple ways in which users can manipulate report format and data in order to customize information for various needs. This section summarizes the ways in which reports can be manipulated.

DISPLAYING GRIDS AND GRAPHS

Blazent Analytics allows you to view a report as a grid, a graph, or as both a grid and a graph simultaneously by choosing the appropriate option in the top-right toolbar or from the View menu:

- Click the Report Grid button or choose View > Grid to view the report as a grid only.
- Click the Report Graph button or choose View > Graph to view the report as a graph only.
- Click the Report Grid and Graph button or choose View > Grid and Graph to view the report as a grid and graph at the same time.

FORMATTING GRAPHS

The Graph Formatting toolbar allows you to change graph display settings. You can access the toolbar from the View menu by choosing Toolbars > Format. This option is only available when a graph is displayed.

FORMATTING GRIDS

The following methods can be used to format grids:

AUTOSTYLES

You can format grids with a pre-defined set of formatting options by choosing an Autostyle. To select an Autostyle:

1. If it is not already displayed, access the Report toolbar from the View menu, by selecting Toolbars > Report.
2. Select a new style from the Autostyle drop-down list. The report automatically updates with the new style.

MERGING COLUMN HEADERS

Blazent Analytics allows you to either show all column header values or merge those that are repeated. For example, if three metrics on the report are related to the Sales department, do you want all three columns to have Sales in the header or merge the column headers? If merged, Sales appears only once for the three related columns.

To merge column headers for a report, from the Format menu, choose Merge Column Headers.

This preference is stored with the report definition. You can also set it for all reports in Grid Display user preferences.

BANDING

You can apply alternating background colors for rows on a report (banding). If a report is saved, the current banding setting is saved along with the report definition. Note that the current setting is overridden if the Autostyle is changed (each Autostyle has banding turned on or off by default).

To show banding, from the Format menu, select Show Banding.

OUTLINE MODE

Outline mode allows you to expand and collapse sections of data to control what portion of the report to view. To view a report in outline mode, from the Format menu, choose Outline.

With most reports, small plus sign icons appear to the left of each header in the left-most column. You can click these plus signs to expand the data for that header, and then click them again to re-collapse the data.

Above the left-most column header numbered buttons are also displayed, one for each outline level. To expand a specific level of the report and all levels above it, click the button with the number for that level. The top-most level is assigned the number 1.

For example, to expand all levels and show all detail in the report, click the button with the highest number. To collapse all levels in the report except the top level and show only summary data in the report, click the button with the lowest number.

NOTE: Outline mode works only if DHTML is enabled.

MANIPULATING REPORT DATA

You can move an object, such as a metric or attribute, on a report to change the report's layout. (This is sometimes called pivoting.) Depending on whether DHTML is enabled in your user preferences, there are several ways to do this:

- Click on the object's header and drag it to the new location on the report or to the Page-by area above the report. The positions where it can be dropped are highlighted while you drag it.
- Right-click on the object's header and select Move. Then select the desired option.
- If pivot buttons are displayed, click the button representing the direction in which you wish to move the object.

SORTING DATA

You can sort any column of data in a report by clicking the column header. Choosing a column to arrange its values in ascending or descending order rearranges data in all of the columns appropriately.

To sort a report by a column:

- If DHTML is enabled and the Show pivot buttons are not displayed, right-click the column header and select Sort > Ascending or Sort > Descending.
- If the Show pivot buttons are displayed:

	Not sorted. Click this button to sort the data in descending order.
	The column is sorted in ascending order. If you click this button, the data is resorted in descending order.
	The column is sorted in descending order. If you click this button, the data is resorted in ascending order.

SORTING DATA BY MULTIPLE COLUMNS

You can sort a report by up to three columns. For example, in a report that shows license cost within multiple departments, you could sort first by department then by cost. This allows you to see the most costly departments. To do this:

1. From the Data menu, select Sort. The Sort panel is displayed. Select the first column name to sort by from the drop-down list, and whether to sort it in ascending or descending order.
2. Select the second and third columns (optional) as in the previous step.
3. Click Apply to view the report with these sorting selections.

FILTERING ON SELECTIONS

You can set whether rows or columns of information should be kept on or removed from a report by filtering. For example, if a report has more rows of information than you wish to view, you can specify which ones to keep and which to discard. To do this:

1. From the Data menu, select Filter on Selections... The report appears with a check box for each column and row in the report.
2. Select those rows and columns that you wish to keep on the report.
3. In the Filter on Selections panel above the report, click Filter. The report is displayed with only the elements you selected.

PIVOT BUTTONS

Pivot buttons allow you to manipulate report data by moving an attribute or metric in a specified direction:

	Move to the left		Move to the right
	Move up		Move down
	Moves row headers to column headers in a new row.		Moves column headers to row headers in a new column.
	Moves the object to the Page-by axis.		Moves the object out of the Page-by axis into the columns of the report.

To show / hide pivot buttons, from the View menu, select Show Pivot buttons.

PAGE BY

Page-by allows you to break up a large report into smaller, more manageable sections, by placing one or more attributes and metrics from a report onto a "third axis." Much as you can move from worksheet to worksheet in Microsoft Excel, you can move from value to value of the page-by attribute to view only that portion of the data on a single screen.

For example, if you are viewing a report that shows Hardware Peripherals and Computers, you can place Computer on the Page-by axis, and view the Peripherals for one computer at a time.

To place an attribute or metric in the Page-by axis, do one of the following:

- Right-click on the attribute or metric header and select Move > To Page Axis.
- Drag the attribute or metric header to the Page-by box above the report. The Page-by area is highlighted to indicate when you can drop it.
- If enabled, use Pivot buttons.

When an item is placed in the Page-by area, the item's name is displayed with a drop-down list containing its available values. The report shows only the data related to the value selected in the drop-down list.

NOTE: There can be multiple attributes and metrics in the Page-by axis at a single time.

DRILLING

Drilling allows you to navigate to different levels of information within a report. You can drill from one level of information to lower or higher levels of detail.

For example, if you are viewing a report with Department, Job Title, and Employee categories, and you run a report that shows only the Job Title category, you can drill down from Job Title to see the data for individual employees with that job. Conversely, you can drill up from Job Title to view information about the whole department to which employees with that job title belong.

This hierarchical relationship is sometimes referred to as a parent-child relationship. In the preceding example, Department is the parent of Job Title, Job Title is the child of Department and the parent of Employee, and Employee is the child of Job Title.

To drill in a report:

- To view the basic Drill area, from the Data menu select Drill. You can also right-click anywhere in a report grid to view the same options.
- To access the Advanced Drill area, right-click an object and select More options...
- To drill to the default option for a particular entry in a grid report, click any link that appears in the report grid. If you place the mouse pointer over the link, a tooltip displays the drill location. If an element is not displayed as a link it does not have a default drill option.

DRILLING-DOWN ON COMPOUND METRICS

Another type of link drilling appears if compound metrics exist in the report. You can click the Metrics column header and break down the compound metrics to their simple metrics. This action is the same as performing a simple drill and selecting Drill to child metrics with no rows or columns selected.

DRILLING ON GRAPHS

If a report is formatted as a graph, you can drill to different levels of data by clicking directly on the graph itself or on its text labels. This action displays a new graph based on the default drill action defined by the report designer:

- Clicking a graph element (such as a bar in a bar graph) is similar to drilling on a row and column in a grid report.
- Clicking an X axis label is the same as clicking a row in a grid report.
- Clicking a Legend label is the same as clicking a column in a grid report.

If there is no valid drill path for the portion of the graph you clicked, the original graph reappears.

DISPLAYING TOTALS

A report can have totals and subtotals defined for it and saved as part of the report definition. You can add additional totals to the report, toggle totals on or off (once they have been added), and remove them permanently.

To add totals to a report, from the Data menu, select the name of the desired "function" (such as Total, Max, Min, Count, and so on), then select one of these choices:

- All Subtotals. Displays subtotals at all attribute levels, including grand totals.
- Grand Totals Only. Displays just the Grand Totals at the bottom right of the grid.

BLAZENT ANALYTICS ONLINE HELP

As you work with Blazent Analytics you can quickly obtain information about the web page that you are currently viewing by using the context-sensitive help available in the application. This help system includes additional information about using and configuring Blazent Analytics that is not provided in this manual.

Access context-sensitive help by clicking the Need Help? link in the left side bar of most pages, or the ? icon in the top toolbar.

Blazent Analytics Online Help is designed to be viewed on all platforms, including Windows, Macintosh, and UNIX, with:

- Internet Explorer 5.0 or later
- Netscape Navigator 4.0 or later

THE HELP VIEWER WINDOW

Blazent Analytics online help is displayed in a web browser window. You can use built-in web browser functionality, such as the Back button, to navigate through topics in your project.

You can open or close the left side bar, depending on how you like to work. When you close the side bar, the right-hand pane is maximized so you can see as much topic content as the size of your browser window allows.

To hide the left side bar, click the X icon in the upper right corner of the side bar area.

To open the left side bar, move your mouse to the small area between the help viewer and the side of the browser window. When your mouse icon changes into a two-sided arrow, click and drag the edge of the help viewer to the right until the left side bar is revealed.

ONLINE HELP TOOLBAR

The toolbar that is displayed at the top of the online help viewer includes the following features:

- Contents. This tab displays books and pages that represent the categories of information in the online help system. When you click a closed book, it opens to display its contents (sub-books and pages). When you click an open book, it closes. When you click pages, you select topics to view in the right-hand pane of the Help viewer.
- Index. This tab displays a multi-level list of keywords and keyword phrases. Keywords are cross-referenced with synonyms to provide multiple ways to locate information.

  To open a topic associated with a keyword, click the keyword. If the keyword is used with more than one topic, a pop-up menu opens so that you can select a specific topic to view.
- Search. This tab enables you to search for words in the help system and open topics containing those words. Full-text search reviews every word in the online help to find matches and then lists the matches alphabetically.
- The -Search- Text Box. This text box allows you to perform a search without first opening the Search tab. When you enter a search string and click Go, the Search tab is opened with the results of your query.

NAVIGATING TOPICS

Topics in the Blazent Analytics online help system include navigation components including:

- Related Topics buttons. When you click a Related Topics button, a pop-up menu opens that displays a list of topics that you can view. These topics are relevant to what you are currently reading in the right-hand pane or they cross-reference related information. Click a topic from the pop-up to open it in the right-hand pane.
- Embedded links. Many topics include links that are embedded in the topic text. Click the link to open a different topic with related information.

BROWSE SEQUENCES

You can easily move forward and backward through any series of topics by using the right and left arrow buttons in the top left corner of the left side bar. Topics are displayed in order of their appearance in the table of contents.

FULL-TEXT SEARCH

To use the full-text search feature of the online help, select the Search tab in the online help toolbar and enter your query in the search text box. The rules for formulating queries are:

- Searches are not case-sensitive, so you can type your search in uppercase or lowercase characters.
- Searches can use any combination of letters (a-z) and numbers (0-9).
- Punctuation marks such as the period, colon, semicolon, comma, and hyphen are ignored during a search.

- Elements of your search should be grouped with double quotes or parentheses to set apart each element. You cannot search for quotation marks.
- If you are searching for a file name with an extension, you should group the entire string in double quotes, ("filename.ext"). Otherwise, the period will break the file name into two separate terms. The default operation between terms is AND, so you will create the logical equivalent to "filename AND ext."

DATABASE SCHEMA

This appendix describes the physical schemas of the Collection Database and Data Warehouse databases.

TABLESPACE OVERVIEW

The Collection Database and Data Warehouse tables are divided into tablespaces based on the volatility of the data the tables contain. Volatility categories include:

- Static and low-growth dimension data
- Moderate-growth dimension data
- High-growth dimension data
- Utilization data

The database installer sets the default location for all tablespaces in the same directory as the Oracle SYSTEM tablespace. Once installation is complete, the Blazent database creation scripts can be manually modified before any batch files are executed to either change the location of the tablespace data files, or to modify the extent parameters based on projected data volumes and growth.

Use the following scripts to modify the data file locations and extent sizes:

- `bzc_create_db.sql` (Collection Database creation script)
- `bzw_create_db.sql` (Data Warehouse creation script)

COLLECTION DATABASE SCHEMA

Table 20 lists tablespace and data file names for the Collection Database.

TABLE 20: COLLECTION DATABASE TABLESPACES AND DATA FILE NAMES

DESCRIPTION	TABLESPACE NAME	FILE NAME
Static and low-growth dimension data	BZC_DIMENSION_STATIC	BZC_DIMENSION_STATIC_01.DBF
Static and low-growth dimension indices	BZC_DIMENSION_STATIC_IDX	BZC_DIMENSION_STATIC_IDX_01.DBF
Moderate-growth dimension data	BZC_DIMENSION_MODERATE	BZC_DIMENSION_MODERATE_01.DBF
Moderate-growth dimension indices	BZC_DIMENSION_MODERATE_IDX	BZC_DIMENSION_MODERATE_IDX_01.DBF
High-growth dimension data	BZC_DIMENSION_HIGH	BZC_DIMENSION_HIGH_01.DBF
High-growth dimension indices	BZC_DIMENSION_HIGH_IDX	BZC_DIMENSION_HIGH_IDX_01.DBF
Hourly utilization data	BZC_FACT_UTILDATA_TS1	BZC_FACT_UTILDATA_TS1_01.DBF
Hourly utilization indices	BZC_FACT_UTILDATA_IDX	BZC_FACT_UTILDATA_IDX_01.DBF

Table 21 lists table names for the Collection Database, as organized by tablespace.

TABLE 21: COLLECTION DATABASE TABLE NAMES (1 OF 3)

TABLESPACE NAME	TABLE NAME
BZC_DIMENSION_STATIC	ADMIN_CATEGORY_RULECLASS
BZC_DIMENSION_STATIC	ADMIN_CATEGORY_RULESET
BZC_DIMENSION_STATIC	ADMIN_SERVER_REG

Table 21: Collection Database Table Names (2 of 3)

Tablespace Name	Table Name
BZC_DIMENSION_STATIC	BZC_DATA_CLEANING
BZC_DIMENSION_STATIC	BZC_DIAGNOSTICS
BZC_DIMENSION_STATIC	BZC_DIAGNOSTICS_DATA
BZC_DIMENSION_STATIC	BZC_MANUFACTURERS
BZC_DIMENSION_STATIC	CPU_INFO
BZC_DIMENSION_STATIC	DEPARTMENTS
BZC_DIMENSION_STATIC	EMPLOYEE_POSITIONS
BZC_DIMENSION_STATIC	HARDWARE_CATEGORIES
BZC_DIMENSION_STATIC	LOCATIONS
BZC_DIMENSION_STATIC	MACHINE_CATEGORIES
BZC_DIMENSION_STATIC	MAC_VENDOR_MAPPING
BZC_DIMENSION_STATIC	OS_FAMILIES
BZC_DIMENSION_STATIC	OS_NAME_MAPPING
BZC_DIMENSION_STATIC	PERSONNEL_STATUS
BZC_DIMENSION_STATIC	SCHEMA_INFO
BZC_DIMENSION_STATIC	SOFTWARE_CATEGORIES
BZC_DIMENSION_STATIC	SOFTWARE_LICENSES_PURCHASED
BZC_DIMENSION_STATIC	USER_MACHINE_PROFILES
BZC_DIMENSION_MODERATE	MACHINES
BZC_DIMENSION_MODERATE	MACHINE_CATEGORY_MAP
BZC_DIMENSION_MODERATE	MACHINE_INFO
BZC_DIMENSION_MODERATE	OS_ENTRIES

TABLE 21: COLLECTION DATABASE TABLE NAMES (3 OF 3)

TABLESPACE NAME	TABLE NAME
BZC_DIMENSION_MODERATE	SW_PACKAGE_ITEMS
BZC_DIMENSION_MODERATE	TEMP_CAT_SW_PACKAGES
BZC_DIMENSION_MODERATE	USERS
BZC_DIMENSION_MODERATE	USER_MACHINES
BZC_DIMENSION_HIGH	ASSET_INFO_ENTRIES
BZC_DIMENSION_HIGH	DISCOVERED_ASSETS
BZC_DIMENSION_HIGH	HARDWARE_ENTRIES
BZC_DIMENSION_HIGH	HARDWARE_ITEMS
BZC_DIMENSION_HIGH	MACHINE_CATEGORY_FAMILIES
BZC_DIMENSION_HIGH	SOFTWARE_ENTRIES
BZC_DIMENSION_HIGH	SOFTWARE_ITEMS
BZC_DIMENSION_HIGH	SW_PACKAGE_ENTRIES
BZC_DIMENSION_HIGH	TEMP_CAT_HOUSE_KEEPER
BZC_DIMENSION_HIGH	TEMP_CAT_SW_ITEMS
BZC_DIMENSION_HIGH	USER_SESSIONS
BZC_FACT_UTILDATA_TS1	UTILIZATION_ENTRIES

Data Warehouse Schema

Table 22 lists tablespace and data file names for the Data Warehouse.

Table 22: Data Warehouse Tablespaces and Data File Names

Description	Tablespace Name	File Name
Static and low-growth dimension data	BZW_DIMENSION_STATIC	BZW_DIMENSION_STATIC_01.DBF
Static and low-growth dimension indices	BZW_DIMENSION_STATIC_IDX	BZW_DIMENSION_STATIC_IDX_01.DBF
Moderate-growth dimension data	BZW_DIMENSION_MODERATE	BZW_DIMENSION_MODERATE_01.DBF
Moderate-growth dimension indices	BZW_DIMENSION_MODERATE_IDX	BZW_DIMENSION_MODERATE_IDX_01.DBF
High-growth dimension data	BZW_DIMENSION_HIGH	BZW_DIMENSION_HIGH_01.DBF
High-growth dimension indices	BZW_DIMENSION_HIGH_IDX	BZW_DIMENSION_HIGH_IDX_01.DBF
Temporary tables	BZW_TEMP_TABLES	BZW_TEMP_TABLES_01.DBF
Daily utilization data	BZW_FACT_UTILDATA_DAY_TS1	BZW_FACT_UTILDATA_DAY_TS1_01.DBF
Monthly utilization data	BZW_FACT_UTILDATA_MON_TS1	BZW_FACT_UTILDATA_MONTH_TS1_07.DBF
Miscellaneous utilization tables	BZW_FACT_UTILDATA_MISC	BZW_FACT_UTILDATA_MISC_01.DBF
Utilization indices data	BZW_FACT_UTILDATA_IDX	BZW_FACT_UTILDATA_IDX_01.DBF

Table 23 lists table names for the Data Warehouse, as organized by tablespace.

TABLE 23: DATA WAREHOUSE TABLE NAMES

TABLESPACE NAME	TABLE NAME
BZW_FACT_UTILDATA_DAY_TS1	DW_CPU_UTIL_DAY
BZW_FACT_UTILDATA_DAY_TS1	DW_MEM_UTIL_DAY
BZW_FACT_UTILDATA_DAY_TS1	DW_SW_UTIL_DAY
BZW_DIMENSION_HIGH	DW_DISCOVERED_ASSETS
BZW_DIMENSION_HIGH	DW_DIS_ASSETS_HISTORY
BZW_DIMENSION_HIGH	DW_DIS_ASSETS_INFO
BZW_DIMENSION_HIGH	DW_HARDWARE_ENTRIES
BZW_DIMENSION_HIGH	DW_HARDWARE_ITEMS
BZW_DIMENSION_HIGH	DW_SOFTWARE_ENTRIES
BZW_DIMENSION_HIGH	DW_SOFTWARE_ITEMS
BZW_DIMENSION_HIGH	DW_SOFTWARE_PKG_ENTRIES
BZW_DIMENSION_MODERATE	BZW_ERROR_LOG
BZW_DIMENSION_MODERATE	BZW_PROCESS_LOG
BZW_DIMENSION_MODERATE	DW_ASSETS
BZW_DIMENSION_MODERATE	DW_SOFTWARE_LICENSES_PURCHASED
BZW_DIMENSION_MODERATE	DW_SOFTWARE_PACKAGES
BZW_DIMENSION_MODERATE	DW_USERS
BZW_DIMENSION_MODERATE	DW_USER_ASSETS_JOIN
BZW_DIMENSION_STATIC	BZW_DIAGNOSTICS
BZW_DIMENSION_STATIC	BZW_DIAGNOSTIC_DATA
BZW_DIMENSION_STATIC	BZW_KEYS

Table 23: Data Warehouse Table Names

Tablespace Name	Table Name
BZW_DIMENSION_STATIC	BZW_SYNC_RUNS
BZW_DIMENSION_STATIC	CATEGORY_RANGE
BZW_DIMENSION_STATIC	DW_ASSET_TYPE
BZW_DIMENSION_STATIC	DW_DATES
BZW_DIMENSION_STATIC	DW_DEPARTMENTS
BZW_DIMENSION_STATIC	DW_EMPLOYEE_POSITIONS
BZW_DIMENSION_STATIC	DW_FUNCTIONS
BZW_DIMENSION_STATIC	DW_HARDWARE_CATEGORIES
BZW_DIMENSION_STATIC	DW_LOCATIONS
BZW_DIMENSION_STATIC	DW_PERSONNEL_STATUS
BZW_DIMENSION_STATIC	DW_ROLES
BZW_DIMENSION_STATIC	DW_SOFTWARE_CATEGORIES
BZW_DIMENSION_STATIC	DW_TIMES
BZW_DIMENSION_STATIC	DW_USER_MACHINE_PROFILES
BZW_DIMENSION_STATIC	T_MACHINE_DISK_RAM
BZW_FACT_UTILDATA_MISC	DW_DISK_STORAGE_UTIL_MONTH
BZW_FACT_UTILDATA_MISC	DW_MACHINE_RECENCY
BZW_FACT_UTILDATA_MISC	DW_MACHINE_UTILIZATION
BZW_FACT_UTILDATA_MISC	DW_SW_RECENCY
BZW_FACT_UTILDATA_MON_TS1	DW_CPU_UTIL_MONTH
BZW_FACT_UTILDATA_MON_TS1	DW_MEM_UTIL_MONTH
BZW_FACT_UTILDATA_MON_TS1	DW_SW_UTIL_MONTH

Table 23: Data Warehouse Table Names

Tablespace Name	Table Name
BZW_TEMP_TABLES	TEMP_CLIENT_VERSION
BZW_TEMP_TABLES	TEMP_HARDWARE_ENTRIES
BZW_TEMP_TABLES	TEMP_MACHINES
BZW_TEMP_TABLES	TEMP_MACHINE_INFO
BZW_TEMP_TABLES	TEMP_MCH_CONFIG
BZW_TEMP_TABLES	TEMP_MCH_CPU
BZW_TEMP_TABLES	TEMP_MCH_CPU_BASE
BZW_TEMP_TABLES	TEMP_MCH_DISK_RFM
BZW_TEMP_TABLES	TEMP_MCH_FUNCTION
BZW_TEMP_TABLES	TEMP_MCH_INSTALLED
BZW_TEMP_TABLES	TEMP_MCH_MODEL
BZW_TEMP_TABLES	TEMP_MCH_RAM
BZW_TEMP_TABLES	TEMP_MCH_RFM
BZW_TEMP_TABLES	TEMP_OS_ENTRIES
BWZ_TEMP_TABLES	TEMP_UTIL

TROUBLESHOOTING

TERMINAL SERVICES RECOMMENDATION

Do not use Terminal Services to install any server or Blazent Agent components. Terminal Services does not grant users the same permissions, nor does it update the registry in the same way that installing directly from a local machine does.

ORACLE ISSUES

PENTIUM 4 INSTALLATION ISSUES

ORACLE V. 8.1.7

The Oracle V. 8.1.7 installer has known problems installing on Pentium P4 machines. In order to correct this, follow these additional steps:

1. Install the latest supported Windows 2000 Service Pack patch from: http://www.microsoft.com/windows2000/downloads/servicepacks/default.asp
2. Create a temporary directory on your Intel Pentium® 4 processor server (for example, `\TEMP`).
3. Copy the contents of the Oracle Server CD to the temporary directory that was created in Step 2.

4. Search the directory structure that was created in Step 2 for all instances of the file `SYMCJIT.DLL`.
5. Rename each copy of `SYMCJIT.DLL` to `SYMCJIT.OLD`.
6. Run `SETUP.EXE` from the `\TEMP\install\win32` directory and install Oracle 8.1.7.
7. After the initial installation, install the Oracle Service Pack 4 patch. Make sure that you follow all instructions that are provided in the patch installation.

Intel has provided an article on this issue at http://support.intel.com/support/processors/pentium4/issues.htm.

ORACLE 9I

The Oracle Internet File System configuration tool fails on Pentium 4 machines because `symcjit.dll` is incompatible with the installed version of the JRE. To work around this issue, replace the `symcjit.dll` file in the `ORACLE_HOME\ifs1.1\jre\bin` directory with the `symcjit.dll` file in the `<SYSTEM_DRIVE>\Program Files\Oracle\jre\1.1.8\bin` directory.

ORACLE SERVICES STILL RUNNING AFTER UNINSTALL

If you uninstall Oracle, verify that all Oracle services are removed. If `OracleOraHome81Agent` was not removed, do the following before reinstalling Oracle:

1. Navigate to `C:\oracle\ora81\network\`agent and remove all files with the `.q` extension.
2. Restart the server.

"TNS No Listener" Error When Connecting Through Oracle Management Tools

A "TNS No Listener" error may occur in new Oracle installations when connecting through Oracle Management tools for the following reasons:

- The `C:\oracle\ora81\network\ADMIN\TNSNAMES.ORA` file includes typos in the port number value, or in the database or domain name.
- The `C:\oracle\ora81\network\ADMIN\listener.ORA` file includes typos in the port number value, or in the database or domain name.
- The OracleOraHome81TNSListener service is stopped or is not running properly.

To work around this issue, fix the typos and/or stop and restart the OracleOraHome81TNSListener service in the Windows Services dialog box.

Analytics Server/MicroStrategy Issues

To troubleshoot the Analytics Server for errors, you can use the Windows Event Viewer:

1. Open the Event Viewer from the Windows Start menu by choosing Settings > Control Panel > Administrative Tools > Event Viewer.
2. Open the Application Log.
3. Sort the Source column and view errors for MSTRServer and the Microstrategy Service Manager.

Most configuration issues relate to the connections between the Data Warehouse and the Analytics Server. You can use the sample application that ships with MicroStrategy to test basic report and web connectivity.

MICROSTRATEGY INTELLIGENCE SERVICE DOES NOT START

If you cannot start the MicroStrategy Intelligence Service from the Windows Service dialog box, it may be for one of the following reasons:

- The Data Warehouse is not running, even though the listener service is running. Use the Oracle Srvcmgr program to start the database.
- The service does not start automatically during start up. In the Windows Services dialog box, set the service Start Up Type property to Manual so that the machine does not attempt to start the service during start up. You must start the service manually or create an administrator logon script to start it.
- The wrong user is used to log into the MicroStrategy service. Open the Services dialog box, right-click MSTR Intelligence Server and choose Properties. In the Logon tab verify that the specified user is the LocalSystemAccount.

MICROSTRATEGY DESKTOP DOES NOT CONNECT TO THE DATA WAREHOUSE

If MicroStrategy Desktop does not connect to the Data Warehouse, it may be because the ODBC System DSN includes a period with the database name (for example, '`maindb.`').

WORKAROUND

Open the ODBC dialog box from the Windows Control Panel, remove the period, and test the ODBC connections.

Collection Server Issues

Collection Server logs are stored in the `\BlazentServer\logs` directory, and are named `logging<n>.txt` (for example, `logging32.txt`) Log files are required to troubleshoot the Collection Server. When viewing Collection Server log files, look for `FATAL` and `ERROR` log messages.

Monitor the size of files named `logging.txt.#` and `networklogging.txt.#`, since they can grow to 50MB or larger. You may wish to periodically archive and delete these files.

PowerUpdate Issues

The PowerUpdate log file (`PULog.txt`) is created by the PowerUpdate client and stored in the `blazent/update` folder. Relevant information is generally found in the last 10 lines of the file. If `PULog.txt` does not exist, `LHUpdate` has not called the PowerUpdate client.

LHUpdate Does Not Run (PULog.txt Does Not Exist)

If `PULog.txt` does not exist, `LHUpdate` has not called the PowerUpdate client. This issue occurs because of a possible error in `configuration.xml`. To work around this issue, verify that the `LHUpdate` TSI is correct and that it is not set to be less than `CommandListRefresh` TSI.

Update Process Never Ends on Windows NT 4

The `update.exe` process never ends on Windows NT 4 due to the absence of a locally installed JRE. Verify that there is a `JRE` folder inside the `update` folder when distributing the Agent installer and/or adding to the PowerUpdate server.

UPDATE FAILS TO RUN ON WINDOWS

The update process cannot run on Windows machines if it cannot find the JRE. If this issue occurs you must use the customized `update.lax` that contains the proper path to `java.exe`.

UPDATE FAILS TO RUN ON UNIX

The update process cannot run on Unix machines if:

- the `^M` character occurs in one or more files. Windows uses CRLF, but UNIX uses only LF. To avoid this issue, verify that Unix text files are never saved in a Windows environment. To remove `^M` characters, use:
  `tr -d '\15\32' < winfile.txt > unixfile.txt`
- files do not have executable permissions set. Verify that `install-agent`, `install-agent-powerupdate`, and `update` all have the executable permission set.

AGENT FILES DOWNLOADED, BUT NOT INSTALLED

If the update executable runs and downloads a new client, but the Agent is not installed:

- the PowerUpdate server is incorrectly configured. Verify that there are no typos in your settings.
- `SetupSilentPowerUpdate` is missing on Windows, or `install-agent-powerupdate` is missing on Unix. Verify that these files exist, and that `install-agent-powerupdate` has the correct path on Unix machines.

Directory Structure Disappears After Running Update (Unix)

After running the `update` executable, the directory structure may disappear because `install-agent` is sensitive to the location from which it is updated. Verify that PowerUpdate is set to execute `install-agent-powerupdate`.

Blazent Agent Issues

Agent Does Not Connect to Collection Server

A Blazent Agent does not connect to the Collection Server for the following reasons:

- The Blazent Agent's `bootstrap.xml` file does not have the right server name or IP address for the `s` argument in the `BZLogOnModule` command section.

  Edit `bootstrap.xml` so that it references the correct Collection Server. You must use the same format for the `s` argument as was used when initially installing the Collection Server. For example, if you used an IP address during Collection Server installation, you must use an IP address for the LoginServerAddress parameter.

- The Collection Server's `clientconfig.xml` file does not have the right server name or IP address for the Collection Server (`DCS` parameter).

  Edit `clientconfig.xml` so that it references the correct Collection Server. You must use the same format for the `DCS` parameter as was used when initially installing the Collection Server. For example, if you used an IP address during Collection Server installation, you must use an IP address for the `DCS` parameter.

- The Collection Server name is not in WINS or in the corporate DNS and Agents cannot resolve the server name to an IP address.

  Either define the Collection Server IP address and name combination in the corporate WINS and DNS servers, or temporarily change all of the property files to use static IP addresses.

Access Issues

Blazent Analytics Password Expires

Blazent Analytics includes an administrative option that requires users to change passwords periodically. If an administrator has enabled this option, it is to ensure that the information that is accessible in the reports is secure. As a precaution against inadvertently revealing your password to others, you should change it periodically.

MicroStrategy License Expires

If your MicroStrategy license expires, you cannot access Blazent Analytics. After the MicroStrategy license is renewed, you will be able to run the Blazent Analytics application again. Contact Blazent Support for more information.

Report Data Issues

Report Execution Fails

When data is being updated in the Data Warehouse, report data is temporarily unavailable. By default, the Data Warehouse is scheduled to be updated once an hour at the beginning of the hour. If you try to execute a report when the update is occurring, you might receive one of the following errors:

```
Error in report results. Your request could not be processed due to
a server error. Please try again. If the problem persists, contact
the server Administrator. ----------------------------------------
---------------------------------------- (The object given is
embedded inside another object, so it is not visible to this
object. QueryEngine encountered error: The report result cannot be
displayed because it exceeds the maximum row limit in governing.
32000 Error in Process method of Component: QueryEngineServer,
Project 1, Job 430, Error Code= -2147467259. )

Error in report results. Your request could not be processed due to
a server error. Please try again. If the problem persists, contact
the server Administrator. ----------------------------------------
----------------------------------------(Error(s) occurred while
loading report: DSSSQLEngine: converting Report : Template (Local
Template). -Template Unit Metrics -Template Metrics -Dimensional
Metric (Database Software). -Dimensional Metric -Dimensional Metric
-Filter (Root Category #1). -Filter Unit -Filter Unit -Filter Unit
-Filter Unit -Filter Entity -Expression -Attribute Forms -Base
Attribute Forms COM interface error. . Error in Process method of
Component: SQLEngineServer, Project 1, Job 440, Error Code= -
2147212797. )
```

Workaround

Wait a few minutes and try to execute your report again.

"REQUEST TIME OUT" ERROR

A "Request time out" error can sometimes occur if you open a report that uses a prompt that is populated by a large amount of data. If this issue happens repeatedly with your IT Intelligence Software installation, use the following steps to prevent the Analytics Server from timing out too quickly:

1. Access the Blazent Analytics administration page by opening the following URL:

   `http://<Your_Analytics_Server_Name>/blazent/admin/admin.asp`

2. In the Web Server area on the left, set the Server busy timeout and Request timeout values to 600.

"OUT OF MEMORY" ERROR

A java.lang.OutOfMemoryError can sometimes occur when a user is running a report if the MicroStrategy Java heap size is too small.

WORKAROUND

1. On the Analytics Server machine, open Regedit.
2. Navigate to `HKEY_LOCAL_MACHINE\Software\MicroStrategy\JNI Bridge\Configuration\JVM Options`.
3. Increase the value of the `HeapMaxSize` registry key to 256 Mb or larger. By default, this value is set to 128 Mb.
4. Use the Windows Services control panel to restart the following services:
   - IIS
   - World Wide Web Publishing Service
   - MicroStrategy Intelligence Server 7

Report Data is Missing, Fails to Return, or Displays as 1s and 0s

Data may be missing, not returned, or set to 1s and 0s if the data warehouse job is running when you execute your report. This job normally runs about once an hour.

If the warehouse job is not running, verify that your query is correct and can return valid data.

Limited Drill Options

You may not have any drilling options if there is no parent or child of the report that you wish to drill on. See "Drilling," on page 118 for more information.

Filter Details Tab States "The Filter is Empty"

This is normal behavior that indicates that no additional filtering has been applied to the report.

Drill to None Option

The Drill to None option indicates that there is no template to which you can drill. Rather than using this advanced drilling technique, try using the hyperlink drill-down or simple drilling function. See the Blazent Analytics Online Help for additional information on this option.

Report Totals Do Not Add Up

Numbers might not add up in some reports for two reasons:

1. Some reports, such as Hardware Devices by Department, might list numbers of devices in subsets (departments) of a whole (enterprise). These subsets of data are sometimes listed more than once. For example, if the Human Resources Department shares a storage device with Finance, the device is included in each department's total as a separate entry, but is included in the report total only once.
2. Some reports reference numerical values that are not whole numbers. In these cases, Blazent Analytics rounds the figures, so your totals might not add up.

Report Display Issues

Grid Does Not Display Field Labels

To display grid field labels, enable the Show attribute forms preference:

1. Navigate to the Preferences area.
2. Select Grid Preferences.
3. Enable Show attribute forms.

Displaying Only Graphs, Only Grids, or Both

See "Displaying Grids and Graphs," on page 113.

To always display both the grid and the graph view, enable the Show Graph/Grid option in Preferences > Graph.

Note: Sometimes a graph cannot be displayed because the data in the report is not appropriate for a graph.

"Insufficient Data to Display the Requested Chart Subtype" Report Display Error

This message is displayed because the selected chart type is not appropriate for the data.

Workaround

Try selecting a different chart subtype by clicking the Properties tab and selecting a value from the drop-down list in the report header. For example, if you receive this error for a Side by side graph, try a Stacked bar or Percent graph instead.

"Insufficient Data to Display a Graph" Report Display Error

This message is displayed because the report's data cannot be successfully translated to a graph. If you select the graph option for a report with data that requires more than one page to view, you cannot navigate beyond the first page.

Workaround

Turn off the graph option to display the grid only, and then navigate to other pages.

Bar Charts Include a Bar for "Total"

This issue is a known limitation of the Report Server and has been reported to the third-party software vendor.

Workaround

Export the report to Excel and remove the total from the chart.

Graph Does Not Display All Data

If your report returns more data than can display on one page, the report displays on multiple pages. If this occurs, your chart includes only the data displayed in the grid on the same page. Navigating to the second page will display a new chart that applies only to the data on the second page. See "Page By," on page 118 for more information.

Inappropriate Graph is Used for Data

Blazent Analytics includes different graph types to support the display of different types of data. For example, when you compare ratios, where all data represents different parts of a whole, a pie chart is a good visual representation of that data. However, if you are comparing subsets, a pie chart cannot represent the data. In this case, a bar or line chart will better represent the data.

Report Functionality Issues

Report Executes Slowly

Reports can take a long time to execute if large amounts of data need to be processed in order to generate results.

Workarounds

- Check the parameters that you entered in the report prompt fields. For example, if you entered a date range that includes a large number of days, try to limit the date range to a smaller value.
- Add the report to your History List by clicking Add to My History List in the Execute Report window. This action allows the report to continue executing while you do something else. You can retrieve the report from your History List when it is done. See "History List," on page 107 for information.
- Create a subscription to the report so that Blazent Analytics will execute the report automatically, allowing you to retrieve it after it has been executed. See "My Subscriptions," on page 106 for information.

Report Cannot Be Exported

The report that you are trying to export either exceeds the capacity of the spreadsheet or is larger than the row or column limit specified by your administrator.

Workaround

Manipulate the report so that it fits within the spreadsheet. If this does not work, have your administrator change the maximum number of rows or columns that you can export.

Attribute Form Labels Fail When Exported to Comma-Separated (CSV) Text

This issue is a known limitation of the Reports Server and has been reported to the third-party software vendor in an effort to address the issue.

WORKAROUND

If you use attribute form labels, export to Excel or HTML.

PRESSING ENTER DOES NOT EXECUTE REPORT AFTER ENTERING PROMPTS

The `Enter` key is handled differently in different browsers.

WORKAROUND

The fastest way to execute a report is to click the Execute button. Alternately, you can press the `Tab` key until the Execute button is highlighted, and then press `Enter`.

REPORT CANNOT BE SORTED BY SOME COLUMNS

If a column displays data values that bear no relation to one another, you cannot sort the column.

BROWSER BACK BUTTON DOES NOT WORK

This condition can occur if you use the browser Back button to navigate to the beginning of a report and it requires re-execution.

WORKAROUND

Use the built-in Blazent Analytics navigation features (such as clicking on the report path) to navigate backwards instead of using the Back button.

TECHNICAL SUPPORT

The Blazent Technical Support organization provides support services for all current releases of Blazent products. Support staff are available Monday through Friday from 8:00am to 5:00pm Pacific Time, excluding holidays. 24/7 support packages are also available for an additional fee.

Blazent Technical Support has two main objectives:

- To assist customers in maintaining and/or regaining the operation of their Blazent software.
- To correct any underlying issues in the software or its configuration.

SCOPE OF SERVICE

The scope of technical support that is provided by Blazent includes:

- *Problem Prevention*. Blazent will notify all customers of the availability of new releases and patches for Blazent IT Intelligence Software.
- *Problem Identification*. Blazent will:
  - clarify all Blazent error messages.
  - assist in identifying and verifying the causes of suspected errors.
  - provide workarounds for previously identified errors.
- *Problem Resolution*. Blazent will:
  - report and track product defects and enhancement requests.
  - provide notification of issue and escalation request status.
  - resolve product defects with a workaround, maintenance release, or patch.

Before Contacting Support

Before you open a case with Customer Support:

- Check the Blazent product documentation and online Knowledge Base.
- Gather a complete description of the problem, including any transaction logs, error messages, screen shots, and log files.
- Be prepared to summarize the steps that you have already taken to diagnose and solve the issue.
- Know the version number of the software that you are currently using, including all related third-party products such as MicroStrategy and Embarcadero.
- Identify any recent changes in hardware, software, or other maintenance that might have affected the application.

Contacting Customer Support

You can contact Blazent Customer Support through the following channels:

- Web site: `http://support.blazent.com/`
- E-mail: `support@blazent.com`
- Telephone: (650) 286-5588

Support Hours

Blazent provides two levels of availability for support issues, with additional coverage for all Priority 1 support cases.

Note: Priority 1 support hours do not apply to issues with third-party applications, unless the issue directly relates to the Blazent IT Intelligence Software application.

Basic-Level Support

Customers with a Basic-level support contract can access technical support during normal business hours, from 8:30 AM to 5:30 PM Pacific Time.

Priority 1 support cases are handled 24-hours a day, Monday - Friday.

Premium-Level Support

Customers with a Premium-level support contract can access technical support according to the terms of the contract negotiated with Blazent.

Priority 1 support cases are handled 24-hours a day, seven days a week (except for major US holidays).

Web Site Access

You can access the Blazent Customer Support Web site at:

```
http://support.blazent.com/
```

This web site provides 24-hour-a-day access to:

- The current status of all open issues.
- The problem logging form (please follow up with a telephone call for all Priority 1 issues).
- The Blazent Knowledge Base, which contains product-related white papers, workarounds, and other documentation.

Access to the Support website is controlled by a username and password. If you have been added to the system, your username is your first initial followed by your last name. For example, if your name is John Doe, your username for the Support website is `jdoe`. Your password is your e-mail address.

Customers who have not yet been added to the Support website can log in as guest users by following the directions on the log-in page of the site.

Blazent welcomes all feedback on the presentation and content of our Support website and Knowledge Base. If you identify an inaccuracy, or if you believe there is a topic that needs more coverage, please contact Technical Support.

E-MAIL ACCESS

You can e-mail Blazent Customer Support at:

```
support@blazent.com
```

E-mail requests are answered during local business hours, as specified in "Support Hours," on page 150. If you are submitting a Priority 1 issue, please follow up the e-mail with a telephone call to ensure a prompt response.

Use the Problem Logging Form as the template for your e-mail. You can find the Problem Logging Form as an appendix in the Blazent *Administration* or *Installation Guide*.

TELEPHONE ACCESS

You can telephone Blazent Customer Support at

```
(650) 286-5588
```

If you are reporting a Priority 1 issue, please follow up the telephone call with an e-mail that includes a full description of the problem.

SUPPORT CASE PRIORITY LEVEL

Blazent strives to provide timely support to our customers. To help us understand the severity of your problem and to help us prioritize our work, we ask that you assign a priority to each issue as it is reported.

Table 24 describes the different priority levels for customer support issues, including response times. Two response times are indicated:

- *Acknowledgment*. The maximum amount of time that it should take for Blazent to acknowledge that we have received your problem.
- *Initial review.* The maximum amount of time that is should take for Blazent Support to review the problem and present you with the next steps towards resolution.

Please use this table as a guideline for determining the priority of your own issues.

Table 24: Support Issue Priority Levels

Priority Level	Description	Response Times
1 "Production Down"	All production systems are inoperative or are experiencing severe performance degradation. No workaround is available. Software no longer provides any material benefit to your organization.	Acknowledgment: 1 business hour Initial review: 4 business hours Note: Priority 1 issues should be reported by telephone and immediately followed up with a detailed e-mail or web submission.
2 "Mission Critical"	System fails to satisfy critical functional, operational, or performance specifications.	Acknowledgment: 3 business hours Initial review: 6 business hours
3 "Serious"	One part of the software is inoperative, causing or resulting in sub-standard or erratic performance. Nonetheless, remainder of software operates in accordance with specifications.	Acknowledgment: 5 business hours Initial review: 8 business hours
4 "Problem"	No part of the software is inoperative, and business impact is moderate or small. The software operates in accordance with specifications.	Acknowledgment: 8 business hours Initial review: 10 business hours

If Blazent does not agree with the assigned Priority level, the issue will be discussed with the customer and a mutually acceptable level will be used.

The response times shown in Table 24 are based on the time that Blazent Customer Support acknowledges receipt. In many instances, the response times are likely to be faster than those specified.

Escalation of Support Cases

Blazent is committed to ensuring efficient and effective resolution of issues through a defined internal escalation process. Table 25 describes the steps of this process for each priority level.

Table 25: Support Issue Escalation Process (1 of 2)

Priority Level	Escalation Point 1	Escalation Point 2	Escalation Point 3
1 "Production Down"	Time to notification: Immediate Escalataion: • Support Manager • Professional Services Manager	Time to notification: 4 hours after Escalation Point 1 Escalataion: • VP of Engineering and VP of Services	Time to notification: 8 hours after Escalation Point 2 Escalataion: • Executive team notified • Case receives daily executive review
2 "Mission Critical"	Time to notification: 8 hours Escalataion: • Support Manager • Professional Services Manager	Time to notification: 16 business hours after Escalation Point 1 Escalataion: • Professional Services Manager	Time to notification: 16 business hours after Escalation Point 2 Escalation: • Open case receives daily executive review • Case upgraded to Priority 1
3 "Serious"	Time to notification: 16 hours Escalataion: • Support Manager	Time to notification: 36 business hours after Escalation Point 1 Escalataion: • Professional Services Manager	Time to notification: 36 business hours after Escalation Point 2 Escalataion: • Weekly review by VP of Engineering and VP of Services

TABLE 25: SUPPORT ISSUE ESCALATION PROCESS (2 OF 2)

PRIORITY LEVEL	ESCALATION POINT 1	ESCALATION POINT 2	ESCALATION POINT 3
4 "Problem"	Escalataion: • Support Manager	Escalation: • Professional Services Manager	Escalation • Monthly review by VP of Engineering and VP of Services

PRIORITY 1 ISSUES

- The Support Manager and Professional Services Manager are notified immediately.
- After 4 hours, the VP of Engineering and VP of Services are notified.
- After 8 hours, the entire executive team is notified.
- After the issue has been open for 48 hours, the executive team reviews the problem daily until it is resolved.

PRIORITY 2 ISSUES

- The Support Manager and Professional Services Manager are notified within 8 hours of the case opening.
- After 16 business hours, the VP of Engineering and the VP of Services are notified.
- After 16 additional business hours, the entire executive staff is notified.
- After 40 hours, the case is escalated to Priority 1 and the executive team reviews the problem daily until it is resolved.

PRIORITY 3 ISSUES

- The Support Manager is notified within 16 hours.
- After 36 hours, the Professional Services Manager is notified.
- After an additional 36 hours, the case is reviewed weekly by the VP of Engineering and the VP of Services.

TRACKING A SUPPORT CASE

Blazent Customer Support acknowledges receipt of an issue by sending an e-mail confirmation that indicates the reference number of the case. This reference number should be used in all communications regarding the issue.

Blazent Customer Support notifies you of changes in case status either by e-mail or telephone. You can monitor the status of open issues through the Blazent Support web site (http://support.blazent.com).

CLOSING A SUPPORT CASE

A support case can be closed when one of the following events occurs:

- The customer is provided with an answer that solves the issue.
- The solution is documented on the Support web site and the customer is informed of this.
- The case can be linked to a previously reported and fixed problem.
- Maintenance code or a patch is provided.
- The product documentation is updated.
- It is determined that the issue is not related to Blazent software.

A reasonable workaround is provided and the customer agrees that no additional work is required.

Problem Logging Form

This form assists Customer Support in finding solutions to your technical issues. Please complete this form before contacting Customer Support.

Contact Information

Customer Name: _____

Project Name: _____

Partner/Integrator Name (if applicable): _____

Contact Name: _____

Contact Job Title: _____

Telephone Number: _____

E-mail Address: _____

System Information

Blazent product/version:_____

Hardware type/model:_____

Operating system/version:_____

Affected application/component:_____

Level of usage:_____

PROBLEM DESCRIPTION

What command or statement is being used? Is this the first time this operation has been attempted?

What are the expected results?

What are the actual results? (Please include the exact error number and message text.)

Is this problem reproducible? If so, please provide a reproducible test case that includes the specific syntax that causes the problem.

Is this the first time the problem has occurred?

When was the last time that this command/statement was successful? What has changed since the command/statement was last successful?

If the problem does not occur every time, under what conditions does the problem not occur?

Is there any software running on the system which may be conflicting with Blazent Software?

What steps have you taken to troubleshoot the problem? (For example, have you checked environment variables or file and directory permissions?)

Problem Log Sheet

Blazent Contact_____Date_____Time_____

Your Name_____Case #_____Priority_____

Product_____Version_____

Problem Description

Include error messages, text of error, and so on. When does the problem occur?

Problem Resolution

For the purpose of reference (in case the problem occurs again in the future) describe how it was resolved. Include a brief description of the steps taken to resolve it.

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