

DB2 Alphablox for UNIX and Windows v5.6

Administrator's Guide



Note: Before using this information and the product it supports, read the information in “Notices” on page 13.

First edition (August 2004)

This edition applies to version 5, release 6, of IBM DB2 Alphablox for UNIX and Windows V5.6 (product number 5724-J16) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Notices

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Preface

This Preface describes the intended audience, organization, and conventions used in the *Administrator's Guide*. It also contains information about the DB2 Alphablox documentation set and information about how to contact IBM for technical problems or comments on the documentation.

Contents

- “About This Book” on page 18
- “Related Documents” on page 21
- “Online Documentation User Interface” on page 22
- “Document Conventions” on page 23
- “Contacting IBM” on page 24

About This Book

The *Administrator's Guide* contains information about setting up and managing DB2 Alphablox. It includes conceptual information on DB2 Alphablox architecture, task-based procedures for performing DB2 Alphablox administration functions, and reference information on telnet console commands.

The *Administrator's Guide* is primarily designed for the people who administer DB2 Alphablox, but it contains information useful to a wide range of users including information technology (IT) managers, Alphablox Analytics application developers, and anyone who needs to understand the environment in which DB2 Alphablox runs.

The *Administrator's Guide* is organized into the following chapters and appendices:

- Chapter 1, “Alphablox Analytics Overview” on page 27

This chapter provides general information about DB2 Alphablox applications, contains an overview of DB2 Alphablox architecture, and lists some basic administration tasks.

- Chapter 2, “Alphablox Analytics Applications” on page 45

This chapter describes the types of applications you can create using DB2 Alphablox.

- Chapter 3, “Alphablox Analytics Home Page” on page 49

This chapter describes the user interface for the DB2 Alphablox home page, which includes the administration interface for Alphablox Analytics.

- Chapter 4, “Basic Administration Tasks” on page 59

This chapter describes how to start and stop DB2 Alphablox.

- Chapter 6, “Application Definitions” on page 73

This chapter includes procedures for creating, modifying, and deleting application definitions for DB2 Alphablox.

- Chapter 7, “Data Source Definitions” on page 91

This chapter includes procedures for creating, modifying, and deleting data source definitions for DB2 Alphablox.

- Chapter 8, “User Definitions” on page 105

This chapter includes procedures for creating, modifying, and deleting user definitions for DB2 Alphablox.

- Chapter 9, “Group Definitions” on page 111

This chapter includes procedures for creating, modifying, and deleting group definitions for DB2 Alphablox.

- Chapter 10, “Role Definitions” on page 117

This chapter includes procedures for creating, modifying, and deleting role definitions for DB2 Alphablox.

- Chapter 11, “Security and Authentication” on page 123

This chapter provides details about security and includes information on setting up web server security with DB2 Alphablox.

- Chapter 12, “Extending Alphablox Analytics” on page 137

- This chapter provides information about how DB2 Alphablox can be customized by extending the DHTML client, the calculation API, and the User Manager.

- Chapter 13, “Configuring Alphablox Analytics Properties” on page 143

This chapter includes procedures for several administrative tasks and describes the DB2 Alphablox log files.

- Chapter 14, “User Manager” on page 167

This chapter describes how to configure DB2 Alphablox user manager functionality, including the Extensible User Manager personalization engine and the LDAP-based User Manager.

- Chapter 15, “Using a Database Repository” on page 195

This chapter describes how to configure DB2 Alphablox to use a relational database for its repository and describes how to use the Repository Conversion Utility.

- Chapter 16, “Using Connection Pooling” on page 211

This chapter explains how to configure connection pooling in relational and multidimensional databases.

- Chapter 17, “Using Clustered Environments” on page 217

This chapter describes how to configure and use DB2 Alphablox in a clustered environment, allowing you to have more scalable analytical applications.

- Chapter 18, “Alphablox Analytics Console Commands” on page 223

This chapter describes the DB2 Alphablox console and lists the commands available through the console.

- Chapter 19, “Administering Alphablox FastForward Applications” on page 239

This chapter covers the administration of FastForward applications.

- Appendix A, “OLAP Terms and Concepts” on page 249

This appendix describes terms and concepts necessary for understanding multidimensional analysis and online analytical processing (OLAP).

- Appendix B, “Glossary” on page 255

This appendix provides a glossary of terms used throughout the DB2 Alphablox documentation set.

Related Documents

The DB2 Alphablox documentation set includes books and online help. The books are all available in HTML, PDF, and printed format. Context sensitive help is available for all parts of the Alphablox Analytics home page as well as within DB2 Alphablox applications. The DB2 Alphablox documentation set includes the following books:

Title	Description
<i>Administrator's Guide</i>	Contains information about setting up and managing Alphablox Analytics and about DB2 Alphablox in a J2EE environment.
<i>Developer's Guide for the DHTML Client</i>	Provides guidance on designing, developing, and deploying analytical applications using the DHTML client. If you are new to DB2 Alphablox or are developing new applications, it is recommended that you start with this book.
<i>Developer's Reference for the DHTML Client</i>	A complete API reference for developing applications using the DHTML client; contains information on each Blox component, including its JSP syntax, properties, methods, and objects.
<i>Relational Reporting Developer's Guide</i>	Contains information about setting up ReportBlox components to build a report from relational data.
<i>Cube Server Administrator's Guide</i>	Contains information about setting up Alphablox cubes. Alphablox Cube Server allow you to present a multidimensional view of data stored in a relational data warehouse or data mart database.
<i>Installation Guide</i>	Contains information on system requirements, installing and configuring DB2 Alphablox, installing sample data, and migrating applications from previous versions.

Javadoc is available for the server-side API, ReportBlox API, and FastForward API in the following directory:

```
<alphablox_dir>/system/documentation/javadoc
```

where `<alphablox_dir>` is the directory in which DB2 Alphablox is installed.

Online Documentation User Interface

The DB2 Alphablox documentation is also available online in HTML and PDF formats. To open the Online Documentation, select the **Online Documentation** link on the **Help** menu or from any help page on the DB2 Alphablox home page.

When you select the Online Documentation, it opens in a frameset. The right frame displays documentation pages; the left frame contains the following navigation tabs:




Tab	Description
Contents	<p>The Contents tab presents a tree view of all the online books in the documentation set. Click on a book icon beside a heading to expand or collapse the tree, displaying or hiding the topics within that heading. To view a topic, click on its hyperlinked heading.</p> <p>To access a page containing links to all of the PDF versions of the documentation, click the PDF Documentation book icon.</p>
Index	<p>The Index tab presents an alphabetical list of all indexed words for every document in the DB2 Alphablox documentation set. To view a topic, click on the indexed item. If multiple pages are available for a topic, click the link with the page title for the first topic, click the link with the number 2 for the second topic, and so on.</p>
Search	<p>The Search tab provides a text search.</p> <p>The search feature provides a simple search on words entered. You can search a single book instead of the entire documentation set by selecting a book from the dropdown list. The search supports the use of asterisks (*) for wildcard searches, but does not use “near” logic or perform partial word search. Entering multiple words implies an and between the words, returning pages that contain all the words entered. The search is not case sensitive.</p> <p>To enter a search, click the Search tab, type one or more words in the search box, and press the Search button. The search presents a list of HTML pages containing the search word(s).</p> <p>To view a page, click on its hyperlinked heading. When the page appears in the right frame, use its hyperlinks or the browser’s Find command to locate the word(s) within the page.</p>

Document Conventions

Icons and typography call attention to or elaborate on areas of interest throughout the DB2 Alphablox documentation set.

Icons

The icons used in the documentation are as follows:

Icons	Description
	Identifies information helpful for the current task.
	Identifies conceptual information on a particular topic or suggestions for usage.
	Identifies important information that the audience should know before proceeding with a task.

Typography

The typography used in the documentation is as follows:

Convention	Description
Bold	Caution statements, labels, headings, and table headers appear in a bold font.
<i>Italics</i>	Italics indicate an emphasized word or phrase as well as book titles.
Monospace type	Code examples, filenames, object names, property names, and method names appear monospace type.
“Quotation marks”	The proper syntax for Blox properties and methods or queries may require single or double quotation marks. In addition, quotation marks surround a cross-reference to another topic.

Contacting IBM

If you have a technical problem, please review and carry out the actions suggested by the product documentation before contacting DB2 Alphablox Customer Support. This guide suggests information that you can gather to help DB2 Alphablox Customer Support to serve you better.

For information or to order any products, contact an IBM representative at a local branch office or contact any authorized IBM software remarketer. If you live in the U.S.A., you can call one of the following numbers:

- 1-800-IBMSERV for customer support
- 1-888-426-4343 to learn about available service options

Product Information

If you live in the U.S.A., then you can call one of the following numbers:

- 1-800-IBM-CALL (1-800-426-2255) or 1-800-3IBM-OS2 (1-800-342-6672) to order products or get general information.
- 1-800-879-2755 to order publications.

<http://www.ibm.com/software/data/db2/alphablox>

Provides links to information about DB2 Alphablox.

<http://www.ibm.com/software/data/db2/udb>

The DB2 Universal Database Web pages provide current information about news, product descriptions, education schedules, and more.

<http://www.elink.ibm.com/>

Click Publications to open the International Publications ordering Web site that provides information about how to order books.

<http://www.ibm.com/education/certify/>

The Professional Certification Program from the IBM Web site provides certification test information for a variety of IBM products.

Note: In some countries, IBM-authorized dealers should contact their dealer support structure instead of the IBM Support Center.

Comments on the Documentation

Your feedback helps IBM to provide quality information. Please send any comments that you have about this book or other DB2 Alphablox documentation. You can use any of the following methods to provide comments:

- Send your comments using the online readers' comment form at www.ibm.com/software/data/rcf.
- Send your comments by electronic mail (e-mail) to comments@us.ibm.com. Be sure to include the name of the product, the version number of the product, and the name and part number of the book (if applicable). If you are commenting on specific text, please include the location of the text (for example, a title, a table number, or a page number).

Alphablox Analytics Overview

Alphablox Analytics runs in a J2EE application server environment and provides services for creating web-based analytical applications. Alphablox Analytics can be integrated with leading application servers, including IBM WebSphere, BEA WebLogic, and Apache Tomcat. This chapter provides an overview of Alphablox Analytics, describes how Alphablox Analytics fits into a J2EE environment, and describes the Alphablox Analytics architecture.

Contents

- “Alphablox Analytics Overview” on page 28
- “Alphablox Analytics in a J2EE Environment” on page 29
- “Components of the Alphablox Analytics Platform” on page 32
- “Alphablox Analytics Architecture” on page 39
- “List of Tasks to Get Started With Alphablox Analytics” on page 43

Alphablox Analytics Overview

Alphablox Analytics provides the ability to rapidly create custom, web-based applications that fit into the corporate infrastructure and have the ability to reach a wide range of users, both inside and outside the corporate firewall. Applications built with the Alphablox Analytics platform run in standard web browsers, allowing real-time, highly customizable multidimensional analysis in a web browser.

The following are some features available in the Alphablox Analytics platform:

- access and interact with data in multidimensional and relational databases
- create structured reports sourced from relational databases
- choose from a wide variety of charts to display data
- create applications that write data back to the database, particularly useful in “what-if” financial planning applications
- with multidimensional data sources, allow users to interact with the different levels of data (for example, filter, drill down, etc.) to interactively display the exact view of the data desired
- end users access an intuitive user interface making analysis of the data easy and powerful
- a single application can access multiple data sources
- integrates into a wide variety of enterprise infrastructure components, including application servers (IBM WebSphere and BEA WebLogic)

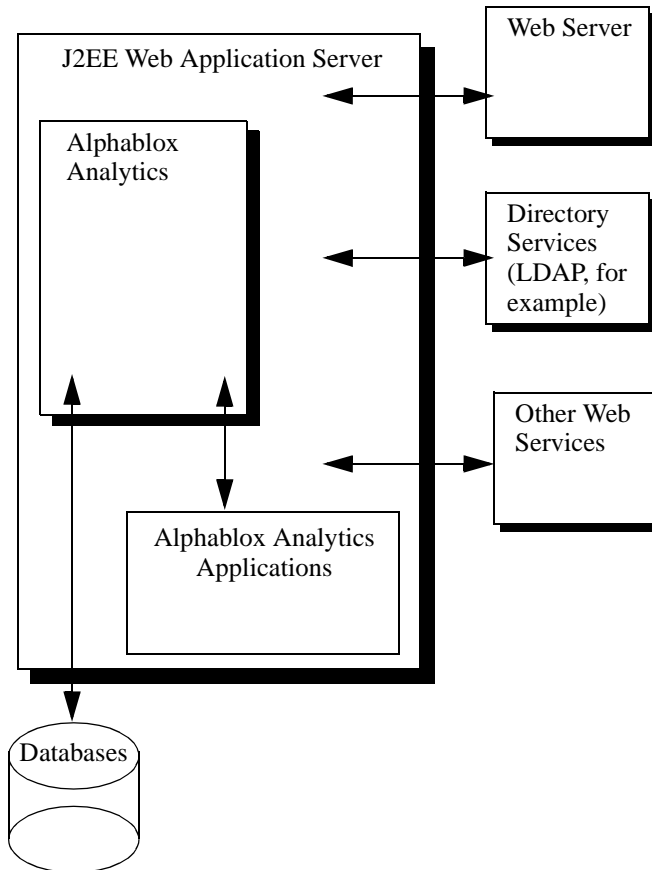
Alphablox Analytics provides a wide variety of application programmer interfaces (APIs) so developers can create custom applications. The Alphablox Analytics APIs are written in the Java programming language, and application developers can access them using Java that is executed on the server or via JavaScript that is interpreted in the browser.

The remainder of this chapter describes how Alphablox Analytics fits into a J2EE environment, explains the components of Alphablox Analytics, and describes the architecture of Alphablox Analytics, the core component of Alphablox Analytics. For detailed information about creating Alphablox Analytics applications, see the *Developer’s Guide for the Java Client* and the *Developer’s Guide for the DHTML Client*. For syntax and reference information about the Alphablox Analytics API, see the *Developer’s Reference for the Java Client* and the *Developer’s Reference for the DHTML Client*.

Alphablox Analytics in a J2EE Environment

Alphablox Analytics runs within a J2EE application server (IBM WebSphere or BEA WebLogic) or Apache Tomcat. For a list of supported application servers and their versions, see the *Installation Guide*.

The following figure shows how Alphablox Analytics fits into a J2EE environment



Advantages of Running Within an Application Server

Running within an application server has several advantages:

- it allows easy integration of open standards-based J2EE components into the Alphablox Analytics environment
- it provides access to the services provided by the various web services
- it provides access to the all the services provided by the Java Runtime Environment, as well as any Java extensions available in a particular application server
- it allows Alphablox Analytics to focus on providing a platform for analysis, leaving things like web serving, security, etc. to vendors who specialize in these areas
- it provides a platform for J2EE developers that they are familiar with using J2EE technologies, such as JavaServer Pages (JSP), Java, JavaBeans components, and XML.

The tight integration with the application server provides Alphablox Analytics with all of these advantages while allowing developers access to the rich set of Alphablox Analytics APIs.

WebSphere and WebLogic Application Server Configurations

Alphablox Analytics can be configured to run in IBM WebSphere or BEA WebLogic application servers. The basic operation of Alphablox Analytics is the same when running with WebSphere, WebLogic, or Tomcat; only a few minor administration details are different (for example, you must register a new application in WebSphere after creating it in Alphablox Analytics and startup occurs with the application server startup).

When running with a commercial application server such as WebSphere or WebLogic, you have access to all the tools, scalability, and services available on that platform, as well as all the services available in the Alphablox Analytics platform.

The installation provides options to configure WebSphere, WebLogic, and Tomcat. For details, see the *Installation Guide*.

Because Alphablox Analytics applications are J2EE applications, the applications will work in different configurations. Therefore, it is possible to develop and test your application in a Apache Tomcat configuration and then deploy it in your enterprise application server configuration. Occasionally, there are minor runtime differences between when running on different platforms, so it is necessary to test an application in a different configuration before deploying it, but as long as there are no platform-specific services used in the application, there are few issues migrating from one configuration to another.

Apache Tomcat Configuration

As one option, Alphablox Analytics can use the Apache Tomcat application server. In the Apache Tomcat configuration, the Alphablox Analytics installer uses the specified Apache Tomcat server (version 3.2.4 only). For information on Apache Tomcat, see <http://jakarta.apache.org/tomcat>. To obtain a copy of the Tomcat 3.2.4 version, see <http://archive.apache.org/dist/jakarta/tomcat-3/archive/v3.2.4/>.

When using the Apache Tomcat with Alphablox Analytics, there are no Tomcat-specific administration tasks needed in order to use the Alphablox Analytics platform. The Apache Tomcat configuration is a scalable solution, able to use the clustering solution described in “Using a Database Repository” on page 195.

The Apache Tomcat configuration includes full security with support for users, groups, and roles. You can use any of the supported external web servers (for example, Microsoft IIS, Sun iPlanet, or the Apache web server) in the Apache Tomcat configuration, or you can have Tomcat handle HTTP requests.



The HTTP server included in the Apache Tomcat configuration is good for development or for small production systems, but for larger production systems, you may want to consider using an external web server, which has many caching and page serving features, to improve http performance.

Components of the Alphablox Analytics Platform

The Alphablox Analytics platform consists of the following elements, which are discussed in this section:

- “Alphablox Analytics” on page 32
- “Alphablox Analytics Applications” on page 37
- “Application Studio” on page 37

Alphablox Analytics

Alphablox Analytics has a robust architecture specifically designed for rapid development, deployment, and use of analytic applications. Key features provided by the architecture include:

- Data Adapters
- Blox Components
- DHTML Client
- Remote Administrative Capabilities
- Centralized Application Management
- N-Tier Architecture

Data Adapters

Alphablox Analytics includes a Data Manager specifically designed for connectivity to a variety of databases. The Data Manager is responsible for accessing, browsing, querying, and retrieving data from both relational and multidimensional databases (including Alphablox cubes). Connection to each database is implemented through plug-in adapters. For relational databases, the plug-in adapters are typically JDBC drivers. Each adapter encapsulates database-specific connection information and processing, greatly reducing the effort required to connect to additional databases.

The Data Manager and associated data adapters provide support for the following:

- Browsing a collection of pre-configured, named database connections (called data sources).
- Providing access to the available databases within each data source to Alphablox Analytics applications.
- Publishing the compatible query types for a specific data source.
- Allowing the traversal of a database's metadata.
- Managing database connections for user sessions.

- Translating query objects into the underlying native query language.
- Executing queries against a database.
- Interrogating a result set's data and schema.
- Processing a result set by displaying, pivoting, expanding, sorting, and drilling.
- Creating applications that take user input and write the data back to the underlying database (often used in “what if” scenarios for budget applications).

Blox Components

Alphablox Analytics applications use building blocks, called Blox components, to access and present real-time enterprise data through a standard web browser. Blox components are reusable software components that are combined, or *assembled*, on a standard JSP page, and result in interactive applications accessed through web browsers, either within a corporate intranet or over the Internet.

These tested software components provide applications with the following areas of functionality:

- access to data
- interactive analysis of the data
- flexible presentation of the data
- access to administrative details (for example, users, groups, application names)





For example, a DataBlox component can populate an HTML list with product categories from an underlying database. In turn, the selection the user makes from that list can drive a query to the underlying database, so the end user sees a different set of data when she chooses the category *Compact Cars* than when she chooses *SUVs*.



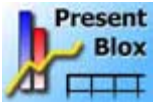

Blox components have extensive application programmer interface (API) calls that can be accessed using JSP files. The various API calls allow for a large amount of customization to the data being accessed, control over the degree of interactivity to which the end user is exposed, and the ability to customize the data presentation to the end user.

By assembling Blox components into web-based applications, developers can quickly provide users with immediate access to business information. Using the same Blox components for a spectrum of analysis applications not only reduces application creation, delivery, and maintenance efforts, but also reduces a user's learning curve. Regardless of the data being presented, Blox behavior is consistent across applications and platforms.

Furthermore, the skills required to assemble Alphablox Analytics applications are significantly lower than those required for traditional application development. Rather than first having to master the intricacies of a programming language, the application developer can quickly begin using HTML, JavaScript, multimedia objects, and Blox components. With these elements, application developers can create appropriate and visually compelling user interfaces for delivering powerful functionality to the user community.

Alphablox Analytics provides the following Blox components from which to assemble applications:

Blox Component	Use
	<ul style="list-style-type: none"> • Provides access to a multidimensional database (IBM DB2 OLAP Server, Hyperion Essbase, Microsoft Analysis Services, or Alphablox Cube Server) and develops a client representation of a data set. • Provides access to a relational database (IBM DB2, Oracle, Microsoft SQL Server, or Sybase) • Accepts and executes query requests. • Provides query result sets to Blox components responsible for data presentation.
	<ul style="list-style-type: none"> • Presents a graphical view of multidimensional data. • Permits users to manipulate the data in a wide variety of chart formats (including pie, bar, and line). • Enables users to drill down in sequence through the hierarchical data, or pivot the data view.
	<ul style="list-style-type: none"> • Presents grouped lists of available data dimensions and the axes on which they currently reside. • Enables users to move dimensions between the page, row, column, and “other” (unused) axes.
	<ul style="list-style-type: none"> • Presents multidimensional or relational data in an advanced grid format. • Enables users to analyze and manipulate multidimensional data. • Enables users to drill down in sequence through the hierarchical data, or pivot the data view.

Blox Component	Use
	<ul style="list-style-type: none"> • Presents drop-lists of the dimensions residing on the page axis (thus filtering the data that appears in ChartBlox and GridBlox). • Enables users to change the dimensions and/or members on which to filter data.
	<ul style="list-style-type: none"> • Presents buttons for user access to Blox functionality, such as: <ul style="list-style-type: none"> • toggling between chart and grid presentations • selecting chart types • saving and retrieving application views • moving the toolbar for easier access • opening a Blox in a separate window • pivoting rows and columns • Permits the assembler to select which buttons appear on the toolbar, thus tailoring user access to Blox functionality.
	<p>Combines the functionality of the preceding six Blox—DataBlox, DataLayoutBlox, ChartBlox, GridBlox, PageBlox, and ToolbarBlox—into a single Blox, which simplifies application assembly and conserves web page real estate.</p>
	<p>Provides application assemblers with access to stored objects, including saved application views; and server, application, group, and user properties.</p>

See the *Developer’s Reference for the DHTML Client* for detailed descriptions of the Blox API available within Alphablox Analytics. See the *Developer’s Guide for the DHTML Client* for guidance on using Blox components to create applications.

DHTML Client

With Alphablox Analytics, application developers can create applications that allow users to the DHTML client, requiring only a web browser. Alphablox Analytics renders the application in the mode in which it is requested, requiring no additional coding by the application developer.

The **DHTML client** is based on the Dynamic HTML technology, utilizing JavaScript and Cascading Style Sheet (CSS) to support the full range of data analysis functionality with a highly usable and customizable graphical user interface. It does not require any plug-ins or download of Java class files. It requires the Microsoft Internet Explorer browser to run.

Remote Administrative Capabilities

Alphablox Analytics provides comprehensive system administration capabilities through web-based administration pages, a console command window, or a telnet window. Through these administrative interfaces, administrators can perform the following kinds of tasks:

- Create Server console logs and specify the levels of events and messages to record.
- Monitor Server and application activity.
- Create Server objects such as data sources, users, groups, and applications.
- Monitor the use of Server objects.
- Start and stop Alphablox Analytics services, sessions, and applications.

For more information, see “Basic Administration Tasks” on page 59 and “Configuring Alphablox Analytics Properties” on page 143.

Centralized Application Management

Alphablox Analytics provides an Application Manager responsible for centralized application management. The Application Manager maintains and tracks the following:

- A list of available applications.
- A list of active applications.
- Activity within an application.
- Users logged in to applications.
- Blox components used by applications.
- Data sources used by applications.
- An application instance history.

Through the Alphablox Analytics home page, **Administration** tab, administrators can configure the Application Manager to automatically save the working state of an application (when a user logs out or a session times out), and then to restore the most recent working state of the application when the user next logs in to the application.

N-Tier Architecture

Alphablox Analytics draws fully on the latest Java technologies to implement a web-based, N-tier architecture. A typical application may use three tiers:

- Data resides on and is retrieved from a database server (relational or multidimensional)
- Application web pages reside in web applications on your application server and served through Alphablox Analytics
- Web page display and user interface presentation occur on a client machine through a web browser

On demand, Blox components passed from the web server to web browsers throughout intranets or over the Internet. This Java-based architecture can eliminate the need to install, configure, and maintain client-side application software.

Alphablox Analytics Applications

To users, an Alphablox Analytics application appears as a collection of web pages to browse like other web sites. These web pages serve as containers for the following application components:

- Standard HTML tags and page elements (such as logos, text, images, icons, video clips, sound clips, and animations) to enhance the user interface
- Blox components necessary to deliver the required application functionality and user interface
- JavaScript or Java scriptlets for extended application and UI logic

For example, a sales analysis application might feature an image map of sales regions. The user clicks on a region to view a chart of data for that region. The user interface permits users to change the chart format, display the data in an interactive grid format, and perform multidimensional operations (such as drilling and pivoting). Depending on the application, the user could also render the Blox output for printing or for export to other applications (such as a spreadsheet). For more information on the types and the components of Alphablox Analytics applications, see “Alphablox Analytics Applications” on page 45.

Application Studio

Application Studio, a companion product of Alphablox Analytics and part of Alphablox Analytics, further reduces the time and effort required to deliver complete, custom analytical applications to end users. Application Studio includes the following components:

- DHTML Query Builder, a workbench tool which can be used for developing and testing queries against application data sources and accessing several sample data sources for application prototyping and testing
- Blox Sampler - DHTML, containing working code examples that highlight Alphablox Analytics functionality and help developers understand the Blox APIs.

Application Studio enables rapid application prototyping. Accompanying the Studio is complete documentation that provides step-by-step instructions for configuring templates. For more information about Application Studio and its components, see the online help for the various templates within Application Studio.

Alphablox Analytics Architecture

The following Alphablox Analytics components are discussed in this section:

- Service Manager
- Request Manager
- Session Manager
- User Manager
- Application Manager
- Data Manager
- Repository Manager
- File Manager
- Console Manager
- Content Manager
- Cube Manager
- Cluster Manager

Alphablox Analytics is composed of several discrete services that run independently. In addition, it provides for comprehensive administration, including the following:

- An administrative interface to Alphablox Analytics resources (such as applications, data sources, users, and groups).
- An administrative console that can be accessed by web browsers, telnet, or a command window.
- The ability to start, pause, resume, and stop services, sessions, and applications.
- The ability to monitor Alphablox Analytics and application activity.
- Logs for tracking events and messages.

As part of initial installation, Alphablox Analytics is automatically configured with a default set of properties required for its operation. Subsequently, system administrators can change or add to the default Alphablox Analytics properties. For details, see “Configuring Alphablox Analytics Properties” on page 143.

Service Manager

The Service Manager starts, controls, and provides access to the other services (including required third-party services). The Service Manager processes all service requests and facilitates distribution of the service components.

Request Manager

The Request Manager controls all requests for application pages and peer services. Alphablox Analytics creates a *peer* for each connection. The peer keeps track of the state of the connection. The Request Manager creates, monitors, and manages the threads for each request, validates session IDs against its list of valid sessions, and creates the appropriate request objects to handle each request.

Session Manager

The Session Manager controls and monitors users' interactions with Alphablox Analytics applications. When a user requests an application, the Session Manager first passes the request to the User Manager for authentication. After the user successfully authenticates, the Session Manager creates a new session. A single user may have multiple simultaneous sessions (multiple browser instances). The Session Manager creates and manages session objects and tracks which applications a user visits.

The Session Manager also terminates dormant sessions (after first saving the current state of each application), and releases session resources. If a user attempts to work in the browser window after its session has expired, a reconnect message appears. If the user requests a reconnection (by clicking the browsers **Refresh** button in Internet Explorer, or **Reload** button in Netscape Navigator), the Session Manager creates a new session and restores the application to its state at the time the previous session expired.

User Manager

The User Manager controls all users of Alphablox Analytics services and is responsible for authenticating application and administrative users, monitoring their resources, administering user access to data and applications, maintaining the list of active users, and maintaining information about each user (such as when and for how long a user is attached to a specific application). The User Manager is aware of and manages the following objects that provide the Alphablox Analytics security scheme:

- A User is either an individual end-user or application administrator.
- A Group is a collection of users and other groups, and provides a convenient mechanism for administrators to manage multiple users as a single unit. Groups are hierarchical.
- Permissions determine what access (no access, read, read/write) a particular user has in a role.
- A role is a list of users and/or groups with a specific set of permissions.



Note the following about permissions and roles: If a user appears more than once in the same role (perhaps as both an individual user and as a member of a group), the user is given the union of all permissions of all entries. For example, if the user has read/write access and the user's group has read access, the user is granted read/write access.

Application Manager

The Application Manager creates an application definition when an assembler or administrator creates or modifies an application from the Alphablox Analytics home page, **Administration** tab, **Applications** page.

The Application Manager also accepts user requests for an application, verifies that users have application access, and creates an application instance for each request. The Application Manager monitors all application instances, enables the administrator to shut down an instance, automatically terminates dormant instances, and maintains the following information:

- A list of available applications
- A list of active applications
- An activity within applications
- Users logged in to applications
- Blox components used by applications

Data Manager

The Data Manager controls access to each data source that an application uses. The Data Manager enables the browsing, querying, and retrieval of data from a variety of relational and multidimensional data sources, as specified in the *Installation Guide* for this release.

Specifically, the Data Manager works with a database adapter for:

- Browsing a collection of pre-configured, named data sources
- Exposing the available cubes within each data source (if available)
- Publishing the compatible query types for a specific data source
- Allowing the transversal of a database's metadata
- Managing database connections for user sessions
- Translating query objects into the underlying native query language
- Executing queries against a database
- Interrogating a result set's data and schema

- Modifying a result set by pivoting, expanding, and drilling
- Creating applications that write user input back to the database for what-if analysis

Repository Manager

The Repository Manager controls the Alphablox Analytics Repository and its contents, which include saved application views and all other application, group, and user properties. The Alphablox Analytics Repository can be stored either in operating system files or in a relational database. For details, see “Using a Database Repository” on page 195.

File Manager

The File Manager controls temporary files and files used in the Alphablox Analytics administration pages.

Console Manager

The Console Manager provides multiple interfaces (web browser, telnet, and command window) for the system administrator to monitor and control the Analysis Server environment. For more details, see “Alphablox Analytics Console Commands” on page 223 and “Console” on page 52.

Content Manager

The Content Manager is a mechanism for Alphablox Analytics to create applications, roles, data sources, or other server objects.

Cube Manager

The Cube Manager provides interfaces for stopping, starting, and performing other administrative tasks for an Alphablox cube. For information on the Alphablox Cube Server, see the *Cube Server Administrator’s Guide*.

Cluster Manager

The Cluster Manager controls communication between the different nodes of Alphablox Analytics when it is run in a clustered environment. A clustered configuration is used to increase the scalability of your Alphablox Analytics system to support very large numbers of users. For details about setting up Alphablox Analytics to run in a clustered environment, see “Using Clustered Environments” on page 217.

List of Tasks to Get Started With Alphablox Analytics

The following is a simplified list that shows the basic tasks needed to get started with Alphablox Analytics. For more details about each task, see the book or section listed in the *Cross Reference* column.

Task	Cross Reference
1. Understand the environment in which Alphablox Analytics runs and decide on your configuration details (for example, IBM WebSphere, BEA WebLogic, or Apache Tomcat).	“Alphablox Analytics Overview” on page 27
2. Install and configure Alphablox Analytics.	<i>Installation Guide</i>
3. Familiarize yourself with the Alphablox Analytics home pages where you can perform administrative tasks such as creating applications, creating users, and setting up your security policy.	“Alphablox Analytics Home Page” on page 49
4. Understand the database environment in which your data resides.	Your database environment and your knowledge workers
5. Understand the development environment for building Alphablox Analytics applications.	“Alphablox Analytics Applications” on page 45, the <i>Developer’s Guide for the DHTML Client</i> , and the <i>Developer’s Guide for the Java Client</i>
6. Create an application definition.	“Application Definitions” on page 73
7. Develop and test the application using JSP technology, Blox custom tag libraries, and Alphablox Analytics APIs.	For the DHTML client: <i>Developer’s Guide for the DHTML Client</i> , <i>Developer’s Reference for the DHTML Client</i>
8. Deploy the application to your enterprise.	Your users, your corporate intranet, and the Internet.

Alphablox Analytics Applications

You can create Alphablox Analytics applications to provide access to data for analysis through a browser, whether in a corporate intranet environment or in the broader internet. Because Alphablox Analytics applications are highly customizable and can integrate into many types of enterprises, there are a wide variety of applications that can be called “Alphablox Analytics applications.” This chapter briefly describes those types of applications and describes the components that make up an Alphablox Analytics application. For more information about Alphablox Analytics applications, see the *Developer’s Guide for the DHTML Client* and the *Developer’s Guide for the Java Client*.

Contents

- “Types of Alphablox Analytics Applications” on page 46
- “Components of an Alphablox Analytics Application” on page 48

Types of Alphablox Analytics Applications

Alphablox Analytics applications are J2EE-compliant web applications that run in the Alphablox Analytics environment. Because Alphablox Analytics applications run in a web browser and can be combined with virtually any other web application technologies, there can be a very large variety to what these applications do and how they look. At the most basic level, Alphablox Analytics applications provide a way to interactively display analytic data in a web page so end users can use the data to gain valuable knowledge about the business underlying the data. The data resides in various databases throughout an enterprise.

For the Alphablox Analytics components in these web applications, this section briefly describes the following categories of Alphablox Analytics applications:

- Data Presentation Modes
- Relational Reporting Applications

You can also combine several different Alphablox Analytics elements in a single application. For example, you can display a chart and a spreadsheet in the same application. For more details about what is possible with and how to develop these applications, see the *Developer's Guide for the DHTML Client*, *Developer's Guide for the Java Client*, and the *Relational Reporting Developer's Guide*.

Data Presentation Modes

There are many ways that data can be presented in Alphablox Analytics applications. You can show data in a grid, in a chart, or both. You can also use data from a database to populate elements of your applications such as drop down lists, menus, etc.

The Alphablox Analytics DHTML client uses the latest Dynamic HTML technology, including HTML, JavaScript, and Cascading Style Sheets (CSS), to support a full range of data analysis functionality with a highly usable and customizable graphical user interface, including right-click context menus. A major advantage of the DHTML client is the extensibility available using the Blox APIs with the Blox UI Model. The DHTML client mode can be used only with the more recent Microsoft Internet Explorer browsers, but does not require additional web browser plug-ins, client machine installations, or the download of Java class files.

Convert to PDF

You can create Alphablox Analytics applications that allow you to print your reports to PDF files, creating very high quality output. The Print to PDF feature uses a PDF template which can contain any elements you require (for example, company logos, boilerplate text, etc.) and then take your live data and create PDF file containing a top quality report. You can then print, email, or post on a web site the PDF file for distribution. PDF functionality can be used with all of the client rendering modes

Custom Render Modes Using XML

Alphablox Analytics provides APIs to access the data in XML format, allowing developers to create custom layouts of the data in any way needed, or to manipulate the data using whatever custom techniques you want. This is useful if you have some specialized need that the other presentation methods do not address.

Relational Reporting Applications

You can use ReportBlox components to create Alphablox Analytics applications that provide reports sourced from relational databases. These reports are highly customizable and are displayed in HTML tables, using Cascading Style Sheets (CSS) technology to provide easy customization and a flexible look-and-feel.

Reports created using ReportBlox components can be used in an interactive mode to provide a user interface to customize them, as well as a comprehensive API to programmatically change them. For details about ReportBlox components, see the *Relational Reporting Developer's Guide*.

Components of an Alphablox Analytics Application

Because Alphablox Analytics applications are J2EE applications, they can have any components available to J2EE applications. This section describes the following basic components of Alphablox Analytics applications:

- JavaServer Pages (JSP)
- Blox Components

For a description of the directory structure of Alphablox Analytics applications, see “Alphablox Analytics Application Definitions” on page 74.

JavaServer Pages (JSP)

JavaServer Pages (JSP) technology is the mechanism from which an application developer typically provides Alphablox Analytics functionality to an application. Interactive web pages are developed using JSP, Blox custom tag libraries, HTML, and any Java or JavaScript code as needed for your particular applications. JSP pages are compiled at runtime on the application server (for performance reasons, the application server only compiles the page the first time it is accessed; subsequent page requests use the precompiled page in most application server configurations), then Alphablox Analytics processes any Alphablox Analytics requests, and then the web server returns dynamic content to the user.

Blox Components

Blox components are Alphablox Analytics components that provide functionality such as accessing data sources, displaying data in grids and charts, etc. You add Blox components to a JSP page using the Blox custom tag libraries. The Blox tag libraries allow you to control many aspects of the Blox. For example, you can change an attribute of ChartBlox to specify the type of chart displayed.

You can also manipulate Blox components programmatically, using either Java or JavaScript. When you use JavaScript to access Blox APIs, the code is interpreted on the browser. When you use Java to access Blox APIs, the code is compiled by the JSP engine (the application server) and then executed on the server.

For more information about the types of things Blox are used for, see “DHTML Client” on page 35. For details about using Blox components in Alphablox Analytics applications and the types of components available when using the DHTML client, see the *Developer’s Guide for the DHTML Client*, the *Developer’s Reference for the DHTML Client*.

Alphablox Analytics Home Page

This chapter describes the Alphablox Analytics home page. For information about the command line interface, see “Alphablox Analytics Console Commands” on page 223.

Contents

- “Alphablox Analytics Home Page Overview” on page 50
- “Applications Tab” on page 50
- “Administration Tab” on page 52
- “Assembly Tab—Application Studio” on page 55
- “Links in the Upper Right Corner” on page 57

Alphablox Analytics Home Page Overview

Alphablox Analytics is automatically configured during initial installation. Following installation, administrators can set or change Alphablox Analytics's startup configuration, properties, and ports. To administer Alphablox Analytics, use the **Administration** tab on the Alphablox Analytics home page or the Console command line interface. To access the Alphablox Analytics administration pages, enter one of the following URLs in a browser window:

```
http://<servername>/AlphabloxAdmin/home/
http://<servername>/AlphabloxAdmin/
http://<servername>/AlphabloxAdmin (except iPlanet)
```

where <servername> represents the name of the server and port number on which Alphablox Analytics runs.

where <servername> represents the name of the server and port number on which Alphablox Analytics runs.

Applications Tab

When you open to the Alphablox Analytics home page, the Application tab is selected by default and appears in blue, like this:



The **Applications** tab displays by default when a user accesses the Alphablox Analytics home page. The **Applications** tab lists the applications and any available saved application states to which the user has access. Some users might only see the **Applications** tab because they do not have the necessary privileges to view or access the other tabs.

To launch an application, click the desired link. The applications launch in DHTML mode by default. Selecting the **Default Application State** from the drop list loads the application in the state defined as the default state in the application definition.

Other Applications

Any other applications that are defined in Alphablox Analytics also appear under the **Applications** tab. To launch an application, click its link. The applications launch in DHTML mode by default. Selecting the **Default Application State** from the drop list loads the application in the state defined as the default state in the application definition.

Administration Tab

The **Administration** tab appears on the Alphablox Analytics home page only if the authenticated user has administrative privileges. Clicking the tab opens the **General** page where administrators can define or modify aspects of Alphablox Analytics. The following sections are under the **Administration** tab:

- General
- Groups
- Users
- Roles
- Applications
- Data Sources
- Alphablox Cubes

General

The **General** link under the **Administration** tab provides the interface for administrators to configure core Alphablox Analytics functions.

General Properties

The **General Properties** section is where you configure the parameters for starting up Alphablox Analytics and setting the maximum number of Alphablox cubes allowed for the Alphablox Cube Server. For details on performing these tasks, see “Alphablox Analytics Administration Tasks” on page 144. For information about Alphablox Cube Server, see the *Cube Server Administrator’s Guide*.

Custom Properties


For details on defining custom properties, see “Custom Property Definitions” on page 153.

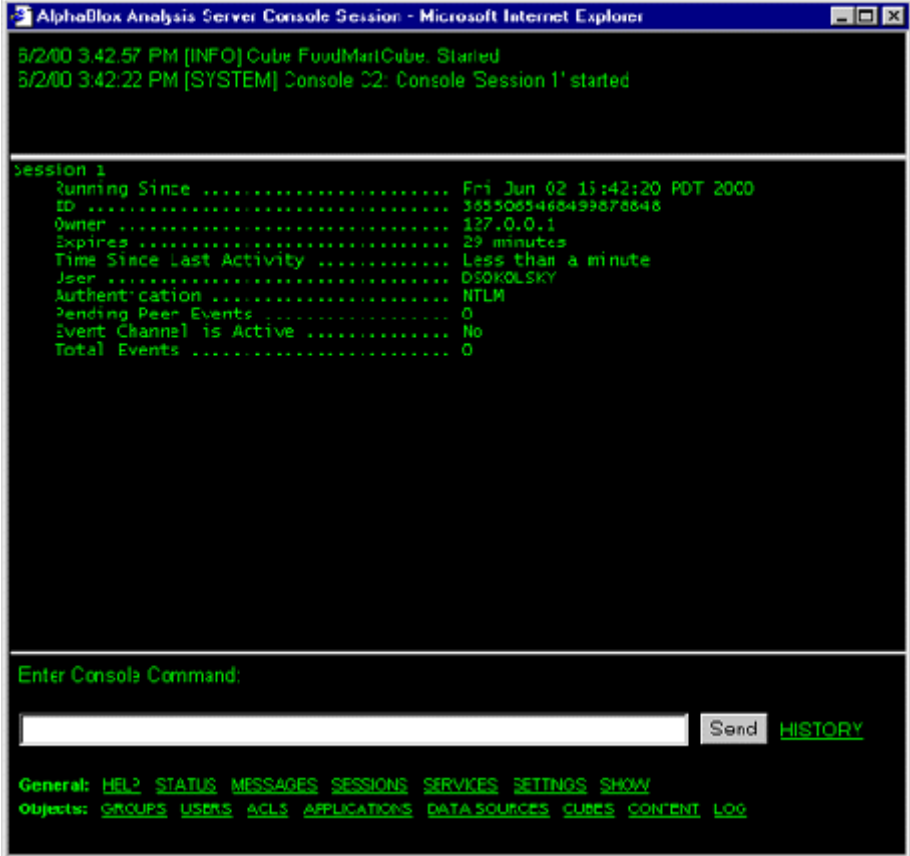
Runtime Management

Use the **Runtime Management** section to manage your Alphablox Analytics license, application sessions, comments collections, PDF reports (DHTML only), and Alphablox cubes. For information on creating and maintaining on Alphablox cubes, see the *Cube Server Administrator’s Guide*.

Console

Clicking the **Launch Alphablox Analytics Console** link opens the console window, where administrators can enter textual commands to perform most of the administrative functions that are normally performed through the user interface. For information on using the Console, see “Alphablox Analytics Console Commands” on page 223.

 The telnet console user (as defined in the Alphablox Analytics home page, **Administration** tab, **General** link, **Telnet Console** link) can also access the Console through any telnet terminal software. You can access telnet software on most systems running a Microsoft Windows operating system from the Windows **Start** menu, **All Programs** folder, **Accessories** group, **Telnet** shortcut, or open a telnet window from the **Start** menu, **Run** shortcut, then type **telnet**.



```

AlphaBlox Analysis Server Console Session - Microsoft Internet Explorer
5/2/00 3:42:57 PM [INFO] Cube FoodMartCube. Started
5/2/00 3:42:22 PM [SYSTEM] Console C2: Console Session 1' started

Session 1
Running Since ..... Fri Jun 02 11:42:20 PDT 2000
ID ..... 3655065468499678848
Owner ..... 127.0.0.1
Expires ..... 29 minutes
Time Since Last Activity ..... Less than a minute
User ..... DSOKOLSKY
Authentication ..... NTLM
Pending Peer Events ..... 0
Event Channel is Active ..... No
Total Events ..... 0

Enter Console Command:
 Send HISTORY

General: HELP STATUS MESSAGES SESSIONS SERVICES SETTINGS SHOW
Objects: GROUPS USERS ACLS APPLICATIONS DATA SOURCES CUBES CONCENT LOG

```

Groups

Use the **Groups** link under the **Administration** tab to define groups, assign users to groups, and so on. For details on setting up groups, see “Group Definitions” on page 111.

Users

Use the **Users** link under the **Administration** tab to define users, reset passwords, assign group memberships to users, and so on. For details on setting up users, see “User Definitions” on page 105.

Roles

Use the **Roles** link under the **Administration** tab to create and modify roles. Roles allow you to control which users and/or groups have access to a particular application. For details on setting up Roles, see “Role Definitions” on page 117.

Applications

Use the **Applications** link under the **Administration** tab to create and modify the state of applications that reside on the Alphablox Analytics. You can define default states, set roles, and define an image that appears on the Applications tab. For details on the tasks necessary to define an application, see “Application Definitions” on page 73.

Data Sources

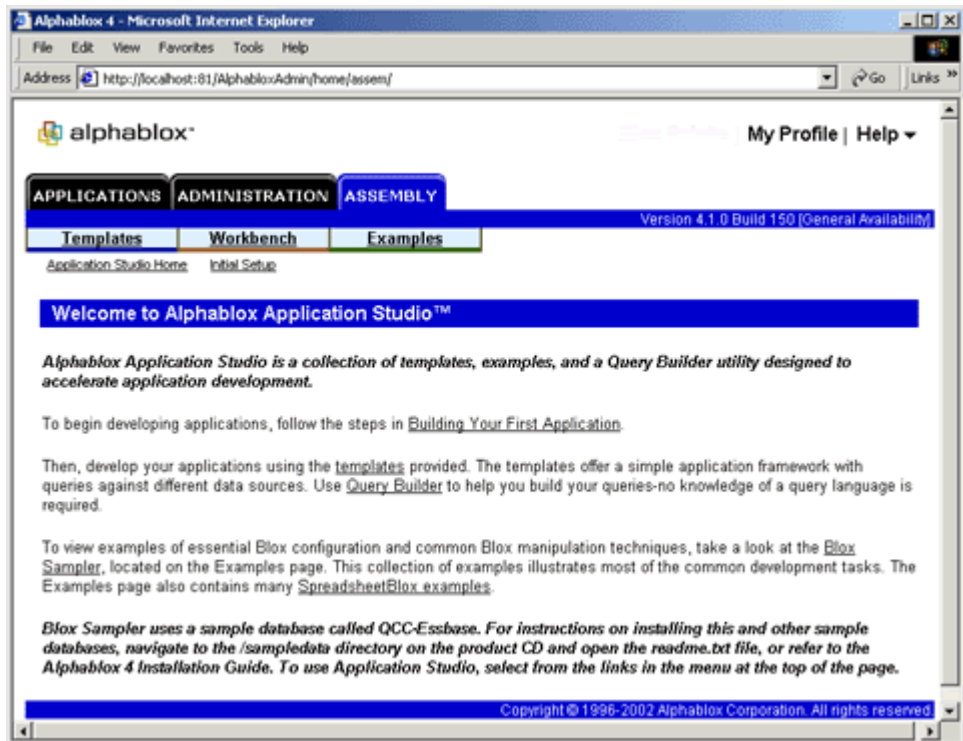
Use the **Data Sources** link under the **Administration** tab to define and modify data sources that are available to Alphablox Analytics applications running on Alphablox Analytics. You can define data sources to access OLAP databases (for example, IBM DB2 OLAP Server, Hyperion Essbase, and Microsoft Analysis Services), relational databases (for example, IBM DB2 UDB, Oracle, Sybase, and Microsoft SQL Server), and Alphablox cubes. For details on defining and modifying a data source, see “Data Source Definitions” on page 91.

Alphablox Cubes

Use the **Alphablox Cube** link under the **Administration** tab to define or modify Alphablox cubes. Alphablox cubes present data stored in a relational database in a multidimensional form. For detailed information on Alphablox cubes and the Alphablox Cube Server, see the *Cube Server Administrator’s Guide*.

Assembly Tab–Application Studio

Clicking the **Assembly** tab on the Alphablox Analytics home page opens the Alphablox Analytics Application Studio. The opening Application Studio page has links to pages containing templates, examples, and tools. These pages are designed to help developers rapidly create Alphablox Analytics applications. Application Studio is a framework of easy-to-use application templates, workbench tools, and working code examples for easy application creation. For more detailed information on Application Studio, see the *Developer's Guide for the DHTML Client*.



Templates

The **Templates** page under the **Assembly** tab contains links to the application templates shipped with the Alphablox Analytics. The templates are designed to be the basis for custom analytical applications.

The basic template allows you to quickly access real data in an Alphablox Analytics application, while also providing the capability for significant customization of the application. There are versions of the basic template available for all supported data sources (for example, IBM DB2 OLAP Server, Hyperion Essbase, Microsoft Analysis Services, Alphablox Cube Server, and relational databases).

Workbench

The **Workbench** page under the **Assembly** tab contains a link to the **Query Builder**. Query Builder is an application that allows you to interactively enter queries to various data sources and view the results in a grid and/or a chart.

Examples

The **Examples** page under the **Assembly** tab contains links to example JSP applications, code samples, and other examples. Included in the examples is the *Blox Sampler*, which contains many working code examples. These code samples are extremely helpful in learning to develop applications with Alphablox Analytics, and many of them are suitable to cut and paste directly into your own custom applications.

Sample Data

Sample data for use in the *Blox Sampler* is shipped with Alphablox Analytics. The sample data is a database named the Quality Chocolate Company (QCC), and there are versions of the database available for multiple databases, both multidimensional and relational. For details on installing the sample data, see “Installing the Sample Data” in the *Installation Guide*.

Links in the Upper Right Corner

Each tab of the Alphablox Analytics home page has two links in the upper right corner of the page:

- My Profile
- Help

My Profile

Clicking the **My Profile** link opens the **Profile** page. Users can change their profile description, passwords, and e-mail address, as well as install or uninstall local class (JAR) files from this page.



Help

The **Help** menu provides links to the following:

- **Help On...**—this link provides context-sensitive online help for the page in which the button is clicked. The online help provides information about how to use the interface for each page.
- **Online Documentation**—this link opens the Alphablox Analytics online documentation in a new browser window. The online documentation contains web-based (HTML) and PDF versions of the Alphablox Analytics documentation set.
- **Server-Side API Reference**—this link opens the Javadoc for the server-side Java APIs.
- **Alphablox on the Web**—this link opens the Alphablox corporate web site.
- **About Alphablox Analytics**—this link provides copyright information about Alphablox Analytics.



Users who are not members of the `AlphabloxAdministrators` role do not see all of these links.

4

Basic Administration Tasks

Alphablox Analytics includes comprehensive facilities for managing the server environment. The Alphablox Analytics home page provides a single point to administer all aspects of the server. This section describes the steps for starting, accessing, configuring, and stopping Alphablox Analytics.

Contents

- “Starting Alphablox Analytics” on page 60
- “Accessing Alphablox Analytics” on page 63
- “Stopping Alphablox Analytics” on page 64
- “Using Alphablox Essbase Client Library Utility” on page 65
- “Other Administrative Tasks and Information” on page 65

Starting Alhablox Analytics

You must start Alhablox Analytics prior to opening and accessing the Alhablox Analytics home page. If you access the Alhablox Analytics home page prior to starting the server, you will receive an error message.

Starting Alhablox Analytics on Windows Systems (Apache Tomcat Configuration)

On Windows systems, you can start Alhablox Analytics in a console window from the Windows **Start** menu or you can start Alhablox Analytics to run as a Windows service.

From the Windows Start Menu

To start Alhablox Analytics from the Windows **Start** menu, perform the following steps:

- 1 Open the Windows **Start** menu.
- 2 Select the **All Programs** folder.
- 3 Select the **Alhablox Analytics** program group.
- 4 Select the instance name for the instance of Alhablox Analytics (typically, this is **AlhabloxAnalytics**).
- 5 Select the **Startup Alhablox Analytics** shortcut.

The **Alhablox Analytics** window opens listing the current version and status of the server. You cannot run any server commands from this window; open a telnet console window to execute commands.

To Run as a Service

To start Alhablox Analytics to run as a Windows service, perform the following steps:

- 1 Open the Windows Control Panel from the Windows **Start Menu**, **Settings**, **Control Panel** shortcut.
- 2 Double click the **Services** control panel document. On Windows 2000 machines, the **Services** control panel documents is within the **Administrative Tools** folder, on Windows NT machines, it is directly under the **Control Panel** folder. The Services window appears.
- 3 From the list of services, select the service named **Alhablox(<InstanceName>)** and click the **Start** button. There will be one service for each installed instance of Alhablox Analytics; the default instance name is **AlhabloxAnalytics**.

- 4 After the service has completed its startup operation, the status will display the state of **Started**.
- 5 Click the **Close** button to close the Services window.



If Alphablox Analytics is started as a service and fails to start due to a fatal error, the Windows service still says it is started. If you try to stop it, Windows services returns an error message: “Error 2184: The service has not been started.” If you see this error, Click OK on the error window. Once you resolve the problem that caused the server to fail, restart the service.

WebSphere Issues

When Alphablox Analytics is installed within WebSphere to run as a service, the following tasks must be performed:

- 1 WebSphere may fail to connect to DB2 OLAP Server or Essbase. The WebSphere service is running as a user chosen during the WebSphere installation. This user must have the ARBORPATH set in its environment, as well as having NativeJNIEssBridge.dll and the Essbase DLLs in the PATH. To resolve this issue, you need to change the external PATH variable to include the following two paths:

```
<drive>:\<alphabloxRootDirectory>\bin
<drive>:\<alphabloxRootDirectory>\tools\essbase\<essbaseVersion>\api\lib
```

- 2 Manually modify the Windows Service Log on as property to Local System Account. During WebSphere installation, the default is to use a user. To resolve this issue, run the Windows Services manager and open “IBM WS AdminServer 4.0.” Check if “Log on as” is set to “Local System Account.” If not, set it to “Local System account” and repeat the installation of Alphablox Analytics.

Starting Alphablox Analytics on UNIX-based Systems (Apache Tomcat Configuration)

To start Alphablox Analytics on a UNIX-based system (for example, Sun Solaris or IBM AIX), enter the following command from the <alphabloxAnalytics_dir>/bin directory, where <alphabloxAnalytics_dir> is the directory in which Alphablox Analytics is installed:

```
./StartAlphablox.sh
```

You can start Alphablox Analytics while logged in either as the user in which the Alphablox Analytics files are owned or as the *root* user.

Starting Alphablox Analytics When Running With a Commercial Application Server

When you are running Alphablox Analytics with a commercial application server like IBM WebSphere or BEA WebLogic, Alphablox Analytics is completely integrated with the application server. Therefore, when you startup the application server, Alphablox Analytics automatically starts. For information about starting WebLogic or WebSphere, see the documentation for those products.

Accessing Alphablox Analytics

Alphablox Analytics is administered through the **Administration** tab of the Alphablox Analytics home page.

To access Alphablox Analytics through a browser, enter the following URL:

```
http://<servername>/AlphabloxAdmin/home/
```

where <servername> represents the name of the server and port number on which Alphablox Analytics runs.

To access the **Administration** tab of the Alphablox Analytics home page from the Windows **Start** menu:

- 1 Open the Windows **Start** menu.
- 2 Select the **All Programs** folder.
- 3 Select the **Alphablox Analytics** program group.
- 4 Select the instance name for the instance of Alphablox Analytics (typically, this is **AlphabloxAnalytics**).
- 5 Select the **Alphablox Analytics Home Page** shortcut.

Stopping Alphablox Analytics

On WebSphere application servers, you can stop Alphablox Analytics by stopping the application server. On Apache Tomcat installations, you can stop Alphablox Analytics either using the shutdown script if it is running in a console window or, if it is running as a Windows service, from the services Control Panel.

Stopping Alphablox Analytics With the Shutdown Script on Apache Tomcat Installations

To stop Alphablox Analytics when the server is running in a Console window (on Windows: the window that opens when you start Alphablox Analytics from the Windows **Start** menu, **All Programs** folder, **Alphablox Analytics** group, instance name (typically **AlphabloxAnalytics**), **Shutdown Alphablox Analytics** shortcut; on Sun Solaris: the window in which you started the server), perform the following steps:

On Windows Systems:

- Run the **Start** menu, **All Programs** folder, **Alphablox Analytics** group, instance name (typically **AlphabloxAnalytics**), **Shutdown Alphablox Analytics** shortcut.

On UNIX Systems:

- Run the following command from the `<alphabloxAnalytics_dir>/bin` directory, where `<alphabloxAnalytics_dir>` is the directory in which Alphablox Analytics is installed:

```
./StopAlphablox.sh
```

Stopping Alphablox Analytics From the Services Control Panel on Apache Tomcat Installations

If you are running Alphablox Analytics as a Windows service, perform the following steps to stop Alphablox Analytics:

- 1 Open the Windows Control Panel from the Windows **Start Menu**, **Settings**, **Control Panel** shortcut.
- 2 Double click the **Services** control panel document. The Services window appears.
- 3 For each running Alphablox Analytics service, select the service and click the **Stop** button.
- 4 Press the **Yes** button to confirm that you want to stop the service.
- 5 Click the **Close** button to close the Services window.

Using Alphablox Essbase Client Library Utility

Alphablox Analytics installs a default set of Essbase client library files, which may not be the latest available for your DB2 OLAP Server or Essbase database. Also, you may prefer to use a different set of Essbase client library files for your particular DB2 OLAP Server or Essbase installation. To change or update the Essbase client libraries installed on Alphablox Analytics, follow these steps:

- 1 On Alphablox Analytics, open the following directory:

```
<serverDirectory>/bin/
```

- 2 Find the ChangeEssbase executable and run it. On Windows installations, the file name is ChangeEssbase.exe, while on Unix installations, the file name will be ChangeEssbase.sh.
- 3 A script window should appear, prompting you to enter the fully qualified path the the installation of Alphablox Analytics, then press Enter.
- 4 A list of available class library options will appear. Choose the appropriate option, depending on the Essbase version of the client libraries you'd like to use, then press Enter. If a particular option is not listed, use option 6 to use the existing Essbase client libraries (assuming you have replaced the default files with client library files you've installed separately).
- 5 If successful, you will see a message stating that your system has been reconfigured.
- 6 Restart Alphablox Analytics for the changes to take effect.

Essbase client libraries other than those available in your Alphablox Analytics bin directory are available from IBM (<http://www.ibm.com/support/>) or Hyperion (<http://support.hyperion.com/>).

Other Administrative Tasks and Information

For information on other administrative tasks, see the following sections:

- “Alphablox Analytics Overview” on page 27
- “Alphablox Analytics Console Commands” on page 223
- “Alphablox Analytics Home Page” on page 49
- “Application Definitions” on page 73
- “Custom Property Definitions” on page 153
- “Role Definitions” on page 117
- “Data Source Definitions” on page 91

- “User Definitions” on page 105
- “Group Definitions” on page 111

Client Administration

Administrators need to be aware of some issues related to the use of the DHTML client with Alphablox Analytics applications. This chapter describes how to manage the installation and upgrading of client browsers using SmartCache, which is used by the Java client for delivering required Java classes to the end users' web browsers.

DHTML Client Administration

When using the default DHTML rendering mode with Alphablox Analytics, analytic applications are displayed using the built-in capabilities of supported Microsoft Internet Explorer web browsers. As a result, little administration is required to support DHTML-based applications.

Supported DHTML Client Configurations

See the System Requirements section of the *Installation Guide* for information about supported DHTML client configurations.

DHTML Client Issues

In general, there are few issues your users are likely to encounter using Microsoft Internet Explorer with Alphablox Analytics applications. Below are some potential issues that you may want to be aware of.

CSS

On rare occasions, users set personal preferences for Cascading Style Sheets (CSS) settings under the advanced options available in Microsoft Internet Explorer. Due to the cascading nature of CSS and the extensive use of CSS in the DHTML client, it is possible that changes in these settings could affect the appearance of Blox components in these browsers.

Pop-up windows

When users click on buttons or links when using the DHTML client, expected pop-up windows displaying either further information or dialogs may fail to appear. Pop-up blocking functionality, included in pop-up blocking software or the Google Toolbar, may interfere with the generation of these windows. To correct this problem, the user will either have to disable this functionality or, by changing their user preferences, may authorize pop-up windows on Alphablox Analytics applications.

Java Client Administration (for existing Java client users)

When using the Java rendering mode with Alphablox Analytics, Java applets are used to display the interactive user interface for analytic applications. To use the Java rendering mode, end user web browsers need to have either the Alphablox Analytics SmartCache or the Sun Java Plug-in installed. Included below is information about installation and usage of the Alphablox Analytics SmartCache and the Sun Java Plug-in.

When possible, it is preferable for you to use the Sun Java Plug-in option instead of the SmartCache option.

Supported Java Client Versions

See System Requirements section of the *Installation Guide* for information about the supported Java client configurations.

Installing Alphablox Analytics Java Client JAR Files

Using SmartCache on Client Machines

If you are not using the Sun Java Plug-in as your browser Java VM, and plan to use the Java client, you must run the SmartCache installer to download the necessary Alphablox Analytics classes (as a JAR file). SmartCache is a Java archive file that is installed on machines that access Alphablox Analytics applications in Java mode. Each client machine that accesses an Alphablox Analytics application in Java mode requires the SmartCache installation. Client machines that access Alphablox Analytics application in DHTML mode do not require SmartCache. You can install SmartCache in the following ways:

- From the **My Profile** link on the Alphablox Analytics home page.
- The application may have been set up to automatically update SmartCache if the version on the client is not compatible with the version of the server classes.

- Using the SmartCache installation from the install media.



For WebSphere and WebLogic installations, users will be prompted twice for authentication when they first install SmartCache (this isn't an issue when using the Sun Java Plug-in). If this is an issue for you, you can make a minor change to the `web.xml` file to avoid this by changing the URL pattern `web.xml XML Element` in the Alphablox Analytics Admin from the `/home/*` to `/home`.



The SmartCache installation installs the local Alphablox Analytics classes for the web browser currently being used. If you use both browsers and want to be able to access Alphablox Analytics applications in Java mode with both browsers, you must run the SmartCache installation from both browsers.

Install SmartCache From the My Profile Link

To install SmartCache from the **My Profile** link, perform the following steps:

- 1 From the Alphablox Analytics home page, click the **My Profile** link in the upper right portion of the page.
- 2 To determine what version of SmartCache you have compared to the latest version available on your server, click the **Verify SmartCache Installation** link
- 3 Click the **Install SmartCache (local Alphablox Analytics Classes)** link.
- 4 After the SmartCache installation is complete, restart your browser.

Install SmartCache When Accessing a Java Application

To install SmartCache when you first access an Alphablox Analytics application in Java mode, perform the following steps:

- 1 Access an Alphablox Analytics application in Java mode.
- 2 If SmartCache is not installed on your machine or if you do not have a compatible version of SmartCache, the **Analysis Server SmartCache Version Mismatch Detected** page appears.
- 3 Click the **Install the latest SmartCache now** link.
- 4 After the SmartCache installation is complete, restart your browser.



The SmartCache installation installs the local Alphablox Analytics classes for the browser you are currently using. If you use both Microsoft and Netscape browsers and want to be able to access Alphablox Analytics applications in Java mode with both browsers, you must run the SmartCache installation from both browsers.

Install SmartCache from the Installation Media

You can use the SmartCache installation program to install the Alphablox Analytics JAR files on your local machine. You can also use the SmartCache installation program with Microsoft System Management Services (SMS) to set up a network installation of SmartCache for many network-managed machines. For details on setting up an SMS installation, see the Microsoft SMS documentation.

To install SmartCache from the installation media, perform the following steps:

- 1 Run the following program from the Alphablox Analytics CD-ROM:

```
<cd_dir>/SmartCache/SmartCache.exe
```

where <cd_dir> is your CD-ROM drive.

- 2 When the InstallShield Wizard screen appears, click the **Next** button.
- 3 If you have any browsers running, shut them down. Click the **OK** button if the installation prompts you to shut down any browsers.
- 4 On the **Setup Type** screen, choose the browser(s) for which you want to install SmartCache. After making your selections, click the **Next** button.



Under normal conditions, do not check the **Manual Directory Installation** button. This option copies the SmartCache files to a specified directory only; it does not perform any other installation checking.

- 5 Check the information in the Alphablox Analytics SmartCache Installation screen to ensure that all of the options you have set were entered correctly. If everything is correct, click the **Next** button.
- 6 The installer copies all of the appropriate files to your machine. When it completes, the **Installation Complete** screen appears. Click the **Finish** button to end the installation.

Using the Sun Java Plug-in

The Sun Java Plug-in is supported in Alphablox Analytics for use with Microsoft Internet Explorer and Mozilla/Netscape browsers. [Note: See the system requirements in the *Installation Guide*.] The Java Plug-in provides a number of features that distinguish it from the using the Microsoft VM for Internet Explorer, including:

- Support for simultaneous multiple Alphablox Analytics versions
- No administrative rights are required by users in order to install or upgrade Alphablox Analytics SmartCache files

- Alphablox Analytics applications can now be used with other applications you may have that require the use of the Sun Java Plug-in.
- Smaller client JAR file to download
- Support for the latest Sun Java technology (Microsoft's Java VM only supports Java 1.1.4)
- No need to restart the browser. Installing and running an Alphablox Analytics application is seamless

Note: When using the Java Plug-in, there are some things you should be aware of that are different from Alphablox Analytics under the Microsoft and Netscape VMs which are outlined below.

Information about using and configuring the Sun Java Plug-in is available at:

<http://java.sun.com/getjava/>

How the Java Plug-in Works with Alphablox Analytics

When Blox are rendered in Java mode, Alphablox Analytics automatically includes in the applet tags an archive (JAR) parameter (specifying the location of the JAR to download) along with its `cache_version` field (which contains the version number of the product). The Java VM compares that version number against the one in the client cache. If the client JAR does not exist or a different version is currently in the cache, the Java Plug-in downloads the correct client JAR from the server and adds it to the client cache.

Note: Unlike the SmartCache install that occurs when clients are using the Microsoft or Netscape VMs, the Sun Java Plug-in installs a separate JAR file for each Alphablox Analytics the user connects to. Thus, if you are running Alphablox Analytics on multiple servers, different client JARs will be downloaded, but it also means that you can run multiple Alphablox Analytics versions simultaneously.

Verifying the JAR Install

To verify that a Alphablox Analytics client JAR has successfully installed, check the Java Plug-in cache viewer by choosing the "View Files in Cache" button in the Cache Tab under the Java Plug-in Control Panel under your system settings. If you view the Plug-in cache after the Alphablox Analytics client JAR has been downloaded, you will see the version number.

6

Application Definitions

This chapter describes the J2EE application structure and provides procedures for creating, modifying, and deleting application definitions in Alphablox Analytics.

Contents

- “Alphablox Analytics Application Definitions” on page 74
- “Defining an Application When Running With WebSphere” on page 78
- “Defining a New Application” on page 76
- “Changing an Existing Application Definition” on page 81
- “Deleting an Existing Application Definition” on page 84
- “Defining an Application When Using WebLogic Clusters” on page 84
- “Steps to Register An Application on an External Web Server” on page 86
- “Importing an Existing J2EE Application” on page 89

Alphablox Analytics Application Definitions

A list of applications appears on the **Applications** page under the **Administration** tab. To define a new application, click the **Create** button. To modify or delete an application definition, select an application from the list and click the **Edit** or **Delete** button.

When you create an application from the Alphablox Analytics home page, Alphablox Analytics creates the application definition in the Alphablox Analytics Repository and the underlying application server creates the J2EE application directory structure (the `webapps` directory). The directory structure created is as follows:

```
<ApplicationContext>/
  WEB-INF/
    web.xml
    timeschema.dtd
    timeschema.xml
    tlds/
      blox.tld
      bloxform.tld
      bloxlogic.tld
      bloxreport.tld
      bloxui.tld
```

You put your own application files within this directory structure. Typically, you might have some combination of JSP, JavaScript (`.js`), HTML, and image files. Additionally, if you have added any of your own Java classes to your application, there might be other Java-related files (such as `.class` files) within the directory hierarchy. The only restrictions are that all the files for the application must reside within the application directory structure.

Application Context

The **application context** is the name of the directory in which the application resides. When you create or import an application, you specify the application context in the **Applications** administration page.

WEB-INF Directory

Each application contains a `WEB-INF` directory. This directory is created automatically during application creation and contains metadata about the application. In normal operation, you should never need to modify anything under the `WEB-INF` directory. In order to understand how the web application works, however, it is useful to understand the following files:

- `blox.tld`

- `bloxform.tld`
- `bloxlogic.tld`
- `bloxreport.tld`
- `bloxui.tld`

The Blox TLD files contain the metadata for the Blox custom tag libraries. The custom tag libraries are used to create Blox components and Alphablox Analytics applications. For information on the custom tag libraries, see the *Developer's Guide for the DHTML Client* and the *Developer's Reference for the DHTML Client*

- `web.xml`

The `web.xml` file is a standard file in all J2EE applications. It is an XML file that contains markup describing the attributes of the application. The application server reads the `web.xml` file during initialization of the application.



Any Alphablox-required modifications to the `web.xml` file are done by the server; exercise caution if you need to modify the `web.xml` file on your own because incorrect entries can cause unexpected behavior in the application.

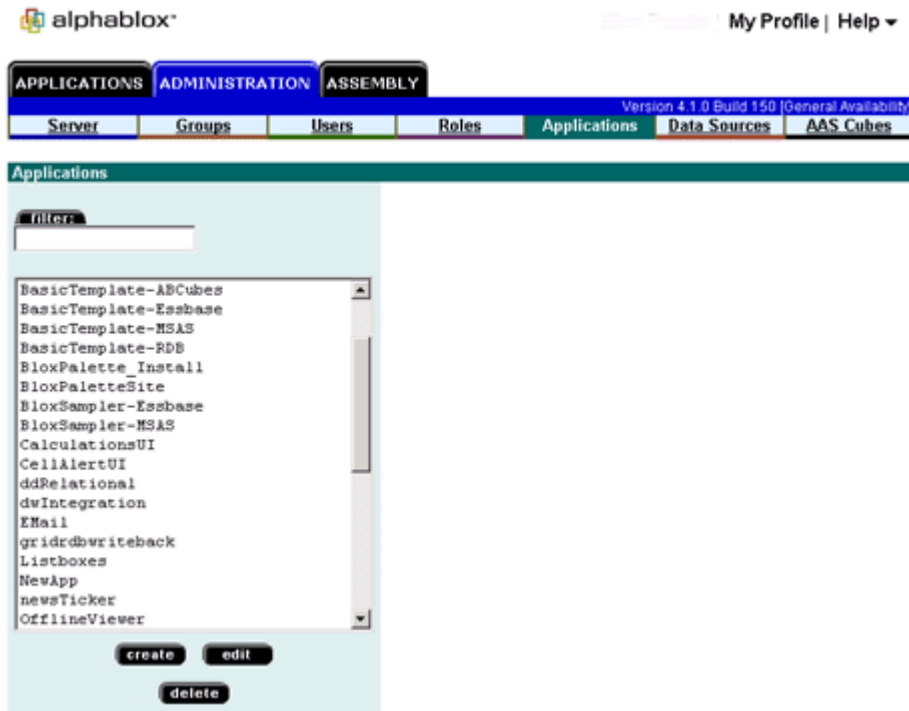
Defining a New Application

Perform the following to define a new application:



If you are using IBM WebSphere as the application server, there are additional steps required to create an application. For details, see “Defining an Application When Running With WebSphere” on page 78.

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Applications** link.



- 4 Click the **Create** button. The **Create Application** page appears.

- 5 Provide a unique **Application Context Name** (required) and **Description**. Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the name is case-sensitive, but the actual name that is authenticated is case-insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- 6 Provide the URL that identifies where this application resides (**Home URL**), and the URL to an identifying image for this application (**Image URL**). These two values are used to create an entry under the **Applications** tab, from which users can launch the application.



Note the following about the application URL. Suppose an application resides at `/my_apps/sample/simple.html` under the `webapps` directory of Alphablox Analytics. The URL to that application must be relative to the application context, without an initial slash (`/`), as follows:

```
sample/simple.html
```

- 7 For the **Write Privileges Security Role** text box, enter the name of an existing role for access to this application. If you leave this blank, the default access privileges are applied.
- 8 Enter a **Session Timeout** to set the J2EE session timeout, which is the idle time before a user's session times out. The timeout value is in minutes.
- 9 Select **Yes** or **No** from the **Automatic Save Enabled** drop list to indicate whether to enable the automatic save mechanism, which automatically saves an application's state to the Alphablox Analytics Repository when the user exits the application. When the user next logs into the application, this state (instead of the original application state) is retrieved and presented to the user (if the **Restore Saved Application State** drop list is set to **Yes**).
- 10 Select **Yes** or **No** from the **Restore Saved Application State** drop list to indicate whether or not to load the latest autosaved state.
- 11 Set the **Default Render Mode** for your application. By default, a new application supports the DHTML render mode and installs copies of the following five tag library descriptor (TLD) files in the new application's `bin` directory:

- `blox.tld`
- `bloxform.tld`
- `bloxlogic.tld`
- `bloxreport.tld`
- `bloxui.tld`

- 12 Provide values for custom properties, if any. For information about custom properties, see “Custom Property Definitions” on page 153.
- 13 Use the **Header Links** feature to set up links from the members displayed on a grid to open a URL or to perform some javascript. Add unique member names and URLs or other valid URL text in the **Header Links** text box, inserting a line break between each entry with the following syntax:

```
Member = URL
```

For example, to create a link to `http://www.ibm.com` from a member named IBM, enter the following into the Header Links text box:

```
IBM = http://www.ibm.com
```

- 14 Click the **Save** button to define the new application and return to the **Applications** page.
- 15 If you are running an Apache Tomcat configuration with an external web server (Apache, IIS, or iPlanet), you must perform the steps necessary for your configuration before the application is available. For details, see “Steps to Register An Application on an External Web Server” on page 86.

Defining an Application When Running With WebSphere

If you are using an IBM WebSphere application server, an application must be defined in WebSphere either before or after defining the application in Alphablox Analytics. This section describes the basic steps needed to create a web application in WebSphere. For details about creating applications using WebSphere, see your WebSphere documentation.

There are two ways to define an Alphablox Analytics application when running with WebSphere:

- Creating an application in Alphablox Analytics, then registering in WebSphere
- Importing an existing WebSphere application into Alphablox Analytics

Either way is acceptable; choose the one that is most convenient for you.

Creating an application in Alphablox Analytics, then registering in WebSphere

If you create an application in Alphablox Analytics when you are running with WebSphere, Alphablox Analytics creates the application structure in an enterprise archive (EAR) file. The EAR file is created in the following directory:

```
<alphabloxAnalytics_dir>/installableApps/
```

The name of the file is `<ApplicationContext>.ear`, where `ApplicationContext` is the name specified for the application context during when creating the application.

Before you can use a newly created application, you must perform the following steps to create the application structure in Alphablox Analytics and then register it with WebSphere:

- 1 In Alphablox Analytics, first define a new application as described in “Defining a New Application” on page 76. An EAR file is created in the `<alphabloxAnalytics_dir>/installableApps` directory.
- 2 Open the WebSphere Administrative Console, then select **Applications > Install New Application**.
- 3 On the **Preparing for the application installation** screen, click the **Browse** button and choose the following path:

```
<analytics_Home>/installableApps/<newApplication>.ear
```

where `newApplication` is the name of the application you want to install, then click **Next**.



Clustered environments only: You might need to use the server path setting to browse through the network to locate the `<newApplication>.ear` file.

- 4 The next screen shows the **Default Bindings Options**. Leave the default settings, unless you require different bindings, then click **Next**.
- 5 The **Application Security Warning** screen appears. Scroll to the bottom of this page and click on the **Continue** button.
- 6 The next section, **Install New Application**, consists of the following five steps as displayed in the dialog:

Step 1: Provide options to perform the installation

You can leave the existing settings and click **Next**.

Step 2: Map virtual hosts for web modules

Accept the existing values and click Next.

Step 3: Map modules to application servers

Accept the existing values and click Next.

Step 4: Map security roles to users/groups

Two roles, `AlphabloxAdministrator` and `AlphabloxUser`, should appear. You need to add at least one user for each role.

For the `AlphabloxAdministrator` role, check the checkbox in front of that role, then press the **Lookup Users** or **Lookup Groups** buttons to add administrative users. You must select at least one user. After you have added the users or groups, they should be listed in the **Mapped Users** or **Mapped Groups** value for this role.

For the `AlphabloxUser` role, check the checkbox under the **All Authenticated** column for this role. This allows all authenticated users to access applications. You may also use these settings to restrict access to specific users or groups, depending on your application requirements.

When finished, click Next.

Step 5: Summary

Scroll to the bottom of this screen, then press the **Finish** button.

- 7 The application is then installed and “Application `<newApplication>` installed successfully” will be displayed. Click on the **Save to Master Configuration** link.
- 8 The **Save to Master Configuration** dialog should appear. Click on the **Save** button. After a short wait period, you will be returned to the Administrative Console home page.
- 9 In the WebSphere Administrative Console, open **Applications > Enterprise Applications** and restart your application (`<newApplication>`).

You can now add content and use the application, as well as modify any of its properties from the Alphablox Analytics home pages.

Importing an existing WebSphere application into Alphablox Analytics

To import an existing WebSphere application into Alphablox Analytics, adding required Alphablox Analytics settings and files, perform steps in “Importing an Existing J2EE Application” on page 89.

Changing an Existing Application Definition

This section describes how to modify an existing application. Perform the following to modify an existing application:

- 1 Log into the Alphablox Analytics home page as the `admin` user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Applications** link.
- 4 Select the application you want to change from the list of applications and click the **Edit** button. The **Edit Application** page opens.
- 5 Change the appropriate property values.



WebSphere and WebLogic configurations: Applications cannot be renamed by modifying the **Application Context Name** text box. Changing the application context name will change the application name only in the Alphablox Analytics Repository, and will not affect the associated WebSphere or WebLogic application name or context path. To modify the associated application properties in WebSphere or WebLogic, use your application server console to rename the underlying app context path to use the new name and rename the underlying application document base directory.



Apache Tomcat configuration: Applications can be renamed by modifying the **Application Context Name** text box. When you rename an application, the directory name for the application in the Alphablox Analytics Repository and any bookmarks that reference the application are renamed.

- 6 Click the **Save** button to change the application's property values and return to the **Applications** page.
- 7 If you are running an Apache Tomcat configuration with an external web server (Apache, IIS, or iPlanet) and you renamed the application, you must perform additional steps necessary for your configuration. For details, see “Steps to Register An Application on an External Web Server” on page 86.

Modifying the Default Render Mode on Existing Applications

When a new application is created in Alphablox Analytics, the following tag library descriptor (TLD) files are added to the application `/WEB-INF/tlds` directory:

- `blox.tld`
- `bloxform.tld`

- bloxlogic.tld
- bloxreport.tld
- bloxui.tld

If you decide to change the Default Render Mode setting in an existing application from Java to DHTML, you must perform the following steps:

- 1 Copy the TLD files listed above into your application's /WEB-INF/tlds directory. Copies of the latest TLD files can be found in the following directory:

```
<alphabloxAnalytics_dir>/bin/
```

- 2 Find the taglib element definition for bloxtld in your application's web.xml file (located in your application's /WEB-INF directory between the session-config and security-constraint elements). The taglib element for bloxtld should look like this:

```
<taglib>
  <taglib-uri>bloxtld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/blox.tld</taglib-location>
</taglib>
```

- 3 Below the taglib element for bloxtld, add the following code to enable access for your application to the TLD files added to the /WEB-INF/tlds directory:

```
<taglib>
  <taglib-uri>bloxtld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/blox.tld</taglib-location>
</taglib>
<taglib>
  <taglib-uri>bloxuitld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/bloxui.tld</taglib-location>
</taglib>
<taglib>
  <taglib-uri>bloxformtld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/bloxform.tld</taglib-location>
</taglib>
<taglib>
  <taglib-uri>bloxreporttld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/bloxreport.tld</taglib-
location>
</taglib>
<taglib>
  <taglib-uri>bloxlogictld</taglib-uri>
  <taglib-location>/WEB-INF/tlds/bloxlogic.tld</taglib-
location>
</taglib>
```

4 Save the `web.xml` file.

You should now be able to use all available tag libraries in your application. On each JSP file, be sure to add any required `taglib` directives.

Deleting an Existing Application Definition

Perform the following to delete an existing application:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Applications** link.
- 4 Select the application you want to delete from the list of applications and click the **Delete** button.



Deleting the application removes the application definition from Alphablox Analytics, and thus the application name no longer appears in the application listings. The application folder and its associated files, however, are not removed and must be manually deleted.



[WebLogic] Deleting Alphablox Analytics Applications:

If `autoDeploy` is enabled, to fully delete an Alphablox Analytics application on the WebLogic server, follow these steps:

- a Use WebLogic admin console to disable the `autoDeploy` feature.
- b Delete the application definition from Alphablox Analytics. Alphablox Analytics will unregister the application on the WebLogic server.
- c Delete the app folder.
- d If desired, re-enable the `autoDeploy` feature.

If `autoDeploy` is not enabled, only steps b and c are required.

- 5 If you are running an Apache Tomcat configuration with an external web server (Apache, IIS, or iPlanet), you must perform the steps necessary for your configuration after deleting the application. For details, see “Steps to Register An Application on an External Web Server” on page 86.

Defining an Application When Using WebLogic Clusters

If you are using Alphablox Analytics in a BEA WebLogic clustering environments, follow these steps to create new applications:

- 1 Define an application on Alphablox Analytics from the Administration tab under applications as described in “Defining a New Application” on page 76.

- 2 Copy the entire directory of the newly created application to the Weblogic administration server. A good location would be the directory under the domain at the same level as the applications directory.
- 3 Add all necessary JSP files into the applications directory at the same level as the WEB-INF directory.
- 4 From the Weblogic console, configure the newly added web application. On Weblogic, you should be able to view the new applications directory, then press Select, or navigate to the proper level.
- 5 Select your cluster as the deployment target, then press the Configure and Deploy button.
- 6 After the application has deployed, select AlphabloxServer as the Web Application.
- 7 Select the Deploy tab and redeploy the AlphabloxServer.
- 8 Redeploying will stop and restart Alphablox Analytics.
- 9 When Alphablox Analytics is restarted, you can access your applications.



You do not need to copy your JSP files to each of the Managed servers since registering your web application on Weblogic takes care of this for you. For more information on this or to modify this refer to Weblogic documentation.

Steps to Register An Application on an External Web Server

If you are running an Apache Tomcat configuration of Alphablox Analytics with an external web server, there are some steps necessary each time you create or delete an application.

Because the web server is designed to efficiently serve static pages and the application server is designed to serve dynamic pages, these steps are necessary to ensure the best performance of both the web server and the application server. Without these steps, the application server would be forced to unnecessarily process static pages.

The following configurations are described:

- “Apache Web Server” on page 86
- “Microsoft Internet Information Server (IIS) Web Server” on page 86
- “iPlanet Web Server” on page 87

Apache Web Server

If you are running an Apache Tomcat configuration using the Apache web server, you must restart the Apache web server each time you create or delete an Alphablox Analytics application definition. The restart is necessary so Apache can read the changes Alphablox Analytics makes to the Apache configuration file (`mod_jk.conf-alphablox`) when you create or delete an Alphablox Analytics application definition.

To stop Apache, run the shutdown command if it is running in a console window or, if it is running as a Windows service, select the service from the **Services** control panel document and click the start button.

To restart Apache, run the startup command if it is running in a console window or, if it is running as a Windows service, select the service from the **Services** control panel document and click the stop button.

For more details on stopping and starting the Apache web server, see your Apache documentnation.

Microsoft Internet Information Server (IIS) Web Server

If you are running a stand-alone configuration using the IIS web server, there are two tasks you must perform each time you create or delete an Alphablox Analytics application definition:

- You must add or delete the virtual directory for the Alphablox Analytics application.
- You must restart the web server.

iPlanet Web Server

If you are running a stand-alone configuration using the iPlanet web server, there are two tasks you must perform each time you create or delete an Alphablox Analytics application definition:

- Add the Document Directory
- Add the Appropriate Assignments to the Alphablox Style

Add the Document Directory

For each Alphablox Analytics application, you must add the document directory to the web server so it can serve up pages from this directory. The following steps describe how to add the application directory to your iPlanet web server.

- 1 Open the iPlanet Web Server Administrative pages. By default, these pages are accessible via port 8888 on the server in which iPlanet is running, but the port might be different on your system.
- 2 Select your server from the drop down list and click the **Manage** button.
- 3 Click the **Class Manager** link in the upper right hand corner.
- 4 Click the **Content Mgmt** tab.
- 5 Click the **Additional Document Directories** link.
- 6 In the **URL prefix** text box, enter the context name of your application followed with a forward slash (/) as in the following example:

MyApplication/



Do not put the forward slash in front of the context name or it might corrupt the iPlanet configuration file.

- 7 In the **Map to Directory** text box, enter the directory of your application as in the following example:

d:/Alphablox4/webapps/MyApplication



Use only forward slashes (/) for your path name; some versions of iPlanet do not handle backward slashes (\) correctly in path names.

- 8 Choose **NONE** from the **Apply Style** drop down list.
- 9 Click the **OK** button and then save your changes.

Add the Appropriate Assignments to the Alphablox Style

For each application, you need to assign three URL prefix wildcards to the **alphablox** style. These assignments forward the appropriate requests to Alphablox Analytics. The following is the procedure to add the new assignments to the **alphablox** style.

- 1 Open the iPlanet Web Server Administrative pages. By default, these pages are accessible via port 8888 on the server in which iPlanet is running, but the port might be different on your system.
- 2 Select your server from the drop down list and click the **Manage** button.
- 3 Click the **Styles** tab.
- 4 Click the **Assign Style** link.
- 5 Choose the `alphablox` style from the drop list.
- 6 If your application is a standard Alphablox Analytics application, add three **URL prefix wildcards** to assign to the `alphablox` style:

```
MyApplication/abx/*  
MyApplication/servlet/*  
MyApplication/*.jsp
```

where *MyApplication* is the context name of your application.

- 7 Save and apply these changes for all of the URL forwarding requests.
- 8 If you want to confirm that you added the assignments correctly, click the **List Assignments** link and examine the list of assignments to the `alphablox` style.

Importing an Existing J2EE Application

You can import an existing J2EE application to define it as an Alphablox Analytics application. After importing a J2EE application to Alphablox Analytics, an application has access to all of the Alphablox Analytics application services such as Blox rendering, bookmarks, etc.

Importing J2EE applications is a common way of making applications available when running with WebSphere. For details on defining an application when running with WebSphere, see “Defining an Application When Running With WebSphere” on page 78.

To import an existing J2EE application to Alphablox Analytics, perform the following steps:

- 1 You must know the application context name of an existing J2EE application you want to import to Alphablox Analytics.
- 2 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 3 Click the **Administration** tab.
- 4 Click the **Applications** link.
- 5 Click the **Create** button.
- 6 Set the **Import from an existing J2EE Application** drop list to **Yes**.
- 7 Enter the **Application Context Name** for the J2EE application in the text box. The application context name is the name of the directory containing the J2EE application.
- 8 Click the **Save** button.
- 9 If you are running an Apache Tomcat configuration with an external web server, perform the steps described in “Steps to Register An Application on an External Web Server” on page 86.

After successfully importing the J2EE application, the new application appears in the list of applications. The application must have the structure described in “Alphablox Analytics Application Definitions” on page 74. If it does not, the import will fail with an error stating that the application context is not valid.

7

Data Source Definitions

This chapter contains administrative information about multidimensional and relational data sources, and provides procedures for creating, modifying, and deleting data source definitions in Alphablox Analytics.

Contents

- “Defining a New Data Source” on page 92
- “Changing or Deleting an Existing Data Source Definition” on page 94
- “Setting Up Microsoft Authentication for Analysis Services Data Sources” on page 95
- “Working With JDBC Data Sources” on page 99

Defining a New Data Source

Alphablox Analytics supports multidimensional and relational data sources. The **Data Source** page of the **Administration** tab allows you to define a data source for one or more Alphablox Analytics applications to access. Alphablox Analytics applications use these data sources to access relational and multidimensional databases. The **Data Sources** page under the **Administration** tab changes depending on the type of data source being defined

Perform the following to define a new data source:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Data Source** link.
- 4 Click the **Create** button. The **Create Data Source** page appears.
- 5 In the **Data Source Name** text box, provide a unique name (required) and description for the data source. Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the name is case sensitive but the actual name that is authenticated is case insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- 6 From the **Adapter** drop list, select the database adapter to use for connecting to the data source.



Alphablox Analytics provides a Canned data adapter for testing a connection between client and server. If you suspect a problem in this area, contact Alphablox Analytics Customer Support for assistance on using this adapter.

- 7 In the **Server Name** text box, specify the name of the host machine on which the data source resides. (Some of the names are different for different data adapters.)
- 8 Specify any other adapter-specific information for accessing the data source, for example: **Default Catalog**, **Port Number**, **Database (catalog)**, **Schema**, **SID**, **Username**, and **Password**.



For WebSphere and WebLogic installations, “Password” will display as “Data Source Password” since this password will not be used to authenticate for the applications. In these cases, user authentication is handled by WebSphere or WebLogic. This also means that when Use Alphablox Analytics Username and

Password on your applications, the password will only be used for data source authentication.



Note that some entries are specific to database types, and some of the names of the fields are different on some adapters. If they do not appear, they are not relevant to the database type you selected.



Microsoft SQL Server users: note that the name of a database conforms to the rules for the format of identifiers in Microsoft SQL Server. There are two classes of identifiers: regular identifiers and delimited identifiers. Any identifier that does not comply with the rules for the format of regular identifier is a delimited identifier and must always be delimited by double quotation marks or brackets. For example, if your MS SQL database is named `test-1`, the database (catalog) name in the Alphablox Analytics data source name should either be `[test-1]` (brackets included in the data source name) or `"test-1"` (quotes included in the data source name).

- 9 If you are using a Microsoft SQL Server data source, you must specify a database user that is defined as a SQL Server authenticated user. SQL Server users that use Windows NT authentication will not work correctly with Alphablox Analytics.
- 10 Specify the **Maximum Rows** and **Maximum Columns** if you want to limit the size of a query result set from this data source.



Do not set this value to less than 20. The default of 1000 should be sufficient for most applications. If a large query gets truncated, the user will get an error dialog in the browser.

- 11 If using an Oracle data source, specify the number of rows that should be retrieved in preparation for display in the **Row Prefetch** text box. The default is 100.
- 12 Click the **Save** button to define the new data source and return to the **Data Sources** page.

Changing or Deleting an Existing Data Source Definition

This section describes how to modify or delete an existing data source.

Changing an Existing Data Source Definition

Perform the following to modify an existing data source:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Data Source** link.
- 4 Click the **Edit** button. The **Edit Data Source** page appears.
- 5 Change the appropriate values.
- 6 Click the **Save** button to change the definition and return to the **Data Sources** page.

Deleting an Existing Data Source Definition

Perform the following to delete an existing data source:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab.
- 3 Click the **Data Source** link. The **Data Source** page appears.
- 4 Click the **Delete** button to delete the data source definition and return to the **Data Sources** page.



Deleting a data source permanently removes it from Alphablox Analytics.

Setting Up Microsoft Authentication for Analysis Services Data Sources


Microsoft Analysis Services uses Windows-based authentication. To use Windows-based authentication in Alphablox Analytics applications that access Microsoft Analysis Services, the `userName` and `password` properties passed by Alphablox Analytics to Microsoft Analysis Services must be Windows users and passwords. If Alphablox Analytics and Microsoft Analysis Services are in different domains, they must be trusted Windows domains.

To enable Alphablox Analytics to log users into Microsoft Analysis Services correctly, the Windows user in which Alphablox Analytics runs (that is, the Windows user who is logged in when Alphablox Analytics starts up) must have the “Act as a part of the operating system” user right. If you are running Alphablox Analytics as a Windows service, you can configure the service to run under a default Windows user. This section describes the steps needed to configure your Windows machine to use this form of Microsoft Analysis Services authentication and contains the following procedures:

- Setting Up the Windows User Rights
- Configure the Windows Service
- Ensure Users Are Configured in Microsoft Analysis Services


Setting Up the Windows User Rights

This section describes the steps necessary to configure your Windows machine to access data in a Microsoft Analysis Services database.

 If you are running Alphablox Analytics in a clustered environment and accessing Microsoft Analysis Services data sources, each node of the cluster must be configured to run under the same Windows user and each machine must have the security policy set as described in this section.

Set the Rights for the Windows User

To enable Alphablox Analytics to connect to into Microsoft Analysis Services correctly, the Windows user in which Alphablox Analytics runs (that is, the Windows user who is logged in when Alphablox Analytics starts up or, if Alphablox Analytics is running as a service, the user under which the service runs) must have the “Act as a part of the operating system” user right.

 The Windows user must be set up in Microsoft Analysis Services.

On Windows systems, perform the following steps to enable this user right for the user under which Alphablox Analytics runs:

- 1 From the Windows **Start** menu, select **All Programs | Administrative Tools | User Manager**

The Windows User Manager window appears.

- 2 From the **Policies** menu, select **User Rights**.
- 3 Select the check box labeled **Show Advanced User Rights**.
- 4 In the drop list labeled **Right**, select **Act as a part of the operating system**.
- 5 Click the **Add** button.
- 6 In the **Add User and Groups** dialog box, ensure that the drop list labeled **List Names** From displays the correct domain or machine name for the account to be added.
- 7 Click the **Show Users** button.
- 8 In the **Names** list box, select the user account to be added.
- 9 Click the **Add** button. The user name now is listed in the **Add Names** list box.
- 10 Reboot the machine.



The user in the Alphablox Analytics data source that accesses Microsoft Analysis Services must match the Windows user granted the “Act as part of the operating system” user right.


Set the Rights for the Windows User

On Windows systems, perform the following steps to enable this user right for the user under which Alphablox Analytics runs:

- 1 From the Windows **Start** menu bring up the control panel folder by selecting **Settings > Control Panel**.
- 2 Open **Administrative Tools** .
- 3 Open the **Local Security Policy** document from the **Administrative Tools** control panel folder.
- 4 Expand the **Local Policies** folder in the **Local Security Settings** window.
- 5 Select the **User Rights Assignment** folder.
- 6 In the right hand pane of the **Local Security Settings** window, double-click the **Act as part of the operating system** user right.
- 7 In the **Local Security Policy Settings** window for the **Act as Part of the Operating System** user right, click the **Add** button and select the user under which Alphablox Analytics will run. If Alphablox Analytics is running under a network user, be sure to select the correct network user (for example,

CORPNET\alphablox for a network user named *alphablox* on the CORPNET Windows network).

- 8 Check the **Local Policy Setting** box and click the **OK** button.
- 9 Close the **Local Security Policy** window.
- 10 Reboot the machine.

 The user in the Alphablox Analytics data source that accesses Microsoft Analysis Services must be the same Windows user in which you granted the “Act as part of the operating system” user right to.

Configure the Windows Service

To configure Alphablox Analytics to run under a different user than the user who is logged in, you must run Alphablox Analytics as a service. If Alphablox Analytics connects to Microsoft Analysis Services, the Windows user must be set up in Microsoft Analysis Services and must have the “Act as part of the operating system” user right.

To configure the service to start under a different Windows user, perform the following steps:

- 1 From the Windows Start menu, select **Settings**.
- 2 Select **Control Panel** from the pull down menu.
- 3 Double-click on the **Services** icon.
- 4 In the **Services** window, double-click the **Alphablox Analytics (AlphabloxAnalytics)** service.
- 5 In the **Service** dialog box, select the **This account** radio button.
- 6 Enter a username in the text box to the right.
- 7 Enter a password in the **Password** text box.
- 8 Verify the password by typing it again in the **Confirm Password** text box.
- 9 Click the **OK** button.

Ensure Users Are Configured in Microsoft Analysis Services

Any user specified in an Alphablox Analytics application to connect to Microsoft Analysis Services, whether configured through an Alphablox Analytics data source or specified with username and password parameters (or the associated methods) in the application, must be a Windows user and must be properly configured in Microsoft Analysis Services. Note that the Windows domain group Everyone includes only domain users, not local machine users.

Running Microsoft Analysis Services - Subsequent Connections Failing

If you attempt to log in to Microsoft Analysis Services as a user that is local to your machine, that user must be part of the Administrators group as well as an OLAP Administrator in order to be able to reliably connect. If the user is not in both administrator groups, the user will be able to log in the first time, but a subsequent attempt will fail with an exception such as:

```
com.alphablox.util.NotAuthorizedException: Provider cannot be found. It may not be properly installed
```

Working With JDBC Data Sources

This section includes the following sections related to JDBC data sources:

- Setting Up the Environment for the Sybase JConnect Relational Driver
- Setting Up JDBC Tracing
- Updating a Supported JDBC Driver to a Different Version
- Adding Additional JDBC Drivers
- Modifying Classpath Settings

Setting Up the Environment for the Sybase JConnect Relational Driver


If you are using the Sybase JConnect driver to connect to a Sybase relational database, you must run a SQL script file on the Sybase database server. The SQL script files are located in the following directory:

```
<alphabloxAnalytics_dir>/tools/sql
```

where `<alphabloxAnalytics_dir>` is the directory in which Alphablox Analytics is installed. The following table shows the name of the SQL script and the Sybase database server on which the script must be run.

SQL Script	Sybase Database Server on Which to Run Script
sql_asa.sql	SQL Anywhere 5.5.02 or higher
sql_server.sql	SQL Server versions below version 12
sql_server12.sql	SQL Server version 12 and later

Determine which Sybase database server you are running and run the appropriate script on the database server. Each script sets up some stored procedures and system objects that the Sybase JConnect JDBC driver requires. For details on running a SQL script file on your Sybase database server, see your Sybase documentation.

 You must execute the appropriate SQL script on your Sybase database server to be able to connect to it from Alphablox Analytics.

Setting Up JDBC Tracing

For any of the relational data source drivers in Alphablox Analytics, you can enable JDBC tracing. With JDBC tracing enabled, the JDBC driver logs information messages to the Alphablox Analytics Console and log file. All JDBC tracing messages are logged at the INFO message level.

To enable JDBC tracing for a relational data source, set the **JDBC Tracing Enabled** drop list to **Yes**. This option is only available on data sources that use one of the supported relational database drivers. After you have enabled JDBC tracing, set the message level to INFO or higher. For example, in a Console window, enter the following command:

```
report info
```

Use JDBC tracing to debug any problems with connections to relational databases. When JDBC tracing is enabled, the following information is logged:

- JDBC driver logging information
- Connection information from Alphablox Analytics connecting to relational databases
- Information about column metadata from each result set that the database returns to Alphablox Analytics

If you are having connection problems or need more information about understanding JDBC tracing, contact Alphablox Analytics Customer Support.

Updating a Supported JDBC Driver to a Different Version

If you need to update one of the supported JDBC drivers used by Alphablox Analytics to access a relational database, perform the following steps:



Alphablox Analytics tests only the supported JDBC drivers listed in System Requirements section in the *Installation Guide*; other drivers have not been tested and might cause unexpected results. For more information, contact Alphablox Analytics Customer Support.

- 1 Obtain the Java classes for the new JDBC driver. Typically, these files have either a zip or jar file extension (for example, `ojdbc14.jar`).
- 2 Find the directory specified during installation for your JDBC drivers.
- 3 Rename the JDBC driver file you are updating (for example, changing it `<driverName>.zip.old`) to keep a copy available in case you need to revert to the supported version.

- 4 Rename your new driver file to be the same name as one of the existing supported drivers, then copy it to the `<alphabloxAnalytics_dir>/lib/` directory.
- 5 Update the Alphablox Analytics startup environment to access the new classes for the JDBC driver as described in the following section.
- 6 After updating the classpath information, restart the server for the changes to take effect.

Adding Additional JDBC Drivers

Relational data sources available to Alphablox Analytics applications by default, upon installation or upgrade, are defined in the `jdbcdrivers.xml` file. You should not modify this file—it is automatically overwritten during upgrades of Alphablox Analytics. If you need to create additional Alphablox Analytics data sources, you can use an optional `jdbcdrivers_additional.xml` file.

Perform the following steps to create additional data sources for Alphablox Analytics:

- 1 Find the `jdbcdrivers_additional.xml` file located in the following directory:

```
<alphabloxAnalytics_dir>/repository/servers/
```

- 2 You can edit this file, but you should make a backup copy of this file in the same directory and name it `jdbcdrivers_additional.xml`. A backup copy of the default `jdbcdrivers_additional.xml` file is in the same directory, named `jdbcdrivers_additional.xml.example`.
- 3 Using the JDBC driver examples contained within this file, create any additional data sources that you need, making sure to:
 - a In each new JDBC driver definition that you want to make available, change the disabled attribute from `true` to `false`. By default, the example JDBC drivers are disabled.
- 4 You must restart the application server for these changes to take effect.
- 5 Edit all Alphablox Analytics classpaths to include your new driver, as described below in “Modifying Classpath Settings” on page 102.

Modifying Classpath Settings

After you add additional drivers to the `jdbcdrivers_additional.xml` file, you must also update classpath information so that the new JDBC drivers can be found. Follow the steps below for your configuration.

WebSphere

For WebSphere application servers, you do not need to modify any classpath settings. Add additional JDBC drivers by placing them in the following directory:

```
<websphere_dir>/AppServer/lib/ext
```

You must restart your application server for the JDBC driver changes to take effect.

WebLogic

For BEA WebLogic application server installations, to modify classpath information you need to modify the following Alphablox Analytics setup batch files.

Windows

JDBC driver classpath information should be modified identically in both of the following batch command files:

```
<alphabloxAnalytics_dir>/bin/aasetup.bat
```

```
<alphabloxAnalytics_dir>/bin/aasetup_nt_service.bat
```

To add a JDBC driver on WebLogic, for example, add the following line, where appropriate, to both files:

```
set AAS_CP=%AAS_CP%;%LIB%\<jdbc_driver_filename>
```

where `<jdbc_driver_filename>` is the name of the JDBC driver being added.

UNIX

JDBC driver classpath information should be modified in the following batch command file:

```
<alphabloxAnalytics_dir>/bin/aasetup.sh
```

To add a JDBC driver to the classpath settings, for example, add the following line, where appropriate:

```
CLASSPATH="{CLASSPATH}::{AAS_LIB}/<jdbc_driver_filename>"
```

where `<jdbc_driver_filename>` is the name of the JDBC driver being added.

Tomcat

Perform the following steps to modify classpath information for Alphablox Analytics running under Apache Tomcat only:

Windows

1 If Tomcat is running in a Windows console:

- a Open the `<tomcat_dir>/bin/analytics.bat` file in a text editor.
- b Find the line that references the JDBC driver you are replacing. For example, if you are replacing a file named `SybaseDriver.jar` with one called `SybaseDriver.jar`, there is a line similar to the following in the **JDBC Driver Zips** portion of `analytics.bat`:

```
set CLASSPATH=%CLASSPATH%;%AAS_LIB%\SybaseDriver.jar
```

Replace the line with the following:

```
set CLASSPATH=%CLASSPATH%;%AAS_LIB%\SybaseDriver.jar
```

- c Save your changes to the `analytics.bat` file.

2 If the application server is running as a Windows service:

- a Make a copy of the `<tomcat_dir>/conf/wrapper.properties` file and name it `wrapper.properties.old`.
- b Open the `<tomcat_dir>/conf/wrapper.properties` file in a text editor.
- c Find the line that references the JDBC driver you are replacing. For example, if you are replacing a file named `Sybase_jConnect-4_2.zip` with one called `Sybase.zip`, there is a line similar to the following in the `wrapper.properties` file:

```
wrapper.class_path=D:\Alphablox\lib\SybaseDriver.jar
```

Replace the line with the following:

```
wrapper.class_path=D:\Alphablox\lib\Sybase.zip
```

- d Save your changes to the `wrapper.properties` file.
- e Restart the application server for the changes to take effect.

UNIX

1 If you are Apache Tomcat with Alphablox Analytics on a UNIX system:

- a Make a copy of the `<tomcat_dir>/bin/analytics.sh` file and name it `analytics.sh.old`.

- b** Open the `<tomcat_dir>/bin/analytics.sh` file in a text editor.
- c** Find the line that references the JDBC driver you are replacing. For example, if you are replacing a file named `Sybase_jConnect-4_2.zip` with one called `Sybase.zip`, there is a line similar to the following in the `StartAnalytics.sh` file:

```
CLASSPATH="${CLASSPATH}:${AAS_LIB}/Sybase_jConnect-4_2.zip"
```

Replace the entry with the following:

```
CLASSPATH="${CLASSPATH}:${AAS_LIB}/Sybase.zip"
```

- d** Save your changes to the `analytics.sh` file.
- 2** Restart the application server for the changes to take effect.

8

User Definitions

The Alphablox Analytics **Users** administration page allow you to create, change, and delete users.

Information on **Applications** and **Data Source** pages is also available by pressing the **Help** link in the upper right corner of each page.



For changing existing users, be sure click the **Save** button before going to a different page. Otherwise, the changes made on the page will not be saved.

Contents

- “Creating a New User” on page 106
- “Changing or Deleting an Existing Group or User” on page 108


Creating a New User

The **Users** link under the **Administration** tab opens pages that are used to create and edit new users. During installation, two users (Admin and Guest) are created. Click the **Create** button on the **Users** page to define additional users. Select an existing user name and click the **Edit** or **Delete** button to modify or delete it. If a user becomes damaged, you can repair them by restarting Alphablox Analytics. This section shows the steps to define a new user from the Alphablox Analytics home page.


Perform the following to define a new user:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Users** Link. The **Users** page appears.
- 4 Click the **Create** button. The **Create User** page appears.

The screenshot displays the 'Users' management interface. At the top, there are navigation tabs for 'APPLICATIONS', 'ADMINISTRATION', and 'ASSEMBLY'. Below these, a secondary set of tabs includes 'Server', 'Groups', 'Users', 'Roles', 'Applications', 'Data Sources', and 'AAS Cubes'. The 'Users' tab is active, showing a list of existing users: 'admin', 'guest', and 'raymond'. A 'Filter' input field is present above the list. Below the list are buttons for 'create', 'edit', and 'delete'. The 'create' button is highlighted, leading to the 'Create User' form. This form has three tabs: 'General Properties', 'Application Properties', and 'Memberships'. The 'General Properties' tab is selected and contains the following fields: 'Username' (John), 'Full Name' (John Smith), 'Description' (Lead Alphablox Application Developer), 'eMail Address' (jsmith@companyname.com), 'Password' (masked with asterisks), 'Confirm Password' (masked with asterisks), and 'Allow User To Edit Profile' (set to 'yes'). At the bottom of the form are 'SAVE' and 'CANCEL' buttons.

 Depending on your security configuration, this screen might not contain the password information.

- 5 In the **Username** text box, enter the ID for the user (required). The username is the name used to log into Alphablox Analytics. Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the username is case sensitive but the actual username that is authenticated is case insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- 6 Optionally, enter a **Full Name**, **Description**, and **eMail Address** for the user.
- 7 In the **Password** text box, enter the user's initial password.
- 8 In the **Confirm Password** text box, reenter the password to confirm it.
- 9 In the **Allow User To Edit Profile** drop list, indicate whether the user has privileges to edit the profile. Setting this property to **Yes** lets the user access and modify her profile using the **My Profile** link on the Alphablox Analytics home page.
- 10 Provide values for any custom properties. (If there are any custom user properties defined, they appear below the **Allow User to Edit Profile** drop list.)
- 11 Click the **Save** button to define the new user and return to the Users page.

 When you create a new user, the user is automatically assigned membership in the *Public* group.

Changing or Deleting an Existing Group or User

This section shows the steps to change the properties or delete an existing user or group from the Alphablox Analytics home page.

Changing the Properties of an Existing User

Perform the following to change the properties of an existing user:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Users** Link. The **Users** page appears.
- 4 Click the **Edit** button. The **Edit User** page appears.

Edit User "John"

General Properties	Application Properties	Memberships
Username	<input type="text" value="John"/>	
Full Name	<input type="text" value="John Smith"/>	
Description	<input type="text" value="Lead Assembler"/>	
eMail Address	<input type="text" value="jsmith@companyname.com"/>	
Password	<input type="password" value="*****"/>	
Confirm Password	<input type="password" value="*****"/>	
Allow User To Edit Profile	<input type="checkbox"/> Yes <input type="checkbox"/> No	

- 5 Change any values that need changing.



In WebSphere and WebLogic installations, “Password” will display as “Data Source Password” since this password will not be used to authenticate for the applications. In these cases, user authentication is handled by WebSphere or WebLogic. This also means that when Use Alphablox Analytics Username and Password on your applications, the password will only be used for data source authentication.

- 6 Click the **Save** button to save your changes to the **General Properties** panel and return to the **Users** page.
- 7 To change the user's application properties, click the **Application Properties** tab. Make any necessary changes and click the **Save** button.
- 8 To change the user's group memberships or role memberships, click the **Memberships** tab. Make any necessary changes. Note that the changes to membership take effect immediately. For information about group membership and role membership, see "Changing the Groups to Which a User Belongs" on page 109 and "Changing the Roles to Which a User or Group Belongs" on page 120.

Deleting an Existing User

Perform the following to delete an existing user:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Users** Link. The **Users** page appears.
- 4 Select a user from the list of users.
- 5 Click the **Delete** button to delete the user.



Deleting a user permanently removes the user from Alphablox Analytics.

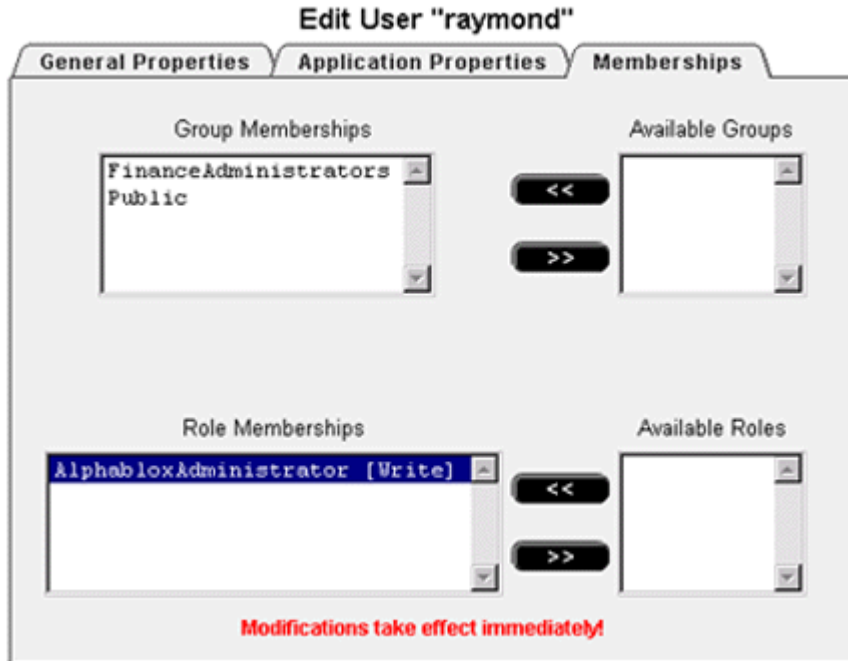
Changing the Groups to Which a User Belongs

This section shows the steps to add or modify group membership for users and groups.

Perform the following to modify the groups to which a user belongs:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Users** Link. The **Users** page appears.
- 4 Click the **Edit** button. The **Edit User** page appears.

- 5 Click the **Membership** tab.



- 6 To add a new group to which the user is a member, select a group in the **Available Groups** list and click the left arrow button to move it into the **Group Memberships** list.
- 7 To remove a group to which the user is a member, select a group in the **Group Memberships** list and click the right arrow button to move it into the **Available Groups** list.
- 8 To add a new role to which the user is a member, select a role in the **Available Roles** list and click the left arrow button to move it into the **Role Membership** list.



Changes made to a user's group or role membership take effect immediately.

9

Group Definitions

The **Groups** administration pages allow you to create, change, and delete groups. Information on the **Groups** pages is also available by pressing the **Help** link in the upper right corner of each page.



For changing existing groups, be sure click the **Save** button before going to a different page. Otherwise, the changes made on the page will not be saved.

Contents

- “Creating a New Group” on page 112
- “Understanding Subgroups” on page 113
- “Changing or Deleting an Existing Group” on page 115

Creating a New Group

The **Groups** link under the **Administration** tab open pages that are used to create and edit new groups. During installation, two groups (Administrators and Public) are created. Click the **Create** button in the **Groups** page to define additional groups. Select an existing group name and click the **Edit** or **Delete** button to modify or delete it. If a group becomes damaged, you can repair it by restarting Alphablox Analytics. This section shows the steps to define a new group from the Alphablox Analytics home page.

Perform the following to define a new group:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Groups** Link. The **Group** page appears.
- 4 Click the **Create** button. The **Create Group** page appears.

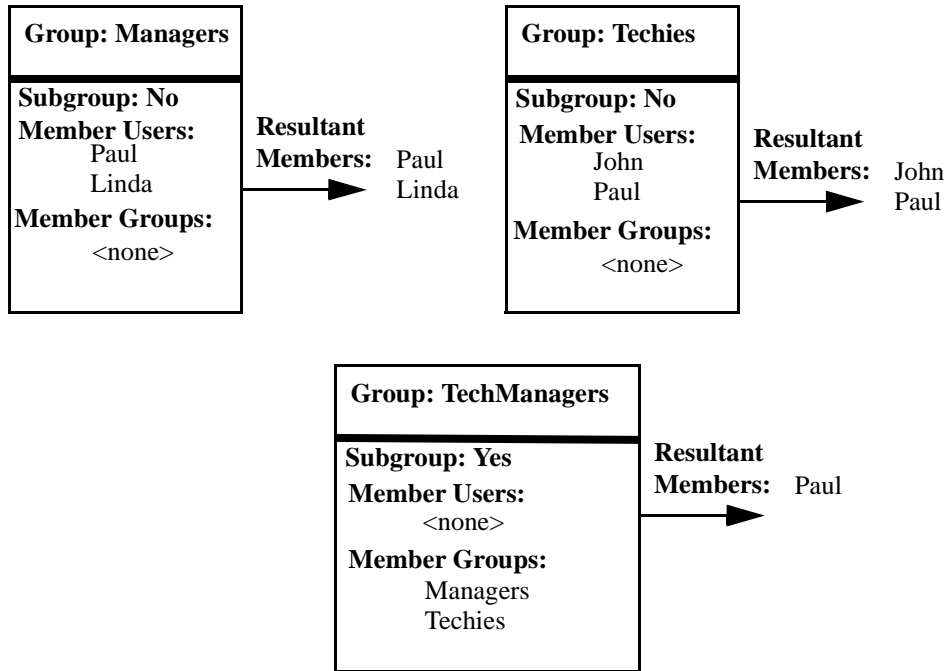
The screenshot displays the Alphablox Analytics interface for creating a new group. The top navigation bar includes 'APPLICATIONS', 'ADMINISTRATION', and 'ASSEMBLY'. Below it, a sub-navigation bar shows 'Server', 'Groups', 'Users', 'Roles', 'Applications', 'Data Sources', and 'AAS Cubes'. The 'Groups' page is active, showing a list of existing groups: 'financeadministrators' and 'public'. The 'Create Group' dialog is open, with the 'General Properties' tab selected. The dialog fields are: Group Name: 'CorporateUsers', Description: 'users with access privileges only', Subgroup: 'no', Member Users: 'admin', 'guest', 'john', 'raymond' (with 'Select All Users' and 'Clear All Users' buttons), and Member Groups: 'financeadministrators', 'public' (with 'Select All Groups' and 'Clear All Groups' buttons). At the bottom of the dialog are 'SAVE' and 'CANCEL' buttons. On the left side of the 'Groups' page, there are 'create', 'edit', and 'delete' buttons.

- 5 In the **Group Name** text box, enter the name of the group (required). Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the group name is case sensitive but the actual group name that is authenticated is case insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- 6 Optionally, enter a **Description** for the group.
- 7 In the **Subgroup** drop list, select **Yes** if this group will act as a subgroup or **No** if it will not. For information about subgroups, see “Understanding Subgroups” on page 113.
- 8 Add users and/or groups to this group in the **Member Users** and **Member Groups** selection boxes. To do so, scroll through the lists of users and groups. Use Ctrl-click to select multiple users or groups to add to this group.
- 9 Provide values for any custom properties. (If there are any custom group properties defined, they appear below the **Member Groups** selection box.)
- 10 Click the **Save** button to define the new group and return to the **Groups** page.

Understanding Subgroups

A *subgroup* is a mechanism in which users who are in multiple groups can automatically become a member of another group. When a group has the **Subgroup** drop list set to **Yes**, its resultant user members are comprised of the intersection of the users in each of the groups assigned as members to the new group.

The following figure shows an example using a subgroup. In this example, the group *TechManagers* uses a subgroup to automatically include the members that are in both the *Managers* and the *Techies* groups.



By using the subgroup for the *TechManagers* group, an administrator creates a group that automatically includes the set of all common members of the *Managers* and the *Techies* groups. In this example, the only user in both of those groups is *Paul*. If other users were added to both the *Managers* and the *Techies* groups, they would automatically become members of the *TechManagers* group.



When using subgroups, you can still manually add individual users to the group by selecting them in the **Member Users** selection box.

Changing or Deleting an Existing Group

This section shows the steps to change the properties or delete an existing user or group from the Alphablox Analytics home page.

Changing an Existing Group

Perform the following to modify an existing group:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Groups** Link. The **Groups** page appears.
- 4 Select a group from the list of groups.
- 5 Click the **Edit** button. The **Edit Group** page appears.

Edit Group "Assemblers"

General Properties Application Properties Memberships

Group Name:

Description:

Subgroup:

Member Users:

Member Groups:

- 6 Change any values that need changing.
- 7 Click the **Save** button to save your changes and return to the **Users** page.
- 8 To change the user's application properties, click the **Application Properties** tab.
- 9 Make any necessary changes.

- 10 Click the **Save** button.
- 11 To change the user's group or role memberships, click the **Memberships** tab.
- 12 Make any necessary changes. Note that the changes to membership take effect immediately. For information about group membership and role membership, see "Changing the Groups to Which a User Belongs" on page 109 and "Changing the Roles to Which a User or Group Belongs" on page 120.
- 13 Click the **Save** button.

Deleting an Existing Group

Perform the following to delete an existing group:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Groups** Link. The **Groups** page appears.
- 4 Select a group from the list of groups.
- 5 Click the **Delete** button to delete the group.




Deleting a group permanently removes the group from Alphablox Analytics.

10

Role Definitions

The **Roles** administration pages allow you to create, change, and delete roles. The Roles page only appears if you are running Alphablox Analytics in a Apache Tomcat configuration; if you are using WebSphere or WebLogic, the application server provides this functionality.

Information on the **Roles** pages is also available by pressing the **Help** link in the upper right corner of each page.

 For changing existing roles, be sure click the **Save** button before going to a different page. Otherwise, the changes made on the page will not be saved.

Contents

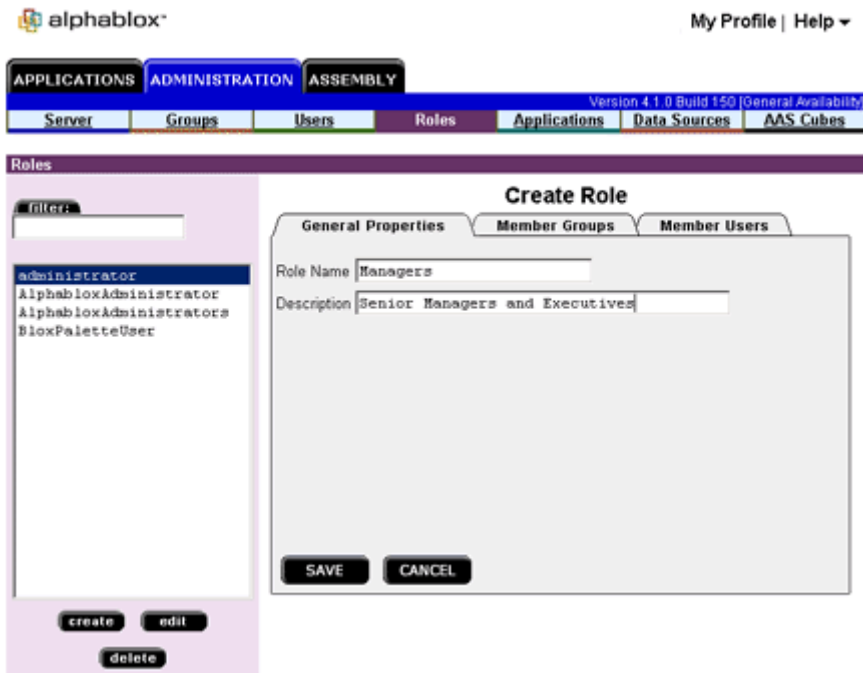
- “Defining New Roles” on page 118
- “Changing and Deleting Existing Roles” on page 119

Defining New Roles

Alphablox Analytics can control access to applications through roles. A role contains a list of users and/or groups, and the access permission associated with each entry in the list.

Perform the following to create a new role:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Roles** link. The **Roles** page appears.
- 4 Click the **Create** button. The **Create Role** page appears.

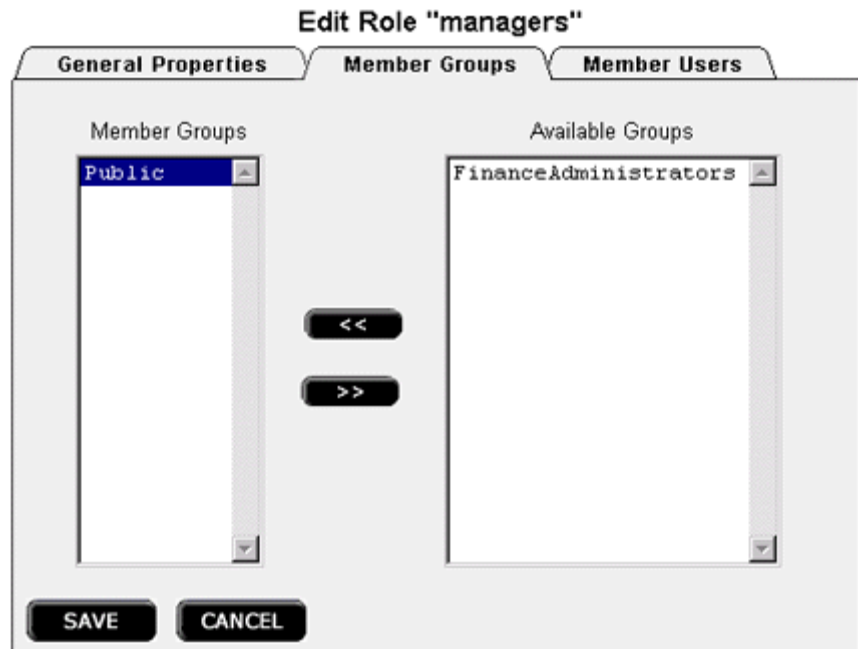


- 5 In the **Role Name** text box, enter the name of the role (required). Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the name is case sensitive but the actual name that is authenticated is case insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- 6 Optionally, enter a **Description** for the role.
- 7 Click the **Save** button to define the new role and return to the **Roles** page.

Changing and Deleting Existing Roles

Perform the following to change an existing role:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the **Roles** Link. The **Roles** page appears.
- 4 Select a role from the list of roles.
- 5 Click the **Edit** button. The **Edit Roles** page appears.
- 6 If necessary, change the description for the role.
- 7 Click the **Save** button before proceeding, otherwise the changes will not be saved.
- 8 To change the groups who are assigned to the role, click the **Member Groups** tab. A page appears that lists the groups currently members of the role, and a list of available groups not currently members the role. Use the left and right arrow buttons to move selected items from the **Available Groups** list to the **Member Groups** list and from the **Member Groups** list to the **Available Groups** list.



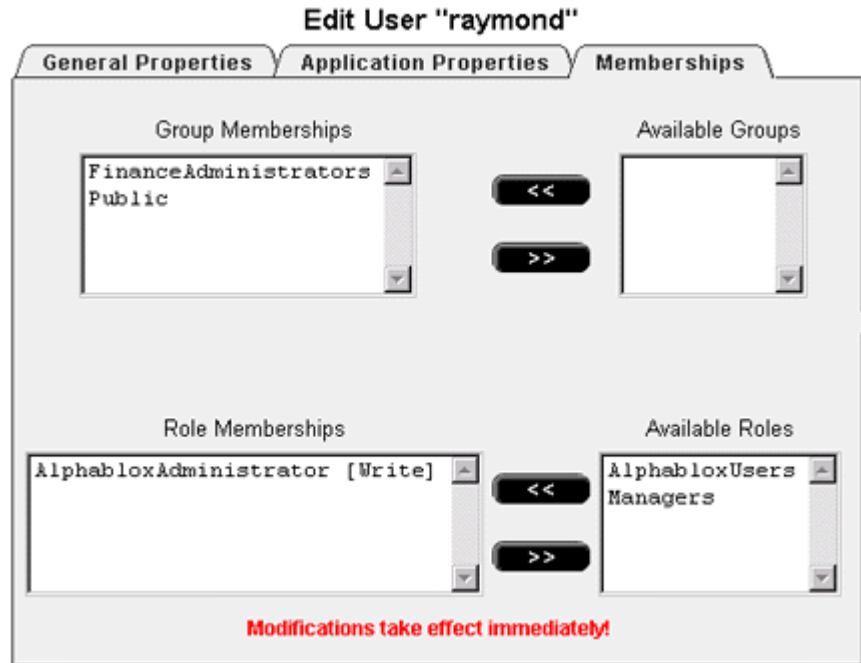
- 9 Click the **Save** button to save the group membership properties for the role.
- 10 To change the users who are members of the role, click the **Member Users** tab. A page appears that lists the users currently members of the role, and a list of available users not currently members the role. Use the left and right arrow buttons to move selected items from the **Available Users** list to the **Member Users** list and from the **Member Users** list to the **Available Users** list.
- 11 Click the **Save** button to save the user membership properties for the role.

Changing the Roles to Which a User or Group Belongs

Perform the following to change the roles to which a user or group is assigned:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 Click the either **Users** link or the **Groups** link. The **Roles** page appears.
- 4 Select the user (or group) from the list of users (or groups) on the **Users** or **Groups** page.
- 5 Click the **Edit** button. The **Edit User** (or **Edit Group**) page opens.

- Click the **Memberships** tab.



- The bottom half of the **Memberships** panel has one box for **Role Memberships** and one for **Available Roles**. Use the left and right arrow buttons to move selected items from the **Available Roles** list to the **Role Memberships** list and from the **Role Memberships** list to the **Available Role** list.

Deleting an Existing Role

Perform the following to delete an existing role:

- Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- Click the **Administration** tab. The **Server** page appears.
- Click the **Roles** Link. The **Roles** page appears.
- Select a role from the list of roles.
- Click the **Delete** button to delete the role.



Deleting an role permanently removes it from Alphablox Analytics.

Security and Authentication

This chapter describes security and authentication using Alphablox Analytics running in a Apache Tomcat configuration, using either no external web server or using another web server (iPlanet, Microsoft Internet Information Server (IIS), or Apache Web Server). For information about security and authentication when running with a commercial application server such as WebSphere or WebLogic, see the documentation for those products.

Contents


- “Alphablox Analytics Authentication and Security Modes” on page 124
- “Admin Versus User Rights” on page 125
- “Removing Guest Log-in Rights For Applications” on page 125
- “Application Server Security Realms and Applications” on page 125
- “Web Server Authentication Versus Alphablox Analytics Authentication” on page 126
- “Configure Analysis Server to Use Web Server-Based Security” on page 134

Alphablox Analytics Authentication and Security Modes

Before Alphablox Analytics can deliver a page to a user, the user must be authenticated. This is true regardless of the underlying web server. However, when using an external web server, the authentication to Alphablox Analytics is usually transparent.

By default, HTML pages are not routed to the application server in Alphablox Analytics configurations behind web servers and are not challenged until a JSP page or a page with Alphablox Analytics content is received by the application server. Web servers can be configured to authenticate HTML pages, but an Alphablox Analytics configuration does not support this by default. If you want to authenticate when Alphablox Analytics is configured behind a web server, either configure your web server to support authentication of all HTML pages or make sure that your welcome page is a JSP file.

Alphablox Analytics supports three types of user authentication:

Authentication Type	Description
No Authentication	With the Alphablox Analytics authentication property turned off (Enable Authentication check box on the System page of the Administration tab), all users authenticate as the anonymous user. By default, the anonymous user has no rights.
Alphablox Analytics Authentication	When operating in a Apache Tomcat configuration without an external web server, Alphablox Analytics uses its own database to authenticate users.
Web Server Authentication	When using iPlanet, Apache, or IIS as the web server, the web server performs authentication. When Alphablox Analytics attempts to authenticate a user, the web server passes Alphablox Analytics an authentication token.  The web server does not pass the user ID and password to Alphablox Analytics, as this would constitute a security breach.

Admin Versus User Rights

When Alphablox Analytics is installed, it creates a single user profile with administrative privileges. The name for this profile is *admin* and cannot be changed. The default password for *admin* is *password*. When using web server security, the user named *admin* must exist under the web server's authentication scheme. (When using IIS and Windows NT LAN Manager, *admin* can be a local user instead of a domain user.)

The *admin* user has read/write access to Alphablox Analytics objects, including user properties, through the Analysis Server **Administration** pages. Alphablox Analytics users have read/write access only to their own user properties. The *admin* user or another Alphablox Analytics user who is a member of the administrators group can grant access to one or more applications to specific users, groups of users, or all users.

Removing Guest Log-in Rights For Applications

By default, Alphablox Analytics installs with two default users, Guest and Admin. To prevent the Guest user from being able to access an application, you can modify an application's `web.xml` file by replacing `AlphabloxUser` with `AlphabloxAuthenticatedUser` in the `role-name` elements for both the `auth-constraint` and `security-role` elements.

Application Server Security Realms and Applications

Frequently, applications are created on a development server and later moved to production servers when applications are deployed. When moving applications between two different servers that do not share the same instance name, developers and administrators need to be aware that the security realm specified in the migrated application's `web.xml` file may not match the security realm in the new location. On IBM WebSphere and BEA WebLogic application servers, when applications attempt to access other applications on the same server with different security realms the users will be prompted for authentication. To prevent this from occurring, the application's `web.xml` file needs to be modified so that the security realms match.

Another situation in which this can occur is when an application received as a WAR or EAR file is imported into WebSphere and BEA WebLogic application servers, the instance name isn't checked and it could be different.

Web Server Authentication Versus Alphablox Analytics Authentication

Alphablox Analytics allows only authenticated users to access applications. If not properly authenticated, a user cannot connect to a data source, retrieve data, or view data on application pages. Because Alphablox Analytics does not lock access at the directory level, a user who authenticates successfully can use the browser to attempt to open a restricted application. Although the user could open the application page, data would not appear in it.



For information on preventing users from browsing directories and files beneath the directory where applications reside, see “Disable Directory Browsing” on page 135.

In a default installation, Alphablox Analytics performs its own authentication. If you use another web server, however, you can set up Alphablox Analytics to have the web server perform the authentication. This can ease the administrative burden on the Alphablox Analytics administrator because it can take advantage of user accounts that might already exist on the local area network (LAN). This section describes how to set up Alphablox Analytics to run such an environment.



When you select the WebServerRealm adapter, the security of the web server will take precedence over anything else. In these cases, it doesn't matter what the password is in Alphablox Analytics.

Using the iPlanet Web Server Security Options

The iPlanet security model works well for most user/browser combinations in basic/clear text mode. To administer Alphablox Analytics via a URL from iPlanet, add the user named *admin* to the web server's user database. Otherwise, access the Alphablox Analytics URL directly (for example, use `http://<servername>/AlphabloxAdmin/home`).

To use Alphablox Analytics security with iPlanet, disable security on the iPlanet web server. All users are then authenticated by Alphablox Analytics.

In addition, be sure to establish the correct Alphablox Analytics settings to ensure a functional and secure environment. For more information, see “Configure Analysis Server to Use Web Server-Based Security” on page 134.

Setting Microsoft Security Options for IIS NT LAN Manager

When using Alphablox Analytics with an IIS web server, you can set up the security authentication so IIS performs the authentication when a user logs into Alphablox Analytics (instead of Alphablox Analytics performing the authentication). If IIS is configured to accept Windows NT logins in a trusted

domain, then those trusted users can access Alphablox Analytics without any additional authentication; that is, they do not have to enter a username or password as long as they are accessing Alphablox Analytics while logged in on the trusted domain. A *trusted* user is a Windows user that has been authenticated on a Windows NT trusted domain, typically from a large corporate Windows NT server.



In this configuration, IIS handles all request authentication. Alphablox Analytics requires authenticated requests with the username before the requests can be handled. As a result, if a Microsoft Internet Explorer user changes the browser's default security setting (in the Advanced Settings) to not prompt for user name and password, Alphablox Analytics may not handle requests from these browsers.

The following steps are required for Analysis Server to operate securely with a Microsoft Internet Information Server (IIS) web server using the IIS NT LAN Manager (NTLM):

- Step 1—Install the IIS Web Server
- Step 2—Install Alphablox Analytics Choosing IIS as the Web Server
- Step 3—Configure Security Settings in IIS
 - Enable Security Settings in IIS
 - Restrict Anonymous User Rights in IIS
- Step 4—Create a Windows NT Local User Named Admin for NTLM
- Step 5—Log Into Analysis Server

In addition, be sure to establish the correct Analysis Server settings to ensure a functional and secure environment. For details, see “Configure Analysis Server to Use Web Server-Based Security” on page 134.

Step 1—Install the IIS Web Server

You must install IIS *before* installing Alphablox Analytics. For information on installing IIS, see your Microsoft documentation.

Step 2—Install Alphablox Analytics Choosing IIS as the Web Server

In order to run Alphablox Analytics using IIS as the web server, you must choose Microsoft Internet Information Server 4.0 from the Advanced Options —> General Installation Information screen of the installation setup. The installation then installs the necessary files under the web server root directory. For details on installing Alphablox Analytics, see the *Installation Guide*.



To use Alphablox Analytics with IIS, you must install IIS *before* installing Alphablox Analytics.

Step 3—Configure Security Settings in IIS

Configure the following in the Microsoft Management Console of IIS.

Enable Security Settings in IIS

To enable the appropriate security settings, use the Microsoft Management Console and perform the following steps:

- 1 Open the IIS Management Console by from the Windows **Start** menu, **All Programs** folder, **Windows NT 4.0 Option Pack** folder, **Microsoft Internet Information Server** group, **Internet Service Manager** shortcut. The IIS Management Console opens.
- 2 In the left windowpane, right-click the appropriate web server (generally, **Default Web Site**) and choose **Properties** from the right-click menu. The **Default Web Site Properties** dialog appears.
- 3 Click the **Directory Security** tab.
- 4 Click the **Edit** button. To use Windows trusted authentication through NTLM, check the **Windows NT Challenge/Response** box (make sure the other boxes are not checked). Note that only Microsoft Internet Explorer users will be able to log in this way.



You can allow Netscape browsers to log in by checking the **Basic Authentication** box on the **Authentication Methods** dialog, as described in the table below.



An alternate way to allow Netscape browsers to log in is bypass IIS security by specifying the port number in which Alphablox Analytics is listening on in the URL. For example, if the Alphablox Analytics port number is set to 100 on a server named *george*, enter the following URL:

```
http://george:100/AlphabloxAdmin/home
```

This method only works if you specify the host name for the client. To specify the authorized host names, click the **Administration** tab, click the **System** link, and enter any authorized clients in the **Authorized Client List** text box of the

System page. To limit access to clients only on the machine in which Alphablox Analytics is running, enter “localhost” in the **Authorized Client List** text box.

Alphablox Analytics prompts the user for a username and password, which is then authenticated by Alphablox Analytics.

Security Type	Description
Allow Anonymous	<p>This option permits users to log in using the anonymous account. Do not check this option if you are using NTLM security with IIS.</p> <p> After users are authenticated, they can browse to directories and files beneath the webapps directory where applications reside. To prevent this, see “Disable Directory Browsing” on page 135.</p> <p>Checking this box grants users unrestricted access to resources. For details, see “Restrict Anonymous User Rights in IIS” on page 130.</p>
Basic Authentication (Clear Text)	<p>This option, for both Netscape and Microsoft browsers, causes user IDs and passwords to be transmitted as clear text.</p> <p> Be sure to check this option in environments where Netscape browsers access Analysis Server applications on an IIS web server.</p> <p>Check both this option and Windows NT Challenge/Response in environments where both Netscape and Internet Explorer browsers access Analysis Server applications on an IIS web server.</p>
Windows NT Challenge/Response	<p>This is the recommended method of using IIS security. This option, only for environments using a combination of IIS web servers and Internet Explorer browsers, causes user IDs and passwords to be transmitted in a proprietary Microsoft format, not in clear text.</p>

- 5 If you checked the **Allow Anonymous Access** box (and therefore are not using trusted NTLM security), click the **Edit** button to the right of the **Allow Anonymous Access** check box. The anonymous user name (generally of the format IUSR_<HOSTNAME>) appears. Make note of the anonymous user

name and skip to the instructions in “Restrict Anonymous User Rights in IIS” on page 130.

- 6 Click the **OK** button to close the Authentication Methods dialog.
- 7 Click the **OK** button to close the Default Web Site Properties dialog.

Restrict Anonymous User Rights in IIS

This procedure is only necessary if you are *not* using trusted NTLM security. Only advanced IIS and Windows NT administrator’s should perform this steps.

If Allow Anonymous is set under IIS, perform the following steps to restrict the rights of the anonymous user:

- 1 Open the Windows NT File Explorer.
- 2 Locate and right-click on the *Inetpub* directory to open its menu. The *Inetpub* directory is the directory IIS uses to store documents the web server provides access to, and its default directory is *C:\Inetpub*.
- 3 Choose **Properties** from the drop list to open the **Directory Properties** dialog.
- 4 Click the **Security** tab.
- 5 Click the **Add** button at the bottom of the dialog to open the **Add Users and Groups** dialog.
- 6 Click the **Show Users** button to display the list of users.
- 7 Select the name of the anonymous user (for example, *IUSR_<hostname>*).
- 8 Click the **Add** button to add the anonymous user.
- 9 From the **Type of Access** list, scroll to and select **No Access**.
- 10 Click the **OK** button to return to the **Directory Permissions** dialog.
- 11 Click the **Replace Permission on Subdirectories** check box.
- 12 Click the **OK** button. Windows NT updates the entire directory tree under the *InetPub* directory, which takes a few minutes.



Restricting the anonymous user’s access to the *webapps* directory alone does not necessarily restrict access to objects on the web server. Therefore, Alphablox recommends using the above method.

Step 4—Create a Windows NT Local User Named Admin for NTLM

Trusted NTLM security requires creating a Windows NT account for the Analysis Server *admin* user. By default, when authenticating to NTLM on an IIS web server, the user name corresponds to the user name in the domain of the web server (typically a network domain).

In most cases, the Alphablox Analytics *admin* user is not a user in the network domain. Instead, add the *admin* user to the IIS web server host's local domain. When authenticating as *admin* under IIS, the user name takes the following format:

```
<machine-name>\admin
```

When creating the account, note the following:

- The password for the *admin* user under NTLM must match exactly (including case-sensitivity) that in Alphablox Analytics.
- The *admin* user should have (at least) Guest rights.
- Uncheck the **User Must Change Password at Next Login** box.
- Check the **Password Never Expires** box.

To create the Windows NT local user named *admin*, perform the following:

- 1 Open the Windows NT User Manager from the Windows **Start** menu, **All Programs** folder, **Administrative Tools (Common)** group, **User Manager for Domains** shortcut.
- 2 From the **User** menu, select the option labeled **Select Domain**.
- 3 Select or type in the name of the local machine (not the domain name) and click the **OK** button.
- 4 From the **User** menu, select **New User**.
- 5 Enter *admin* for the username.
- 6 Enter the password in both the **Password** and **Confirm Password** text boxes.



Enter the exact same password, including case sensitivity, as the Alphablox Analytics *admin* password (the default is *password*). Entering the wrong password will cause all authentications to fail.

- 7 Check the **Password Never Expires** box. Be sure all the other boxes are not checked.
- 8 Click the **Add** button.
- 9 Exit the User Manager.



If the web server machine is logged into a different domain than the client, when asked to authenticate, pass the domain name along with the user name, such as:

```
<domain_name>\<user_name>
```



If Netscape browsers are also used to access the Alphablox Analytics Administration pages under control of Analysis Server, Basic or Clear Text authentication must be turned on in the web server. This allows access via NTLM using Internet Explorer and Clear Text using Netscape.

Step 5—Log Into Analysis Server

When connecting to Alphablox Analytics as the *admin* user through an IIS web server, note the following:

- Use the correct format for the login name.

If the IIS web server machine is logged into a different domain than the client from which the *admin* user is authenticating, the user must pass the client domain name with the user name. For example, if the *admin* user is logging in from a client machine in the WEBDEV1 domain, the format for the login becomes:

```
WEBDEV1\admin
```

- Ensure that browser authentication is set correctly.

By default, an Internet Explorer web browser authenticates users to NTLM with their Windows NT user names and passwords. To log into an IIS web server as a different user (for example, *admin*) requires changing this default behavior. (Because the *admin* user name and password will not match the logged-in user's name and password, the login attempt will fail.)

Complete the following steps to cause Internet Explorer browsers to prompt for a user name and password during authentication:

- 1 In Internet Explorer, from the **Tools** menu, select **Internet Options...**
- 2 Select the **Security** tab.
- 3 If the application is used via Intranet (LAN), select **Local Intranet for Zone**.
- 4 Click the **Custom Level** button to set the security level.
- 5 In the **User Authentication** section, **Login** section, select the **Prompt for User Name and Password** button.
- 6 Click the **OK** button to close the **Security Settings** dialog.
- 7 Click the **OK** button to close the **Internet Options** dialog.



When using Alphablox Analytics with IIS 5, you may encounter the following error message: "Error -154 unknown authorization method: 'Negotiate'" using IIS 5.0 if the user authenticating is a member of the Administrators group under Alphablox Analytics and goes into an endless loop on the server. A workaround is available - for more information see the following Microsoft Knowledgebase article:

<http://support.microsoft.com/support/kb/articles/q215/3/83.asp>

Integrated Windows Authentication means that a browser will be passed a Negotiate header from the server, allowing a decision to be made on whether to use Kerberos authentication or Windows Integrated authentication (formerly called NTLM, or NT Challenge/Response). To skip the Negotiate process, follow the following steps:

- 1 Stop Alphablox Analytics and open a command prompt and navigate to the `Inetpub\AdminScripts` directory.
- 2 Type the following command:

```
cscript adsutil.vbs set w3svc/NTAuthenticationProviders "NTLM"
```
- 3 To check the authentication, type:

```
cscript adsutil.vbs get w3svc/NTAuthenticationProviders
```
- 4 The default value is Negotiate, NTLM. After you set to NTLM only, it should show "NTLM".
- 5 Enter the following command:

```
iisreset <computername> /RESTART
```

 This will restart IIS.
- 6 Now restart Alphablox Analytics and you should be able to log into Alphablox Analytics through IIS.

Configure Analysis Server to Use Web Server-Based Security

Regardless of the web server being used, be sure to review the following Analysis Server settings for both convenience and security:

- Set Up Automatic Generation of User Accounts
- Filter IP Addresses
- Set Directory Rights
- Disable Directory Browsing


Set Up Automatic Generation of User Accounts


Before responding to a user's request, even if the user has successfully authenticated to IIS, the user must have an Analysis Server user ID. Rather than having to create user accounts for every user already known to IIS or iPlanet, Analysis Server can automatically generate user accounts.

To set up Alphablox Analytics to automatically create user IDs, perform the following:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Server Properties** section, click the **System** link.
- 4 Check the **Automatically Generate User Accounts** box.
- 5 Click the **Save** button.

Subsequently, when a new user attempts to log in, Alphablox Analytics prompts for a user ID and password, and automatically creates that user's account. If you are using an IIS web server and want to use Windows authentication for Alphablox Analytics, you must perform the additional configuration described in "Setting Microsoft Security Options for IIS NT LAN Manager" on page 126.

 If you need to use a Netscape browser to administer Alphablox Analytics when using the IIS NTLM security, be sure to log in with a Netscape browser the first time you log in. Logging in with a Netscape browser creates the user with a clear text password; otherwise, authentication will fail for Netscape browsers.

 There are risks in using this Alphablox Analytics function. Filtering IP addresses (described in the next section) can circumvent potentially malicious users from bypassing web server security.

Filter IP Addresses

You can configure Alphablox Analytics to accept requests from only specified clients. Under web server-based security, the Analysis Server should only accept requests that come from the web server host (that is, the web server itself or administrators on the web server host machine). On the Alphablox Analytics home page, **Administration** tab, **Server** page, **System** link, use the **Authorized Client List** property to create a list of acceptable DNS names or IP addresses. If you only want connections from the local machine to be accepted, set the **Authorized Client List** to *localhost*.

Set Directory Rights

When using Alphablox Analytics with IIS, you should prevent users from accessing restricted files under the web server docroot or the `webapps` directory of Alphablox Analytics. For details on setting directory right in IIS, see your IIS documentation.

Disable Directory Browsing

Internet browsers permit users to randomly access directories on the web server. To prevent users from locating and accessing files this way unless they know the exact path/filename, you must disable directory browsing on the web server. For specific information, see the documentation for your web server.

12

Extending Alphablox Analytics

This chapter describes how you can extend the built-in functionality of Alphablox Analytics with customizations in the custom calculations, DHTML client, and the Extensible User Manager.

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- “Overview” on page 138
- “Calculation Extensions” on page 139
- “User Manager Extensions” on page 139
- “Configuring Alphablox Analytics to Support Custom Java Classes” on page 140
- “Setting Class Path” on page 140

Overview

While Alphablox Analytics has a multitude of features supporting the needs for most analytic applications, developers can also extend the platform to use custom calculations, the User Manager, and the DHTML client. Custom calculations may be required when the standard calculation APIs included are not sufficient. Extensions to the User Manger enable customization of authentication, authorization, and personalization. The DHTML client can also be customized to handle your unique needs. Following are brief sections on calculation extensions, User Manager extensions, and DHTML client extensions. Also, included is information on configuring Alphablox Analytics to handle your customizations.

Calculation Extensions

Alphablox Analytics has built-in calculation APIs supporting standard calculation requirements for most analytic applications. If you find, however, that the included functionality is not sufficient for your needs, you can create your own custom calculation extensions by following these steps:

- 1 Write your calculation extension to extend the `Function` class .

- a Implement the following method:

```
public double getResult(double[] variables)
```

The `getResult` method returns the result of the user-defined calculation on the list of numbers which are the variables.

- b Make sure that this file belongs to the following package:

```
com.alphablox.util.calculator
```

- c The name of the file must have the first letter in uppercase and the following letters in lowercase.

- 2 Compile your file.
- 3 Add the file to a JAR file.
- 4 Place the JAR file in the following directory:

```
<alphabloxDirectory>\lib
```

- 5 Modify startup files to include this JAR in the classpath. See “Setting Class Path” on page 140 for details about how to properly set this class path.

More information about custom calculations can be found in the DataBlox Reference section of the *Developer’s Reference for the DHTML Client*.

User Manager Extensions

The Alphablox Analytics User Manager can be extended to support custom user authentication, authorization, and personalization requirements you might have that cannot be accomplished using Alphablox Analytics out-of-the-box functionality. For information on the available Java interfaces and server commands for extending the Alphablox Analytics User Manger, see the “Extensible User Manager” on page 170. For information on defining a class path for access to your custom Java classes, see “Setting Class Path” on page 140.

DHTML Client Extensions

Out of the box, the Alphablox Analytics DHTML client offers a rich set of features for end users. For many application pages, this functionality may be sufficient. As a result of the Blox UI model behind the DHTML client, however, developers can add customizations on their pages, use custom JavaBeans components, and create custom JSP tag libraries to further enhance analytic applications.

For details about extending the capability of Alphablox Analytics using the Blox UI Model, see the *Developer's Guide for the DHTML Client* and the *Developer's Reference for the DHTML Client*.

Configuring Alphablox Analytics to Support Custom Java Classes

As described earlier, customizations to the DHTML client, calculations capabilities, and the User Manager can be created using custom Java classes. When creating and using your custom classes, you should be aware of the following considerations:

- Custom classes, typically packaged in JAR files, can be stored in any location on your server that you prefer.



If you store your Java classes within an Alphablox Analytics installation directory, your files may be deleted during upgrades. As a result, Alphablox recommends that you store your classes in either a location outside of the Alphablox Analytics directory, or include them within your application's directory:

```
<alphabloxDirectory>/webapps/<applicationDirectory>
```

- Modifications made to the Alphablox Analytics startup batch file (described in the next section, "Setting Class Path" on page 140) will be lost during Alphablox Analytics upgrades.

Setting Class Path

For Alphablox Analytics to use your classes, you need to add the classes directory to the Alphablox Analytics class path specified in the startup batch file.

For Alphablox Analytics Apache Tomcat implementations:

- 1 In a text editor, open the <alphabloxAnalytics_dir>/appserver/bin/aas.bat file (Windows platforms) or the <alphabloxAnalytics_dir>/appserver/bin/aas.sh file (UNIX platforms), where <alphabloxAnalytics_dir> is the directory in which Alphablox Analytics is installed.
- 2 Find the line that sets the class path and append a line using the same syntax to point to where your classes are. For example, if your classes are in the c:/myclasses/classes directory:

```
set CLASSPATH=%CLASSPATH%;%AAS_LIB%\xerces.jar
// Add your class path below
set CLASSPATH=%CLASSPATH%; c:/myclasses/classes
```

If you are running Alphablox Analytics as a service under NT, also set the class path in the service parameters file at <alphabloxAnalytics_dir>\appserver\conf\wrapper.properties:

```
wrapper.class_path=$WRAPPER_AAS_HOME$\lib\aaaserver.jar
// Add your class path below
wrapper.class_path=c:/myclasses/classes
```

- 3 Save your changes.
- 4 Restart Alphablox Analytics for the change to take effect.alphabloxAnalytics_dirIf you are using WebLogic:
 - 1 In a text editor, open the <alphabloxAnalytics_dir>/bin/aassetup.bat (Windows platform) or <alphabloxAnalytics_dir>/bin/aassetup.sh (UNIX platforms)
 - 2 Find the line that sets the class path add append a line using the same syntax to point to where your classes are. For example, if your classes are in the c:/myclasses/classes directory:

```
set CLASSPATH=%CLASSPATH%;%AAS_CP%
// Add your class path below
set CLASSPATH=%CLASSPATH%; c:/myclasses/classes
```

- If you are running Alphablox Analytics as a service under NT, also set the class path in the service parameters file at <alphabloxAnalytics_dir>\bin\aaassetup_nt_service.bat

- 3 Restart WebLogic. If Alphablox Analytics is running as a service under NT, for WebLogic 6.1, re-run installNtService.cmd under <BEA>/config/<domain>. For WebLogic 7, re-run installSvc.cmd under <BEA>/weblogic700/server/bin.

If you are using WebSphere, you can not have loose classes. You have to make a JAR file using the JAR utility that contains your classes and then put the JAR file under `<alphabloxAnalytics_dir>/lib`. Restart WebSphere for the change to take effect.

13

Configuring Alphablox Analytics Properties

The **Server** link under the **Administration** tab of the Alphablox Analytics home page provides links to a set of web pages for performing common administrative tasks. Note that all these tasks, as well as several others, can also be performed using console commands, as described in “Alphablox Analytics Console Commands” on page 223. To access Alphablox Analytics, enter the following URL in a browser:

```
http://<servername>/AlphabloxAdmin/home
```

where <servername> represents the name of the server and port number on which Alphablox Analytics runs. This chapter includes procedures for defining the properties in which the server runs and describes the server log.

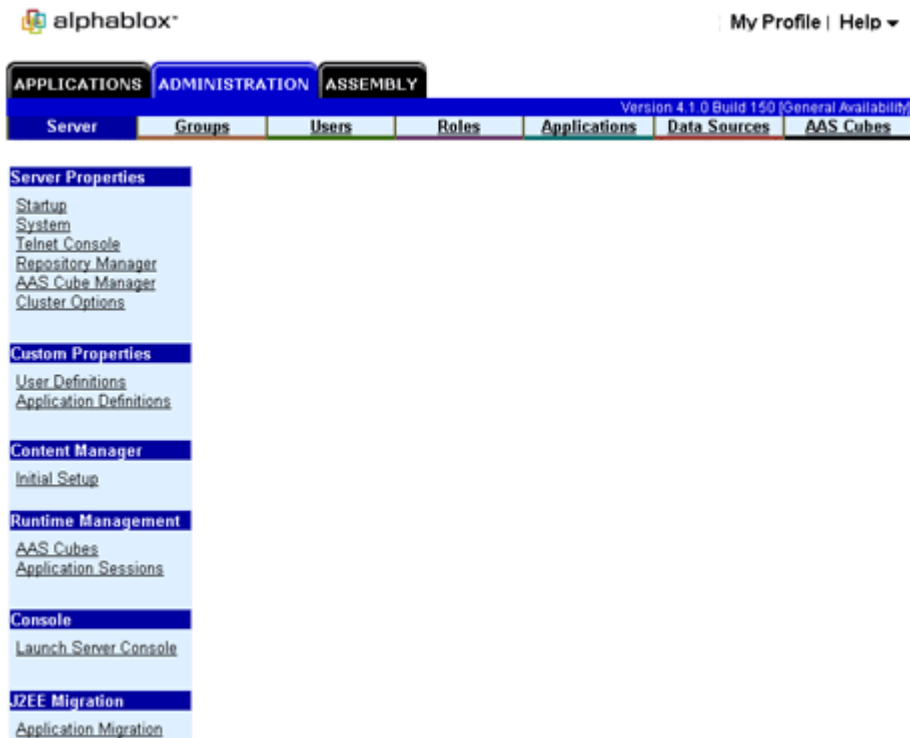
Contents

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- “Custom Property Definitions” on page 153
- “Creating and Managing Comments Collections” on page 158
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Alphablox Analytics Administration Tasks


The **Server Properties** section on the **Server** page under the **Administration** tab provides links to the interface to perform the following server-related tasks:

- Configuring Startup Properties
- Configuring System Properties
- Specifying the Telnet Port
- Configuring the Content Manager
- Configuring the Alphablox Cube Manager



Configuring Startup Properties

The initial installation and configuration process established values for the properties on the **Startup** page. This property set represents the absolute minimum required for Alphablox Analytics to start up.


 Review and establish the correct values for other server properties, as described in “Configuring System Properties” on page 147, before deploying applications.

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Server Properties** section of the page, click the **Startup** link to view and/or modify Alphablox Analytics startup properties:

Startup

Instance Name	AnalysisServer
Alphablox Analytics Log File Name	<input type="text" value="Server.log"/>
Command File Name	<input type="text" value="abc.console"/>
Default Message Level	<input type="text" value="INFO"/> ▼
Enable Alphablox Analytics Log	<input checked="" type="checkbox"/>
Alphablox Analytics Idle Duration	<input type="text" value="15"/>
Alphablox Analytics Console Default Message Level	<input type="text" value="FATAL"/> ▼
Load All User Objects	<input checked="" type="checkbox"/> <i>not recommended for DB repositories</i>

On the **Startup** page, you can provide values for the following startup properties:

Property Name	Default Value	Description
Instance Name	AlphabloxAnalytics	<p>The name for this instance of Analysis Server. This name is determined during installation and cannot be changed unless you reinstall Alphablox Analytics.</p> <p> This is NOT the domain name (DNS) of the server machine.</p>

Property Name	Default Value	Description
Alphablox Analytics Log File Name	Server.log	The name of the log file for this session of Alphablox Analytics. It resides in the <repository_root>/servers/<instance_name>/logs directory.
Command File Name	abc.console	The name of an optional command file. The Server looks for a file by this name during startup, and reads from it a series of Alphablox Analytics commands. The commands in this file use the same syntax as those entered through an Analysis Server Console.
Default Message Level	INFO	The minimum (least severe) level of messages to display (and write to the log file). Valid values, in increasing severity, are: DEBUG, VERBOSE, INFO, SYSTEM, WARNING, ERROR, and FATAL. For a description of the message levels, see “Message Levels” on page 236.
Enable Alphablox Analytics Log	Yes	Whether to enable Alphablox Analytics to write messages to the log.
Alphablox Analytics Idle Duration	15 minutes	Specifies the number of minutes of server inactivity before the server suspends. Suspending is a state where the server uses less resources. Any request automatically resumes server activity.
Alphablox Analytics Console Default Message Level	FATAL	The minimum (least severe) level of messages to be sent to System.out (for the Alphablox Analytics Apache Tomcat implementations, the output is displayed to the Tomcat console). Valid values, in increasing severity, are: DEBUG, VERBOSE, INFO, SYSTEM, WARNING, ERROR, and FATAL.

Property Name	Default Value	Description
Load All User Objects	enabled	Load into memory all user objects. By default, the User Manager stores user objects in the Alphablox Analytics Repository. Used in conjunction with the “Keep Users Loaded (in minutes)” setting in the System properties, can be used for more efficient memory management and faster User Manager startup when you have many users.

- 4 Enter the required values for these properties.
- 5 Click the **Save** button to apply the changes.



You must stop and restart the server for these changes to take effect.

Configuring System Properties


After initial installation and before deploying applications, review and edit the system properties for the server.


- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Server Properties** section of the page, click the **System** link to view and/or modify Alphablox Analytics system properties:

System

New Log Start Message Level	<input type="text" value="INFO"/>
New Log End Message Level	<input type="text" value="FATAL"/>
Enable Authentication	<input checked="" type="checkbox"/>
Automatically Generate User Profiles	<input type="checkbox"/>
Authorized Client List	<input type="text"/>
Message History Size	<input type="text" value="100"/>
Save On Exit	<input checked="" type="checkbox"/>
Default HTML Client Theme	<input type="text" value="coleman"/>
SMTP Server	<input type="text" value="corpmsg01"/>
Keep Users Loaded (in minutes)	<input type="text" value="-1"/> <i>-1 to always keep users loaded in memory</i>

In the **System** properties page, you can provide values for the following properties:

Property Name	Default Value	Description
Web Server URL Prefix	<empty>	<p>Correct value depends on the web server in use. Note that this property is not used in environments running Analysis Server as a standalone web server.</p> <p> Do not change this value after installation without first contacting Alphablox Analytics Customer Support.</p>
New Log Start Message Level	INFO	Establishes the least severe message level to write to a new log file.
New Log End Message Level	FATAL	Establishes the most severe message level to write to a new log file. Setting the same value on this and the New Log Start Message Level property (for example, ERROR) creates a log containing messages of only the specified level.

Property Name	Default Value	Description
Enable Authentication	Yes	Sets whether users must authenticate before accessing Server resources and Alphablox Analytics applications. When the value is “No,” all users log in as guest with no requirement for a password.
Automatically Generate User Profiles	No	Determines whether user profile is automatically created when a user logs into Alphablox Analytics. When set to Yes , it causes any user request, regardless of the password, to be accepted and the user to be granted access to Analysis Server.
Authorized Client List	<empty>	<p>Lists the users authorized to access Alphablox Analytics. The value is a comma-separated list of IP addresses and/or host names; wildcards are not permitted. An empty list indicates that all users are permitted to access Analysis Server.</p> <p> When using web server security, it is important to set authorized clients so only the web server machine can access Alphablox Analytics.</p>
Message History Size	100	Sets the number of messages saved to the message history area for viewing in the console. When the area fills, the Server wraps to the beginning, overwriting the oldest messages (the messages are still saved in the log file).
Save on Exit	Yes	Sets whether to save the current state of Analysis Server (and all its properties) when its session ends. If administrators or assemblers made changes during a session and failed to save them, leaving this value as “Yes” ensures that the changes are not lost.

Property Name	Default Value	Description
Default HTML Client Theme	coleman	This sets the default theme to use when rendering application pages into HTML format. (For more information see the <i>Developer's Guide for the DHTML Client.</i>)
SMTP Server	specified during installation	Sets the name of an SMTP server so applications that use JavaMail to send mail can operate successfully. Set this to the name of a valid SMTP mail server.
Keep Users Loaded (in minutes)	- 1	Sets the number of minutes to keep user objects in memory after last instance of a user session. The default, - 1, keeps users loaded indefinitely (while the server is running). In conjunction with the "Load All User Objects" setting in the Startup properties, this setting can be used for more efficient memory management and faster User Manager startup when you have many users.

- 4 Enter the required values for these properties.
- 5 Click the **Save** button to apply the changes.



You must stop and restart the server for property changes to take effect.

Specifying the Telnet Port

Perform the following to specify ports in which the server listens on:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.

- In the **Server Properties** section of the page, click the **Telnet Console** link to view and/or modify Alphablox Analytics ports:

Telnet Console

Telnet Console Port	<input style="width: 90%;" type="text" value="20023"/>
Telnet User Name	<input style="width: 90%;" type="text" value="admin"/>
Telnet Password	<input style="width: 90%;" type="password" value="*****"/>
Confirm Telnet Password	<input style="width: 90%;" type="password" value="*****"/>
Telnet Timeout (minutes)	<input style="width: 90%;" type="text" value="15"/>
Restart Console Manager	<input type="checkbox"/>

On the **Telnet Console** page, the following properties values can be modified:

Property Name	Default Value	Description
Telnet Console Port	20023	The port on which the telnet version of the Server console operates. If Analysis Server is the default telnet device, it is not necessary to enter a port number when accessing the telnet consoles. Set this value to 0 (zero) to disable telnet access to Analysis Server Console.
Telnet User Name	admin	The name of a user who can run a telnet session.
Telnet Password	password	The password for the telnet user name.
Confirm Telnet Password		When you enter a password in the Telnet Password text box, you must confirm it in this text box.
Telnet Timeout	15 minutes	Specifies the number of minutes before a telnet session to Alphablox Analytics times out. When a telnet session times out, the session is terminated.

Property Name	Default Value	Description
Restart Console Manager	not checked	When checked, restarts the console manager when you press the Save button.

- 4 Enter the required port numbers.
- 5 Click the **Save** button to apply the changes.



You must stop and restart the corresponding service managers for these changes to take effect. To restart the service manager(s), check the box below the port(s) that you have changed and click the **Save** button.

Configuring the Content Manager

The Content Manager is a mechanism for Alphablox Analytics to create applications, roles, data sources, or other server objects. For detailed information on configuring the Content Manager, see “Understanding the Content Manager” in the online help.

Configuring the Alphablox Cube Manager

Clicking the **Alphablox Cube Manager** link brings up a page that allows administrators to limit the number of Alphablox cubes that can be loaded in the server. Each Alphablox cube can potentially use a large amount of system resources, so administrators might want to limit the number of cubes based on the memory available on the machine in which Alphablox Analytics runs.

To limit the number of Alphablox cubes on the system:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Server Properties** section of the page, click the **Alphablox Cube Manager** link to view and/or modify Alphablox Analytics system properties:
- 4 Check the **Maximum Cubes** box.
- 5 Enter the maximum number of Alphablox cubes in the **Maximum Cubes** text box.
- 6 Click the **Save** button to apply the changes.

For detailed information about creating and managing Alphablox cubes using the Alphablox Cube Server, see the *Cube Server Administrator's Guide*.

Custom Property Definitions

Custom properties can be used to associate users' login details with Analysis Server's user profile. For details regarding the user profile, see "User Definitions" on page 105. Alphablox Analytics provides an example custom properties file to make this easier for you.

Valid values for the property, as well as its default value, are taken from the property definition. The user property is available to developers programmatically, for example, through the RepositoryBlox's `getUserProperty()` method.



When defining a Custom Property that requires spaces in the property value, use ` ` instead of typing spaces. Typed spaces are not recognized, and are removed from the property value.

Defining a New User Property

Perform the following to define a new user property:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **User Definitions** link. The **User Definitions** page appears.
- 4 Click the **Create** button. The **Create User Custom Properties** page appears.
- 5 Provide a name (required) in the **Property Name** text box and a description in the **Display Label** text box. The description appears on the application definition on the pages that display from the **Applications** link under the **Administration** tab.



If you are using LDAP-based User Manager or other external user manager (such as NTLM) that has its own editor, you will need to select between External Repository and Local Repository under **Property Name**. Click the External Repository radio button and select from the drop list in order for Alphablox Analytics to load the custom property.

- 6 Click the **Multiple Select** button if you want the property to accept a multiple values.
- 7 Select the **User Access** level from the drop list. (Administrative privileges are always required to define, change, or delete Application properties.)

- **Hidden:** The property does *not* appear on the New User and Group, Change User and Group, and the Manage User Profile pages. Its value can be changed in an application (for example, through JavaScript) or through this page only.
 - **Visible:** The property and its default value appear on the New User and Group, Change User and Group, and the Manage User Profile pages, but the user cannot change the value.
 - **Edit:** The property and its default value appear and can be changed on the New User and Group, Change User and Group, and the Manage User Profile pages. If the property has more than one valid value, the user selects a value from a list. If the property has no valid value list, the user can enter a value.
- 8 Enter a **Default Value** for the property, if any.
 - 9 In the **Value List** text box, enter an optional comma-separated string of valid property values. Values entered here are used to populate the list from which users make their selection. If no values are entered, and if **User Access** is set to **Edit**, a text box appears on the respective pages in which users can enter a value.
 - 10 Click the **Save** button to save the new property and return to the **Server** page.

Changing a User Property

Perform the following to change a user property:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **User Definitions** link. The **User Definitions** page appears.
- 4 Select the definition to change and click the **Edit** button. The **Edit User Custom Property** page appears with its current values appearing in the input fields.
- 5 Make the necessary changes.
- 6 Click the **Save** button to make the changes and return to the **Server** page.

Deleting a User Property

Perform the following to delete a user property:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.

- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **User Definitions** link. The **User Definitions** page appears.
- 4 Select the property definition you want to delete from the list of existing properties.
- 5 Click the **Delete** button to delete the property and return to the **Server** page.



Deleting a property definition is permanent; you cannot recover a deleted property definition.

Defining a New Custom Application Property

Perform the following to define a custom application definition:

- 1 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **Application Definitions** link. The **Application Definitions** page appears.
- 4 Click the **Create** button. The **Create Application Custom Property** page appears.
- 5 Provide a name (required) in the **Property Name** text box and a description in the **Display Label** text box. The description appears on the application definition on the pages that display from the **Applications** link under the **Administration** tab.
- 6 Click the **Multiple Select** button if you want the property to accept a multiple values.
- 7 Select the **User Access** level from the drop list. (Administrative privileges are always required to define, change, or delete Application properties.)
 - **Hidden:** The property does *not* appear on its respective pages. Its value can be changed in an application (for example, through JavaScript) or through this page only.
 - **Visible:** The property and its default value appear on its respective pages, but the user cannot change the value.
 - **Edit:** The property and its default value appear and can be changed on its respective pages. If the property has more than one valid value, users select the desired value from a list. If the property has no valid value list, users can enter a value.

- 8 Enter a **Default Value** for the property, if any.
- 9 In the **Value List** text box, enter an optional comma-separated string of valid property values. Values entered here are used to populate the list from which users make their selection. If no values are entered, and if **User Access** is set to **Edit**, a text box appears on the respective pages in which users can enter a value.
- 10 Click the **Save** button to save the new property and return to the **Server** page.

Changing an Application Property

Perform the following to change an application property definition:

- 1 Log into the Alphasbox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **Application Definitions** link. The **Application Definitions** page appears.
- 4 Select the definition to change and click the **Edit** button. The **Edit Application Custom Property** page appears with its current values appearing in the input fields.
- 5 Make the necessary changes.
- 6 Click the **Save** button to make the changes and return to the **Server** page.

Deleting an Application Property

Perform the following to delete an application property definition:

- 1 Log into the Alphasbox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 2 Click the **Administration** tab. The **Server** page appears.
- 3 In the **Custom Properties** section of the page, click the **Application Definitions** link. The **Application Definitions** page appears.
- 4 Select the property definition you want to delete from the list of existing properties.
- 5 Click the **Delete** button to delete the property and return to the **Server** page.




Deleting a property definition is permanent; you cannot recover a deleted property definition.

Edit User "john"

General Properties	Application Properties	Memberships
Username	<input type="text" value="john"/>	
Full Name	<input type="text" value="john doe"/>	
Description	<input type="text"/>	
eMail Address	<input type="text"/>	
Password	<input type="password" value="***"/>	
Confirm Password	<input type="password" value="***"/>	
Allow User To Edit Profile	<input type="button" value="Yes"/> ▼	
Property Name	<i>Essbase Login</i>	
Property Value	<input type="text"/>	
Property Name	<i>Essbase Login (Embedded DataBlox)</i>	
Property Value	<input type="text"/>	
Property Name	<i>Essbase Password</i>	
Property Value	<input type="text"/>	
Property Name	<i>Essbase Password (Embedded DataBlox)</i>	
Property Value	<input type="text"/>	
<input type="button" value="SAVE"/> <input type="button" value="CANCEL"/>		

From UserPropDesc.properties File

 In this figure, everything below the **Allow User To Edit Profile** drop list appear because of the contents of the *UserPropDesc.properties* file.

Creating and Managing Comments Collections

Alphablox Analytics can be used to manage user comments to be available on data cells in multidimensional grids. The following sections describe how to use the Comments Management page, available under the Alphablox Analytics Administration tab to configure a Comments Collection for use with a particular data source. Comments are viewable in the DHTML client on Microsoft Internet Explorer browsers.



Comments collections requires additional configuration steps to work with Microsoft's JDBC Driver for SQL Server, which is an option included on WebSphere. Contact Alphablox Analytics Customer Support for assistance.

Accessing the Comments Management Dialog

To access the Comments Management page, which opens in a new window, follow these steps:

- 1 Open the Alphablox Analytics home page.
- 2 Click the Administration tab.
- 3 Under Runtime Management in the navigation menu on the left, click the Comments Management link.
- 4 The Comments Management dialog should appear in a new browser window.



To use the Comments Management Dialog, you need to have rights for creating and dropping relational tables. For using the CommentsBlox API in developing custom commentary applications, you may need rights for selecting, inserting, updating, deleting, creating, and dropping tables.

Defining And Accessing a Data Source

To define a data source to be available for storing your comments collections, follow these steps:

- 1 Under the Datasource heading, click on the Name selection list and select the defined Alphablox Analytics data source where you want your comments collections to be stored. [Note: To learn more about defining data sources in Alphablox Analytics, see Understanding Data Source Definitions and Default Values.]
- 2 In the Username and Password entry fields, enter a login and password for a user authorized to create tables in the data source. [Note: If these fields are blank, the default datasource username and password, if defined in the

Alphablox Analytics data source definition, will automatically be submitted upon connecting.]

- 3 Press the Connect button. If the defined data source and user information are valid, a connection to your data source should occur and the Collection section on the Comments Management dialog will become enabled.

Defining Comments Collections

Before users can begin adding comments to data cells in a grid, you must first create a comments collection to store related comments.



Dimensions in your comments collection may be added or removed, as long as no comments exist in the collection.

- 1 To create a new comments collection, follow these steps:
- 2 Click the Create button below the Collection list box. On the right side of the browser window, three new sections will appear.
- 3 In the Name section, enter the name of your comments collection. [Note: Names must not include spaces and must conform to any naming requirements for tables in the database being used to store comments.]
- 4 In the Fields section, you can add or delete fields in your comment collection. By default, three required fields are included: the Author, Timestamp, and CommentText fields. You can add additional fields, defining their names, and if desired, descriptions for each field you define. An optional CellValue field can also be added. The CellValue field will result in the current cell value for the selected cell to be automatically added to the comment associated with that cell.
- 5 In the Dimensions section, you must select a multidimensional data source from the list of defined Alphablox Analytics data sources. A list of dimensions available in the selected cube should appear in the text box below the listed data source.
- 6 Select which dimensions you want users to be able to add comments to. To select more than one dimension, you must press the Control key and click on each additional dimension.



Dimensions selected affect the scope of the added comments by your users, as shown in the following two examples:

- Example 1: If you have a cube with three dimensions (Year, Product, and Region), and select only two of the dimensions (Product and Year) in the Dimensions list, then comments added to any member of the Region

dimension (unselected in the Dimensions list) will be displayed in all other Region members.

- Example 2: If you have a cube with three dimensions (Year, Product, and Region), and select all three dimensions in the Dimensions list, then comments will appear only in the cell to which the comments were added.
- 7 Press the Save button. At this point, the name of the newly defined collection should appear in the Collection listing.

Comments Collections Using Microsoft SQL Server or Sybase Databases

If you will be using Microsoft SQL Server or Sybase databases to store comments that may include non-ASCII characters, commonly found in foreign languages, you will need to perform the following steps:

- 1 For each comments collection you define, you need to change the data types of the columns in the automatically-generated tables in from `varchar` to `nvarchar`.

The following five tables are shared by all of the defined comments collections using the data source:

- Collections: `CollectionName`
- Comments: `CommentText`
- Context: `ContextName`
- Dimensions: `DimName`
- FieldDefinitions: `descr, fieldName`
- FieldValues: `fieldvalue`

Also, for each comments collection, a unique table is created:

- `ABXMBRT_<collectionName>`

where `<collectionName>` is the name you specified for the comments collection. You need to change the data type to `nvarchar` for the following column:

- `ABXMBRT_<collectionName>`: `MemberName`
- 2 All JSP pages within your application should have the Unicode character set specified in a JSP page directive on each page, like this:

```
<%@ page contentType="text/html; charset=UTF-8" %>
```


Displaying Comments Collection Definitions

To display the definition of an existing collection, follow these steps:

- 1 When you are connected to a defined data source, a list of predefined comments collections appears in the Collection text box and the Create, Display, and Delete buttons are enabled. If you are not connected, first follow the steps above under Defining and Accessing a Data Source to connect to a data source.
- 2 Click on one of the comments collections listed in the Collection text box, then press the Display button. The collection definition should appear in the right half of the window.

Deleting Comments Collections

To remove a defined comments collection, follow these steps:

- 1 Connect to a defined data source (see Defining and Accessing Data Sources above).
- 2 In the Collection text box, click on the name of the comments collection you want to remove.
- 3 Press the Delete button. The collection name should be removed from the listing.

Adding and Displaying Comments

After a comments collection has been defined, users can add comments to the data cells of grids that have been enabled for comments. When a user right-clicks on a data cell that is comment enabled, a menu appears. In the Comments submenu, users can choose to either Add Comments or Display Comments.

For more information on CommentsBlox, see the CommentsBlox section of either the *Developer's Reference for the DHTML Client*.

Using a Remote PDF Processor

For performance, memory management, or to share PDF processing for multiple Alphablox Analytics hosts, you may decide to run your PDF engine on an remote dedicated server.

Configuring Remote PDF Processor

To use a remote PDF processor instead of the internal server, follow these steps:

- 1 Open the following directory:

```
<alphabloxAnalytics_dir>/lib/
```

- 2 Copy the following JAR files to your remote server:

- pdfserver.jar
- bforeport.jar
- xalan.jar

- 3 Open the following directory:

```
<alphabloxAnalytics_dir>/bin/
```

- 4 Copy the batch file to the remote server.

```
StartPDFReportServer.bat for Windows systems
```

```
StartPDFReportServer.sh for UNIX systems
```

- 5 Edit the batch file to make any required modifications, such as class paths or port numbers.
- 6 Run the batch file. The remote PDF processor should now be available.
- 7 To use it with your Alphablox Analytics applications, follow the steps in the next section to configure Alphablox Analytics to use the remote server.

Configuring Remote PDF Reports Administration

PDF reports processing is administered by using the PDF Reports Runtime Management settings in the Alphablox Analytics Admin Pages. To configure a remote server, follow these steps:

- 1 Open the Alphablox Analytics Admin Pages, then click on the Administration tab.
- 2 On the left side of the page, under Runtime Management, click on the PDF Reports (DHTML) link to open the PDF Reports dialog.
- 3 To configure a remote PDF server, make the following changes:

- a Click on the **Edit** button.
- b Change the **Server** setting from **Use Internal Server** to **Use PDF Report Server**.
- c Define the **Host Name** and **Host Port** for the remote server.
- d Choose a **Compression** option, if desired, or leave it set to the default of **No Compression**. The options are based on the compression settings defined in the **JDK**. In reality, there is little difference in compression between the low and high settings. The low setting significantly compresses the files, yet the highest setting offers only minimally greater compression than the lowest setting.
- e Save your changes. If you have successfully configured the remote PDF server, the **Status** should indicate **Available**.

Server Log Files

The Alphablox Analytics logs various server events and errors to a log file. Every message that is written to the server console is also written to the log file. The log files remain until they are deleted or moved, and help to keep a history of the activity on the server. The history is useful for administrative auditing purposes and for use by Alphablox Analytics Customer Support.

Log File Rollover Interval Settings

By default, Alphablox Analytics creates a new server log file every day and also every time the server starts up. As an administrator, you can choose to change the log file rollover settings in either the Alphablox Analytics Admin Pages or by editing the `server.properties` file.

To set the interval in the Alphablox Analytics Admin Pages, open a browser to the Administration tab in the Alphablox Analytics Admin Pages, then click on System under General Properties. By default, the New Log Rollover Interval is set to rollover each day. You can edit this setting to never rollover, or to specified days, minutes, hours, days, weeks, or kbytes.

To set the log file rollover interval in the `server.properties` file, open the `server.properties` file, located in the following directory:

```
<repository_dir>/servers/<instanceName>/
```

Find the setting for `LogRollOverInterval` and change it to the desired setting using the following values:

Set this to one of the following values (default is 1D):

#M - Rollover after number (#) of minutes

#H - Rollover after number (#) of hours

#D - Rollover after number (#) of days

#W - Rollover after number (#) of weeks

#K - Rollover after number (#) of K bytes written

NONE - Never rollover

Log File Names

The log file is located in the following directory:

```
<repository_root>/servers/<instance_name>/logs
```

The default name of the active log file is *Server.log*. The name is configured on the page accessed by clicking the **Administration** tab, **Server Properties** section, **Startup** link.

Alphablox Analytics creates a new log file each time it starts up. When Alphablox Analytics starts up, the previous log file is renamed to the following:

```
Server<timestamp>.log
```

where *<timestamp>* is a time from the last entry in the log. The timestamp has the following format:

```
YYMMDD_HHmmSS
```

For example, if the Alphablox Analytics was last shut down at 6:22:35 PM on June 3, 2000, when it next starts up the old log file will be renamed *Server000603_182235.log* and a new log file named *Server.log* will be created to store the current log entries. Note that the timestamp is based on a 24 hour clock (in this example, the *18* represents 6 PM). If the name of the log file is changed on the **Administration** pages, the timestamp is appended to the new name.



The active log file does not have the timestamp appended to its name; its name is exactly what is specified on the **Administration** pages.

Managing the Log Files

Old log files can remain around indefinitely without causing any problems, but you might want to establish a process to archive them after a certain amount of time. The disadvantage of keeping old log files around is that they take up disk space. How much disk space they occupy depends on the activity on the server and the default message level set on the Administration pages. If the message level is set to DEBUG or VERBOSE, the log file can grow large fairly quickly.

Since the old log files are renamed with a timestamp as part of their filename, you can create utilities to help manage the log files. For example, you can create a script to delete or move the log files once they become older than three months.

14

User Manager

This chapter describes how to configure and use Alphablox Analytics’s user manager functionality for LDAP integration and how to extend the Extensible User Manager personalization engine to implement custom security.

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- “Extensible User Manager” on page 170
- “LDAP-Based User Manager” on page 170
- “Extensible User Manager Telnet Console Command” on page 174
- “Extensible User Manager Interfaces” on page 176
- “Custom Security Implementations” on page 176
- “Interface Methods Cross-References” on page 182
- “IUserManager Interface” on page 183
- “IUser Interface” on page 188
- “IGroup Interface” on page 192

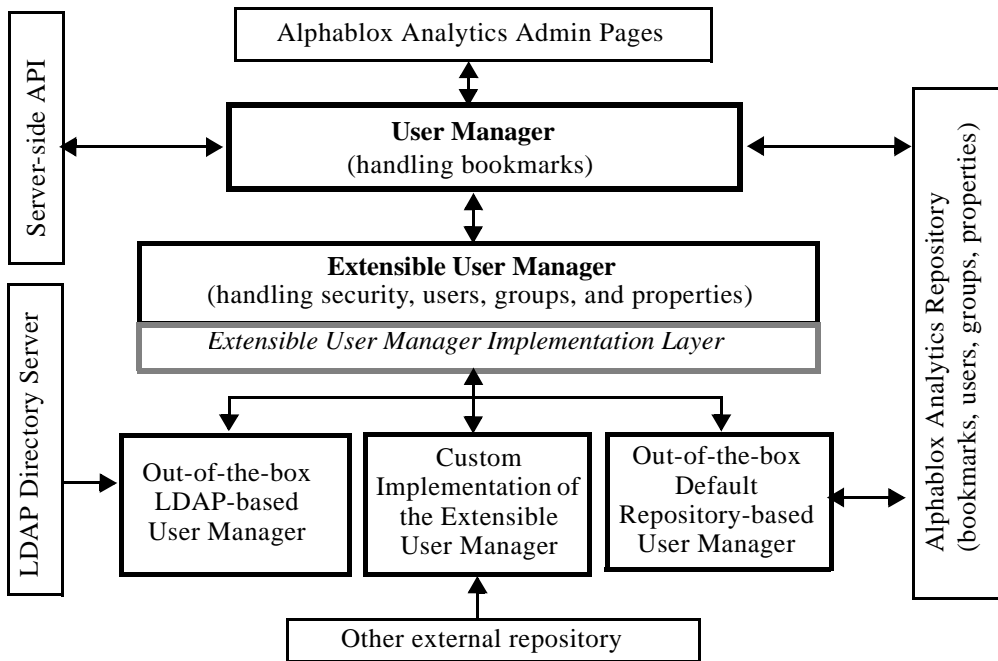
Alphablox Analytics User Manager Overview

The Alphablox Analytics User Manager manages user authentication and authorization as well as provides personalization capabilities for customizing application content. By default, Alphablox Analytics uses the Alphablox Analytics Repository and the J2EE Security API to manage user and group information. Two J2EE security methods—`isUserInRole()` and `getUserPrinciple()`—are used to identify who the user is and whether the user is in a specific role.

Alphablox Analytics also provides an out-of-the-box Lightweight Directory Access Protocol (LDAP) integration solution. This solution allows Alphablox Analytics to authenticate and authorize the users by using an LDAP directory server to recognize Alphablox Analytics users, groups, and custom properties.

The User Manager is built on top of the personalization engine called Extensible User Manager. For environment where custom security is desired, the Extensible User Manager personalization engine provides interfaces that let you extend either of the two out-of-the-box security solutions (Alphablox Analytics Repository and LDAP). Or you can plug in another external user manager such as NTLM or some existing Enterprise JavaBeans (EJBs).

The following diagram shows the architecture of User Manager and its Extensible User Manager personalization engine:



Notice from the diagram that:

- Users, groups, and related property information are accessible programmatically through server-side API through the RepositoryBlox.
- Alphablox Analytics provides two out-of-the-box solutions for security and personalization: Alphablox Analytics Repository-based User Manager and LDAP-based User Manager.
- The default Repository-based User Manager reads from and writes to the Alphablox Analytics Repository.
- The out-of-the-box LDAP-based User Manager only performs READ operations to the LDAP server.
- Through the Extensible User Manager API, you can use other external repository such as NTLM or some existing Enterprise JavaBeans (EJBs).
- Regardless of the repository used (Alphablox Analytics, LDAP, or other external sources), you can always access the user properties through the RepositoryBlox API.

Extensible User Manager

At the heart of the Alphablox Analytics User Manager lies the Extensible User Manager personalization engine. It gives you the ability to:

- customize the out-of-the-box user authentication and/or authorization,
- plug in an external user manager to access user/group information from other sources outside Alphablox Analytics Repository, or
- use security settings other than J2EE Security API

The two out-of-the-box Alphablox Analytics security and personalization implementations—Alphablox Analytics Repository-based User Manager and LDAP-based User Manager—are both built on this engine. To use the LDAP-based User Manager, some configuration steps are required. These steps are described in “LDAP-Based User Manager” on page 170. To implement custom security, or to customize either of the two out-of-the-box security implementations, you can extend the Extensible User Manager. The details on extending the Extensible User Manager interface are described in “Extensible User Manager Interfaces” on page 176.

LDAP-Based User Manager

Alphablox Analytics provides an out-of-the-box implementation of the Extensible User Manager to use an LDAP directory server to recognize Alphablox Analytics users, groups, and custom properties:

- Alphablox Analytics only performs READ operations to the LDAP server.
- Administrators can only create Alphablox Analytics users or groups that are already defined in the LDAP Server.
- Administrators can not rename or modify memberships from the **Administration** tab on the Alphablox Analytics home page.
- Deleting users or groups via the **Administration** tab on the Alphablox Analytics home page does not remove the items from the underlying repository nor affect the LDAP Server.
- The “admin” user is no longer available by default unless it is an LDAP user.
- User “guest” and Group “public” are available even if they do not exist in LDAP.

Configuring Alhablox Analytics to Use LDAP User Manager

The LDAP-based User Manager can be used with Websphere, WebLogic, and Tomcat application servers. Follow these steps to configure Alhablox Analytics to take advantage of the out-of-the-box integration with your LDAP directory servers:

- 1 Use the `ExtUserManager` telnet console command to set the server to use LDAP, as described below in “Setting LDAP-based User Manager Properties” on page 171.
- 2 Make sure that the server property `autoCreateUsers` is set to `true` by using the telnet console command:

```
set server autoCreateUsers true
```



The default value of `autoCreateUsers` is `false`. To enable Alhablox Analytics to automatically create the users if they are successfully authenticated against the LDAP server, you must set the property to `true`.



The External User Manager must have the Group “public” and the User “guest” defined (these can be just dummy instances).

Additional Steps Required for Alhablox Analytics Apache Tomcat Configurations

- 3 Create `AlhabloxAdministrator` group in LDAP Directory Server.
- 4 Add at least one user to the `AlhabloxAdministrator` group or add an existing group that contains at least one user as a sub-group to the `AlhabloxAdministrator` group.

Setting LDAP-based User Manager Properties

- 1 Open a telnet console connection to Alhablox Analytics.



If you access a telnet console through the **Administration** tab on the Alhablox Analytics home page, you must restart the your Alhablox Analytics server before changes take effect. By using a standard telnet console, you will not need to restart the server.

2 Enter the following command:

```
ExtUserManager setToDefaults ldap "<ldapProps>"
```

where <ldapProps> are semicolon-separated lists of property-value pairs. For example:

```
"host:localhost;port:389;admin:cn=DirectoryManager;
password:password;debug:false;base:dc=alphablox,dc=com"
```

Note: The above should be entered as a single line with no line breaks.

After the `ExtUserManager` command has been executed, Alphablox Analytics will switch from the default Alphablox Analytics Repository-based User Manager to the LDAP-based User Manager.

Note: This switch will result in disconnecting all current users.

The following table lists all required and optional properties that can be defined in the <ldapProps> string:

Property	Description	Example
host	LDAP directory server host	host:localhost
port	LDAP directory server port	port:389
admin	LDAP directory server administrator username	admin:cn=Directory Manager
password	LDAP directory server administrator password	password:myPassword
base	LDAP directory server search base	base:o=myCompany.com
debug	[Optional] Debug mode setting; default is false	debug:true



The search base in LDAP is used to specify the starting point for the search. It points to a distinguished name of an entry in the directory hierarchy so the search can be more effective.

Accessing Custom User Properties

You can define custom user properties to provide further personalization to your applications. Once a custom user property is defined, you can assign different value to the property for each user and then programmatically access the property value through the RepositoryBlox's API. With LDAP-based User Manager or other external user manager, Alphablox Analytics will only load custom user properties that are marked as external properties.

Custom user properties can be defined via the **Administration** tab on the Alphablox Analytics home page. On the custom property definition page, make sure you check the box for **External Property**. For detailed steps, see “Custom Property Definitions” on page 153. Once a custom user property is marked as external, when information on the value of an external custom user property is requested (through a

`RepositoryBlox.getUserProperty("myExternalUserProp")` call, for example), Alphablox Analytics User Manager will automatically go to the external source to fetch the value.

Runtime Behavior

The LDAP-based User Manager has the following runtime behaviors:

- Alphablox Analytics will not auto create groups at runtime. Administrators must explicitly register LDAP Group via the **Administration** tab on the Alphablox Analytics home page.
- Alphablox Analytics will auto create users if they are successfully authenticated against the LDAP server and if the `autoCreateUsers` server property is set to `true` via the telnet command (described in “Configuring Alphablox Analytics to Use LDAP User Manager” on page 171).
- Alphablox Analytics will only load LDAP user and group properties that is defined as external custom properties.

Extensible User Manager Telnet Console Command

The `ExtUserManager` telnet console command lets you instruct the Alphasight Analytics to use a different class for managing users or groups or to use an external repository.

The general syntax for `ExtUserManager` is as follows:

```
ExtUserManager <Property> <Value>
```

where `Property` can be:

Possible Property	Description	Value
<code>umclassname</code>	The user manager class name	The value must be a valid class name available in the class path that implements the <code>IUserManager</code> interface, otherwise an error will occur. See “Custom Security Implementations” on page 176 for more detail.
<code>userclassname</code>	The user class name	The value must be a valid class name available in the class path that implements the <code>IUser</code> interface, otherwise an error will occur. See “Custom Security Implementations” on page 176 for more detail.
<code>groupclassname</code>	The group class name	The value must be a valid class name available in the class path that implements the <code>IGroup</code> interface, otherwise an error will occur. See “Custom Security Implementations” on page 176 for more detail.
<code>customstartupproperty</code>	A custom startup property that can be used by developers in their code to read in a value as the User Manager starts up.	The value of this property.

Possible Property	Description	Value
setToDefaults	The default repository to use	See the following section on Setting the Default Repository.



The server needs to be stopped and restarted if a new custom startup property is set.

Setting the Default Repository

To set all properties to use the default LDAP-based User Manager, use the following telnet console command:

```
ExtUserManager setToDefaults ldap <ldapProps>
```

where `ldapProps` is a property that contains all the information needed to connect to LDAP. There is no need to restart the server, but all current running users will be disconnected. For details on the steps to configure to use LDAP-based User Manager and on the syntax of the `ldapProps` property, see “LDAP-Based User Manager” on page 170.

To reset all properties to use the default Alphablox Analytics Repository-based User Manager, use the following telnet console command.

```
ExtUserManager setToDefaults repository
```

This command will instruct the User Manager to stop and start again to get the latest user information from Alphablox Analytics Repository. There is no need to restart the server, but all current running users will be disconnected.

Removing Users and Groups No Longer in the External User Repository

The following command instructs Extensible User Manager to remove from the repository users and groups that are no longer in the external user repositories (such as LDAP or NTLM):

```
ExtUserManager clean
```

Extensible User Manager Interfaces

The Extensible User Manager framework consists of three main interfaces: `IUserManager`, `IUser`, and `IGroup`. The following table lists the purpose of and methods in each of the interfaces. It also lists the class implementing the specific interface.

Interface	Description	Implementing Class
<i>IUserManager</i>	Responsible for creating and finding the users and groups at runtime.	<code>AbstractUserManager</code>
<i>IUser</i>	Providing a read-only view for a user in the underlying repository for authentication, authorization, and user properties.	<code>AbstractUser</code>
<i>IGroup</i>	Providing a read-only view for membership information and group properties in the underlying repository	<code>AbstractGroup</code>

The interfaces and implementing classes are in the `com.alphablox.personalization` package. Javadoc for this package is available from the following directory:

```
<alphabloxAnalytics_dir>/system/documentation/javadoc/blox/index.html
```

where `<alphabloxAnalytics_dir>` is the directory in which Alphablox Analytics is installed.

Custom Security Implementations

The Extensible User Manager has three server properties for identifying which user, group, and user manager class to use for authentication and authorization:

- `umclassname`

The default value for Alphablox Analytics Repository-based User Manager is `com.alphablox.personalization.repository.RepUserManager`. The default for LDAP-based User Manager is `com.alphablox.personalization.ldap.LDAPUserManager`.

- `userclassname`

The default value for this property for Alphablox Analytics Repository-based User Manager is

`com.alphablox.personalization.repository.RepUser`. The default for LDAP-based User Manager is

`com.alphablox.personalization.ldap.LDAPUser`.

- `groupclassname`

The default value for this property for Alphablox Analytics Repository-based User Manager is

`com.alphablox.personalization.repository.RepGroup`. The default for LDAP-based User Manager is

`com.alphablox.personalization.ldap.LDAPGroup`.

You can write your own user, group, or user manager class and then use the telnet console command `ExtUserManager` to set the new value for these server properties to point to your user/group/user manager class.

The following table shows the class you need to extend if you need to customize parts or all of the out-of-the-box security scheme.

Goal	Solution
Custom authentication or authorization in the default Alphablox Analytics Repository-based User Manager	Extending the <code>AlphabloxUser</code> class
Custom authentication or authorization in the default LDAP-based User Manager	Extending the <code>ldapUser</code> class
Single sign-on	Implementing the <code>getPassword()</code> method in the <code>AlphabloxUser</code> class
Reading users/groups properties from repository other than Alphablox Analytics or LDAP	Extending the <code>AlphabloxUser</code> or <code>AlphabloxGroup</code> class
Reading dynamic group membership information from repository other than Alphablox Analytics or LDAP	Extending the <code>AlphabloxUser</code> or <code>AlphabloxGroup</code> class

Goal	Solution
NTLM support	Full implementation of the Extensible User Manager interfaces



For Alphablox Analytics to use your classes, you need to add the classes directory to the Alphablox Analytics class path specified in the startup batch file. For details on how to set the class path, see “Setting Class Path” on page 140.

Single Sign-On

To implement single sign-on when your Alphablox Analytics data sources are configured to use Alphablox Analytics username and password, you can use the `getPassword()` method in the `AlphabloxUser` class to get the base64 encoded password. The following table shows the solution for single sign-on in different situations:

User Manager	Data Sources with LDAP?	Authentication Method
LDAP-based User Manager	Yes	Basic Alphablox Analytics authentication (browser-challenged authentication); No action needed
LDAP-based User Manager	No	Use <code>getPassword()</code>
Other repository	Either	Use <code>getPassword()</code>

Custom Security Examples

The following are three examples of extending the Extensible User Manager for custom security. Each of the examples shows:

- how to extend the default user, group, or user manager class used by the default Alphablox Analytics Repository-based User Manager, and then
- set the new class name using the telnet `ExtUserManager` command.

For a complete example of a full implementation of external user manager, see the Simple User Manager example in the following directory:

```
<alphabloxAnalytics_dir>/system/documentation/admin/
Examples/
```

The Java source files are provided.

Example 1: Setting up Alphablox Analytics to Use an External User Manager

This example demonstrates how you can customize the default Alphablox Analytics Repository-based User Manager. In this case, you may want to read a list of custom properties from a file when the User Manager starts up. The steps involved include:

- 1 Write a custom user manager class in a package (in this example, the class is called `MyUserManager` in a package called `com.myCompany.user`)
 - The class extends the `AlphabloxUserManager` class used in Alphablox Analytics Repository-based User Manager
- 2 Set up the new value for the `umclassname` server property, using the following telnet console command:

```
ExtUserManager umclassname com.myCompany.user.MyUserManager
```

The custom `MyUserManager` class might be the following simple example:

```
package com.myCompany.user;
import com.alphablox.personalization.alphablox.*;
import com.alphablox.personalization.*;
import java.util.*;

public class MyUserManager extends AlphabloxUserManager {
    void start(Properties props) throws PEngineException {
        super.start(props);
        String myXmlFile = (String)
prop.get("customstartupprop");
        // read the xml file and do other things
    }
}
```

Example 2: Setting up Alphablox Analytics to Use a Different User Class

This example demonstrates how you can customize user authorization in the default Alphablox Analytics Repository-based User Manager. In this case, you want to allow everyone to access the server or an application and overwrite the `isUserInRole()` method in the `IUser` interface. The steps involved include:

- 1 Write a custom user class in a package (in this example, the class is called `MyUser` in a package called `com.myCompany.user`)
 - The class extends the default `AlphabloxUser` class used in Alphablox Analytics Repository-based User Manager
- 2 Set up the new value for the `userclassname` server property using the following telnet console command:

```
ExtUserManager userclassname com.myCompany.user.MyUser
```

where `MyUser` might be the following simple example:

```
package com.myCompany.user;
import com.alphablox.personalization.repository.*;
import com.alphablox.personalization.*;
import java.util.*;

public class MyRepositoryUser extends AlphabloxUser {
    public boolean isUserInRole(HttpServletRequest req,
        String [] roles) throws PEngineException {
        // Everybody can get in
        return true;
    }
}
```

Example 3: Setting up the Alphablox Analytics to Use a Different Group Class

This example demonstrates how you can customize the default Alphablox Analytics Repository-based User Manager to print a system message everytime a group membership check is done. The steps involved include:

- 1 Write a custom group class in a package (in this example, the class is called `MyGroup` in a package called `com.myCompany.user`)
 - The class extends the default `AlphabloxGroup` class used in Alphablox Analytics Repository-based User Manager
- 2 Set up the new value for the `groupclassname` server property using the following telnet console command:

```
ExtUserManager groupclassname com.myCompany.user.MyGroup
```

where `MyGroup` might be the following simple example:

```
package com.myCompany.user;
import com.alphablox.personalization.alphablox.*;
import com.alphablox.personalization.*;
import java.util.*;
```

```
public class MyGroup extends AlphabloxGroup {
    public boolean containsUser(IUser user,
        boolean checkSubGroups) throws PEngineException {
        boolean exists =
            super.containsUser(user, checkSubGroups);
        System.out.println("User membership checked.");
        return exists;
    }
}
```

Interface Methods Cross-References

This section provides reference materials for the three interfaces in Extensible User Manager. For each method in the interfaces, description of the method, its syntax, and notes on its usage are provided.

For a complete example of a customized user manager, see the Simple User Manager example in the following directory:

```
<alphanaloxAnalytics_dir>/system/documentation/admin/
Examples/
```

Interface	Methods
<i>IUserManager</i>	findGroup() findUser() getExternalProperties() getPrincipleUserName() hasExternalEditor() resume() setCaseSensitiveGroups() setCaseSensitiveUsers() start() stop() suspend()
<i>IUser</i>	authenticate() authorize() getName() getPassword() getPropertiesSubset() isUserInRole() refresh()
<i>IGroup</i>	containsGroup() containsUser() getName() getPropertiesSubset() refresh()

IUserManager Interface

The `AbstractUserManager` class implements the `IUserManager` interface to find users and groups information and figuring out user identity during runtime. To extend this class, add the following import statement in your code:

```
import com.alphablox.personalization.*;
```

For an example of extending the `AbstractUserManager` class, see “Example 1: Setting up Alphablox Analytics to Use an External User Manager” on page 179.

findGroup()

Finds a group and returns the appropriate instance of `IGroup`.

Syntax

```
IGroup findGroup(String id, boolean fromCache);
// throws PEngineException
```

where:

Argument	Description
<code>id</code>	The group id.
<code>fromCache</code>	Whether to find the group from the cache

Usage This method will return null:

- if the group does not exist in memory and `fromCache` is set to `true`
- if the group does not exist in memory, the group is not a valid group in the underlying user manager repository, and `fromCache` is set to `true`

findUser()

Finds a user and returns the appropriate instance of `IUser`.

Syntax `IUser findUser(String id, boolean fromCache);`
`// throws PEngineException`

where:

Argument	Description
<code>id</code>	The user id
<code>fromCache</code>	Whether to find the user from the cache

Usage This method will return null:

- if the user does not exist in memory and `fromCache` is set to `true`
- if the user does not exist in memory, the user is not a valid user in the underlying user manager repository, and `fromCache` is set to `true`

getExternalProperties()

Returns a String array of properties defined via the external editor.

Syntax `String[] getExternalProperties();` //throws PEngineException

getPrincipleUserName()

Returns the username that is associated with this request.

Syntax `String getPrincipleUserName(HttpServletRequest request);`
`// throws PEngineException`

where:

Argument	Description
<code>request</code>	The current HTTP request

Usage This method is used by Alphablox Analytics to determine the username when a new Alphablox Analytics session is created. You can use this method to override the default behavior of Alphablox Analytics.

hasExternalEditor()

Returns if there is an external user manager editor.

Syntax `boolean hasExternalEditor();`

Usage Returns `true` if the external user manager has its own editor. For example, this method returns `true` when LDAP-based User Manager is used. It will return `false` in the case of the default Alphablox Analytics Repository-based User Manager. This method should not be implemented to return `true` unless it is a complete implementation of the Extensible User Manager with an outside editor.

resume()

Resumes the User Manager.

Syntax `void resume(); // throws PEngineExceptionn`

Usage This method is called when Alphablox Analytics User Manager resumes its service. Call this method to resume Alphablox Analytics User Manager after its service is suspended.

Examples The following code logs a message saying the User Manager has been restarted:

```
import com.alphablox.personalization.*;

public class MyUserManager extends AbstractUserManager {
    ...
    public void resume() throws PEngineException {
        System.out.println("Resumed");
    }
    ...
}
```

See Also “suspend()” on page 187

setCaseSensitiveGroups()

Specifies if group names should be case sensitive or not.

Syntax `void setCaseSensitiveGroups(boolean caseSensitive);`
 `// throws PEngineException`

where:

Argument	Description
<code>caseSensitive</code>	<code>true</code> —group names are case sensitive

Usage When this method is set to `true`, group names are case sensitive and the User Manager will respect that.

setCaseSensitiveUsers()

Specifies if user names should be case sensitive or not.

Syntax `void setCaseSensitiveUsers(boolean caseSensitive);`
 `// throws PEngineException`

where:

Argument	Description
<code>caseSensitive</code>	<code>true</code> —user names are case sensitive

Usage When this method is set to `true`, user names are case sensitive and the User Manager will respect that.

start()

Starts the User Manager.

Syntax `void start(java.util.Properties props);`
 `// throws PEngineException`

where:

Argument	Description
props	Alphablox Analytics properties related to personalization. Valid properties are: umclassname, groupclassname, customproperty, and ldapprops. See “Extensible User Manager Telnet Console Command” on page 174 for details.

Usage This method is called every time the Alphablox Analytics User Manager starts. This method is used to establish connection with appropriate repository and instantiate users and groups objects as needed. In the case of Alphablox Analytics Repository-based User Manager, all users and groups in the repository are instantiated. In LDAP-based User Manager, only users and groups that are registered in Alphablox Analytics will need to be created. Therefore it is a good idea to create users and groups as needed, such as when `findUser()` and `findGroup()` methods are called.

stop()

Stops the User Manager and frees all resources.

Syntax `void stop();` `// throws PEngineException`

Usage This method is called when Alphablox Analytics User Manager stops its service.

See Also “start()” on page 186, “suspend()” on page 187.

suspend()

Suspends the external user manager and frees up un-used resources such as database connection.

Syntax `void suspend();` `// throws PEngineException`

Usage This method is called when Alphablox Analytics User Manager suspends its service.

See Also “resume()” on page 185

IUser Interface

To extend this class, add the following import statement in your code:

```
import com.alphablox.personalization.*;
```

For an example of extending the `AbstractUser` class, see “Example 2: Setting up Alphablox Analytics to Use a Different User Class” on page 179.

authenticate()

Checks if the supplied user and password through the HTTP request is the same as the user and password stored in the repository.

Syntax

```
boolean authenticate(HttpServletRequest request,
                    String authorizationHeader);
// throws PEngineException
```

where:

Argument	Description
<code>request</code>	The HTTP request.
<code>authorizationHeader</code>	Whether to find the group from the cache

Usage

Returns `true` if the user saved password is the same as the parameter password the. This method is applicable only in Alphablox Analytics Apache Tomcat configurations (Tomcat; no IIS), where Alphablox Analytics uses basic authentication (i.e. browser challenged authentication). This method is called by Alphablox Analytics Tomcat Interceptors when users access the session the first time. The method has two parameters: the request object and the encoded authorization header. This header contains user name and password. You can use the following method to decode the header:

```
AbstractUserManager.getDecoder().decode(authorizationHeader);
```

After you obtain the password you have the option to save it in the object memory if you intend to use it as the return value of the `getPassword()` method to allow single sign-on with the data source.

authorize()

Checks if user is in the provided list of roles.

Syntax

```
boolean authorize(HttpServletRequest request,
                 String[] roles);
// throws PEngineException
```

where:

Argument	Description
request	The HTTP request.
roles	A list of roles to check if the user is in one of them.

Usage Returns true if the user is in one of the provided roles.

getEmail()

Gets the user's email.

Syntax

```
String getEmail(); // throws PEngineException
```

Usage Return null if the Alphablox Analytics maintains the email name rather than reading from the external repository. In the case of LDAP, user's email and full name are obtained from LDAP and their values are not editable in the Alphablox Analytics Admin Pages. In that case, you can use this method to get the user's email.

getFullName()

Gets the user's full name.

Syntax

```
String getFullName(); // throws PEngineException
```

Usage Return null if the Alphablox Analytics maintains the full name rather than reading from the external repository. In the case of LDAP, user's email and full name are obtained from LDAP and their values are not editable in Alphablox Analytics Admin pages. In that case, you can use this method to get the user's full name.

getName()

Gets the username.

Syntax String getName(); // throws PEngineException

Usage The username must be a valid Alphablox Analytics username.

getPassword()

Gets the user's password.

Syntax String getPassword(); // throws PEngineException

Usage Gets the base64 encoded password of the user. When the data source is set to use Alphablox Analytics username and password, Alphablox Analytics will use the encoded password saved in the repository for authentication and for accessing the data source. Use this method for custom security such as single sign-on to data sources. Any password saved via this method will be used temporarily in the memory. Note that this password should be encoded using the following code:

```
AbstractUserManager.getEncoder().encode(password);
```

before it is returned to callers.

See Also "Single Sign-On" on page 178.

getPropertiesSubset()

Gets the subset of properties of the user that is of interest.

Syntax java.util.Properties getPropertiesSubset(String[] propList);
 // throws PEngineException

where:

Argument	Description
propList	An array of Strings for the properties subset

Usage Returns a Properties object for the subset of the user properties passed in. It is assumed that the values will be obtained from the memory unless the developers change that.

isUserInRole()

Identifies if the user belongs to one of the specified roles.

Syntax

```
boolean isUserInRole(HttpServletRequest request,
                    String[] roles);
// throws PEngineException
```

where:

Argument	Description
request	The HTTP request
roles	The role or roles to which the user belongs.

Usage Returns true if user belongs to one of the roles in the list. The role implementation is left to developers. The implementation of this method is based on the standard J2EE API `Request.isUserInRole(String role)` method. Alphablox Analytics uses this method to determine user access to the administrative functionality and bookmark write access.

With LDAP-based User Manager, this method calls the `IGroup.containsUser()` method since roles are equivalent to groups in LDAP.

See Also “containsGroup()” on page 192

refresh()

Refreshes all information cached in memory and get the latest from the underlying repository.

Syntax

```
void refresh(); // throws PEngineException
```

Usage Forces refreshing any user information saved in memory and gets the latest from external repository.

IGroup Interface

To extend this class, add the following import statement in your code:

```
import com.alphablox.personalization.*;
```

For an example of extending the AbstractGroup class, see “Example 3: Setting up the Alphablox Analytics to Use a Different Group Class” on page 180.

containsGroup()

Checks if this group contains a subgroup.

Syntax `boolean containsGroup(IGroup group, boolean checkSubGroups);`
 `// throws PEngineException`

where:

Argument	Description
<code>group</code>	An instance of IGroup.
<code>checkSubGroups</code>	true—check subgroups; false—do not check subgroups.

Usage Returns true if this group contains a subgroup.

containsUser()

Checks if this group contains the specified user.

Syntax `boolean containsUser(IUser user, boolean checkSubGroups);`
 `// throws PEngineException`

where:

Argument	Description
<code>user</code>	An instance of IUser.
<code>checkSubGroups</code>	true—check subgroups; false—do not check subgroups

Usage Returns `true` if the group contains the specified user.

getName()

Gets the group name.

Syntax `String getName();` // throws `PEngineException`

Usage The group name must be a valid Alphablox Analytics group name.

getPropertiesSubset()

Gets the subset of properties of the group that is of interest.

Syntax `java.util.Properties getPropertiesSubset(String[] propList);`
// throws `PEngineException`

where:

Argument	Description
<code>propList</code>	An array of <code>Strings</code> containing the properties.

Usage Returns a `Properties` object for at least the list of group properties passed in. It is assumed that the values will be obtained from the memory unless the developers change that.

refresh()

Refreshes all information cached in memory and get the latest from the underlying repository.

Syntax `void refresh();` // throws `PEngineException`

Usage Forces refreshing any group information saved in memory and gets the latest from external repository.

15

Using a Database Repository

This chapter describes how to configure Alphablox Analytics to use a relational database for its repository.

Contents

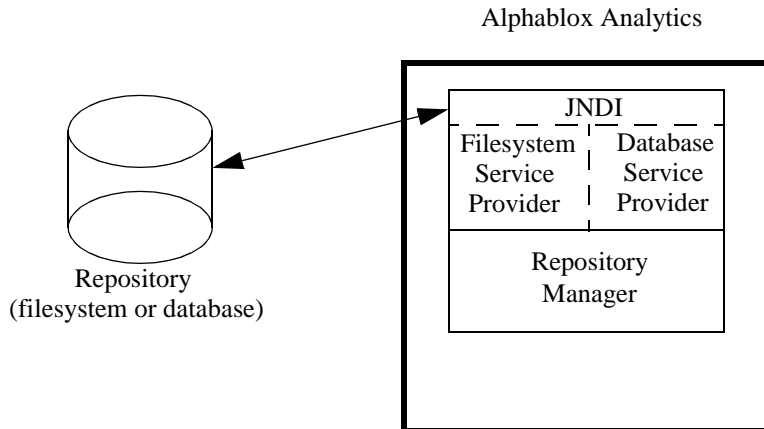
- “Overview of the Alphablox Analytics Repository” on page 196
- “Configuring the Alphablox Analytics Repository” on page 198

Overview of the Alphablox Analytics Repository

The Alphablox Analytics Repository is a store of objects that Alphablox Analytics uses to keep track of applications, users, groups, bookmarks, and other information. The repository can reside either in the operating system filesystem or in a relational database. If an Alphablox Analytics configuration is set up to run in a clustered environment, the repository must reside in a relational database. The relational database allows multiple server nodes to read from and write to the repository, ensuring a consistent state for the data in the repository.

Repository Within the Alphablox Analytics Environment

Within Alphablox Analytics, the Repository Manager controls access to the repository. The repository manager uses Java Naming and Directory Interface (JNDI) to communicate with the repository, whether the repository resides in a filesystem or in a relational database. The JNDI layer uses a different service provider for the different types of repositories: Alphablox Analytics filesystem or database. The following figure shows the communication between the repository and Alphablox Analytics:



The supported databases for the repository are the same as those supported for data source access, as described in the *Installation Guide*. For more details about the architecture of Alphablox Analytics, see “Alphablox Analytics Architecture” on page 39.

The Repository Conversion Utility is a Java program that is used to convert the repository between filesystem and filesystem, filesystem and database, between database and filesystem, or between different databases. The conversion utility runs automatically during the installation process and can also be run manually. For details on using the conversion utility, see “Using the Repository Conversion Utility” on page 199.

Advantages of the Relational Repository

Using a relational database for the Alphablox Analytics Repository has two main advantages:

- A relational repository can be accessed by multiple servers, thus enabling a clustered environment for Alphablox Analytics and providing a means for virtually unlimited scalability.
- A relational repository provides you with all the industrial-strength tools available in a database environment for things like transactional integrity, backup and restore operations, rollback to a consistent state, database replication, and so on.

The repository stores objects critical to the operation of Alphablox Analytics, so having all the tools of a database available to ensure the integrity of the data ensures a more robust and reliable system.

Configuring the Alphablox Analytics Repository

The initial state of the Alphablox Analytics Repository is established during the installation process. The Alphablox Analytics Repository has two *service providers* it uses to access the repository, depending on the repository type: the **Alphablox Analytics Filesystem Service Provider** and the **Alphablox Analytics Database Service Provider**. The default state is to use the **Alphablox Analytics Filesystem Service Provider**. All of the relational databases supported by Alphablox Analytics are supported databases for the **Alphablox Analytics Database Service Provider**. For details on specifying your repository type during the installation process and for the supported relational databases, see the *Installation Guide*.

Checking Your Repository Type

To check which repository service provider is in use for your server, perform the following steps:

- 1 Make sure Alphablox Analytics is running.
- 2 Log into the Alphablox Analytics home page as the *admin* user or as a user who is a member of the administrators group.
- 3 Click the **Administration** tab. The **General** page under the Administration tab appears.
- 4 In the **General Properties** section of the page, click the **Repository Manager** link to view Alphablox Analytics repository properties.

Repository Manager

To change Repository Manager settings, use the conversion utility

Repository Service Provider	Alphablox Database Service Provider
Database Adapter	Oracle 8.1.7 Type 4 Driver
Server Name	rdctest2
Port Number	1521
SID	orcl815
Default Username	danny

The **Repository Service Provider** entry lists which JNDI service provider is in use, the **Database Adapter** entry lists which JDBC driver is used, and the other entries list configuration information for the data source. If the filesystem service provider is in use, the **Repository Location** entry lists the directory in which the repository files are stored.



You cannot change the repository type in the Repository Manager properties page. To change the repository type, use the Repository Conversion Utility.

Using the Repository Conversion Utility

If you want to change the repository type (for example, from filesystem to an Oracle database), you must run the Repository Conversion Utility. The Repository Conversion Utility is a Java program that runs in a command line window (MS-DOS window on Windows systems, xterm or other command window on UNIX systems). It creates the tables and/or files necessary to move an Alphablox Analytics Repository from one place to another. You can use the Repository Conversion Utility to move a repository from filesystem to filesystem, filesystem to database, database to filesystem, or database to database.

Starting the Repository Conversion Utility

You can start the Repository Conversion Utility from the **Start** menu on Windows systems that have Alphablox Analytics installed or by running the following file on Windows systems.



Always shut down Alphablox Analytics before running the Repository Conversion Utility.

```
<alphabloxAnalytics_dir>/Tools/convert/ConvertRepository.exe
```

or by running the following file on UNIX-based systems:

```
<alphabloxAnalytics_dir>/Tools/convert/ConvertRepository
```

where `<alphabloxAnalytics_dir>` is the directory in which Alphablox Analytics is installed.

Repository Conversion Utility Interactive Command Line Options

The following table describes each interactive command line option for the main menu of the Repository Conversion Utility.

Option	Description
1 Set Alphablox Analytics File Manager Root	Sets the directory for the location of the repository files used for a filesystem repository. The directory must be a valid Alphablox Analytics directory or the operation will fail with an error.

Option	Description
2 Set Alphablox Analytics Instance Name	Selects which instance of Alphablox Analytics the Repository Conversion Utility will access. The instance specified must be a valid Alphablox Analytics instance or the operation will fail with an error.
3 Convert One Repository to Another	<p>Converts an existing repository to a different repository, moving all the necessary data from one repository to the other. There are options to convert the repository from file to database, from database to file, from file to file, and from database to database. You are prompted to use one of the following options when you convert a repository:</p> <ul style="list-style-type: none"> • COPY: Copies the contents of one repository into another, leaving the original repository in place. • MOVE: Moves the contents of the repository out of one repository into another. The original repository is deleted. <p>You are also prompted to use one of the following options for the destination repository:</p> <ul style="list-style-type: none"> • NEW: Creates a new repository in the destination. • UPDATE: Updates the data in the destination repository from the source repository instead of replacing it with a new repository • OVERWRITE: Re-creates the tables and replaces all the data in the destination repository with the information from the source repository. The OVERWRITE option does not preserve any of the data in the destination repository.

Option	Description
4 Create an Empty Database Repository	Creates the tables in a database needed for the Alphablox Analytics Repository. This option only creates the tables with their initial content; it does not populate them with any repository objects.
5 Verify and Repair a Repository	Inspects a repository for problems and reports any problems it finds. Includes options to verify both file and database repositories. For database repositories, this option can also correct some problems.
6 Change Alphablox Analytics to use a different Repository	Redirects an instance of Alphablox Analytics to point to a different repository. The repository you change to must exist and be accessible from the Alphablox Analytics machine.
7 Conversion Utility Options	Allows you to toggle between verbose and normal messages for the utility and to erase the buffer that stores the history the conversion utility uses to remember information you have entered. Also provides an option to specify different DDL schema files to create the repository tables. Do not specify different DDL files unless you have thoroughly tested them.
8 Exit	Exits the Repository Conversion Utility.

The Repository Conversion Utility keeps a log file named `repositoryconvert.log` that saves all the activity in your conversion utility session. The `repositoryconvert.log` file is located in the same directory as the conversion utility (`<alphabloxAnalytics_dir>/Tools/convert`).

Converting From Filesystem to Database

Before converting a repository from filesystem to database, gather the following information:

- The full path to your filesystem repository (for example, `d:\alphablox\repository`)
- The connection information for the database

The following procedure describes the steps necessary to convert an Alphablox Analytics Repository from filesystem to database.



Do not use the Repository Conversion Utility to convert a pre-3.5 repository without first verifying the repository has no errors (option 5 of the utility).

- 1 Shut down Alphablox Analytics.
- 2 Start the Repository Conversion Utility (for details, see “Starting the Repository Conversion Utility” on page 199).
- 3 Select option 3, **Convert one repository to another**, by typing the number **3** and pressing the enter key.
- 4 Select option 1, **Convert file to database**, by typing the number **1** and pressing the enter key.
- 5 Confirm the repository root directory by pressing the enter key.



If the directory shown as the default is not your repository directory, make sure you are accessing the correct instance of Alphablox Analytics. The default instance the Repository Conversion Utility access is the name of the installed instance, which defaults to `AlphabloxAnalytics`. If you have a different instance name, exit the current sequence and set the correct instance name from option 2 on the main menu.

- 6 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.
- 7 Select the database corresponding to your database server. For example, if you are using Oracle 8.1.7, enter **2**.
- 8 Enter the configuration information for your database as prompted.
- 9 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.
- 10 Enter **COPY** or **MOVE**. **COPY** leaves the old repository in place and creates a copy of it in the destination repository, **MOVE** deletes the old repository and creates a new repository in the destination repository.
- 11 Enter **NEW**, **UPDATE**, or **OVERWRITE**. Use **NEW** to create a new repository with new tables if one does not already exist. Use **UPDATE** to keep the existing table structure of the repository and update it to include the data from the source repository. Use **OVERWRITE** to delete all the old data and database tables and re-create the new tables and data in its place.

- 12 If you want the new repository to be used by your instance of Alphablox Analytics, enter **Y** at the **Update Alphablox Analytics to use the New Repository** prompt.
- 13 To update all necessary properties for the Alphablox Analytics instance, select **ALL** at the **Update Alphablox Analytics Properties** prompt. **ALL** specifies that all server properties be converted, **SPECIFIC** specifies that only the server properties specific to the local machine (not the clustered properties) be converted, and **GLOBAL** specifies that only the properties shared by the cluster (not the local machine entries) be converted. **NONE** specifies that no properties are changed on the Alphablox Analytics instance.
- 14 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.
- 15 When the conversion is complete, you are returned to the main menu. Enter **8** to exit the Repository Conversion Utility.

Converting From Database to Filesystem

Before converting a repository from database to filesystem, gather the following information:

- The connection information for the database repository
- The full path to where you want the filesystem repository to reside (for example, `d:\alphablox\Repository`)

The following procedure describes the steps necessary to convert an Alphablox Analytics Repository from database to filesystem.

- 1 Shut down Alphablox Analytics.
- 2 Start the Repository Conversion Utility (for details, see “Starting the Repository Conversion Utility” on page 199).
- 3 Select option 3, **Convert one repository to another**, by typing the number **3** and pressing the enter key.
- 4 Select option 2, **Convert database to file**, by typing the number **2** and pressing the enter key.
- 5 Select the database corresponding to your database server. For example, if you are using Oracle 8.1.7, enter **2**.
- 6 Enter the configuration information for your database as prompted.
- 7 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.

The Repository Conversion Utility will attempt to connect to the database.

- 8 Enter the directory for the destination repository root and then press the enter key.
- 9 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.
- 10 Enter **COPY** or **MOVE**. **COPY** leaves the old repository in place and creates a copy of it in the destination repository, **MOVE** deletes the old repository and creates a new repository in the destination repository.
- 11 Enter **NEW**, **UPDATE**, or **OVERWRITE**. Use **NEW** to create a new repository if one does not already exist. Use **UPDATE** to keep the existing structure of the repository and update it with the data from the source repository. Use **OVERWRITE** to delete all the old data and structures and re-create the new structures and data in its place.
- 12 If you want the new repository to be used by your instance of Alphablox Analytics, enter **Y** at the **Update Alphablox Analytics to use the New Repository** prompt.
- 13 To update all necessary properties for the Alphablox Analytics instance, select **ALL** at the **Update Alphablox Analytics Properties** prompt. **ALL** specifies that all server properties be converted, **SPECIFIC** specifies that only the server properties specific to the local machine (not the clustered properties) be converted, and **GLOBAL** specifies that only the properties shared by the cluster (not the local machine entries) be converted. **NONE** specifies that no properties are changed on the Alphablox Analytics instance.
- 14 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.
- 15 When the conversion is complete, you are returned to the main menu. Enter **8** to exit the Repository Conversion Utility.

Configuring an Instance to Use an Existing Repository

Before configuring an instance of Alphablox Analytics to use an existing repository, gather the connection information for the database repository to which you want to connect.

The following procedure describes the steps necessary to configure an instance of Alphablox Analytics to use an existing Alphablox Analytics Repository.

- 1 Shut down Alphablox Analytics.
- 2 Start the Repository Conversion Utility (for details, see “Starting the Repository Conversion Utility” on page 199).
- 3 Select option 6, **Change Alphablox Analytics to use a different repository**, by typing the number **6** and pressing the enter key.

- 4 Select option 2, **Database repository is the target**, by typing the number **2** and pressing the enter key.
- 5 Select the database corresponding to your database server. For example, if you are using Oracle 8.1.7, enter **2**.
- 6 Enter the configuration information for your database as prompted.
- 7 If everything is correct, select **Continue** by typing the number **1** and pressing the enter key.

The Repository Conversion Utility will attempt to connect to the database and then will update the instance of Alphablox Analytics to use the specified repository.

- 8 Enter **8** to exit the Repository Conversion Utility.

Command Line Syntax

In most cases, you can use the Repository Conversion Utility in interactive mode, as described in the previous sections. You can, however, use command line options to specify different database DDL files or to run the conversion utility as part of an automated script. The basic syntax for the repository utility is as follows:

```
java -cp [class_path] com.alphablox.util.convert.Convert
      operation
      destination [source] [arguments]
```

where:

<i>class_path</i>	is the Java classpath for the instance of Alphablox Analytics. Look in the Alphablox Analytics startup files (for example, <code>AnalysisServer.bat</code> on Windows platforms and <code>AnalysisServer.sh</code> on UNIX platforms) for an example of a <i>class_path</i> .
<i>operation</i>	is the Repository Conversion Utility operation to be performed. For a description of each available operation, see “Operation Descriptions” on page 207.
<i>destination</i>	is a relative or absolute path to a properties file describing the destination repository. For sample destination files, see “Sample Source and Destination Property Files” on page 209.
<i>source</i>	is a relative or absolute path to a properties file describing the source repository. The <i>source</i> argument must be specified for COPY or MOVE operations. For sample destination files, see “Sample Source and Destination Property Files” on page 209.
<i>arguments</i>	is one or more of the arguments specified in the table in “Arguments” on page 207.

If no *operation*, *destination*, *source*, or *arguments* are specified, the Repository Conversion Utility runs in interactive mode.

Operation Descriptions


The following table describes the available operations for the Repository Conversion Utility.

Operation	Description
HELP	Displays the command line help.
CHANGE	Changes the active repository to the destination repository.
COPY	Leaves the source repository in place and creates a copy of it in the destination repository.
DELETE	Permanently deletes the destination repository.
MOVE	Deletes the source repository and creates a new repository in the destination repository.
NEW CREATE	Creates a new repository in the destination and populates it with the default repository values.
VERIFY	Runs validation operations on the destination repository and reports the results.

Arguments

The following table describes the arguments for the Repository Conversion Utility.

Argument	Description
DEBUG	Outputs additional debug information to help diagnose problems.
LOG: <i>file</i>	Specifies the name of the conversion utility log file which logs all of the activity of the conversion utility. The default name for <i>file</i> is <i>repositoryconvert.log</i> .
SERVER: <i>InstanceName</i>	Specifies the instance name for the instance of Alphablox Analytics. The SERVER argument is required.

Argument	Description
OVERWRITE	Used with the NEW, MOVE, COPY, or CHANGE operation, the OVERWRITE argument deletes all the old data and structures in the destination repository and re-creates the new structures and data in its place. Without this argument, the Repository Conversion Utility will stop if it detects an existing repository at the destination.
PROPS: <i>option</i>	<p>Used with the SERVER:<i>InstanceName</i> argument, specifies which server properties are updated on the destination repository. The values for <i>option</i> are:</p> <ul style="list-style-type: none"> • ALL: specifies that all server properties be converted. • GLOBAL: specifies that only the properties shared by the cluster (not the local machine entries) be converted. • SPECIFIC: specifies that only the server properties specific to the local machine (not the clustered properties) be converted.
UPDATE	Specifies that a MOVE or COPY operation updates the destination repository with information from the source repository rather than replacing the contents of the destination repository.
DDL: <i>file</i>	<p>Overrides the default DDL schema file used to create the tables, indexes, and initial content for the database repository.</p> <p> Use extreme caution if using this argument.</p>
USEDEST	When specified, modifies the server properties to use the destination repository. If not specified, the repository property for the server are not changed.

Sample Source and Destination Property Files

This section shows the contents of sample source and destination files used with the Repository Conversion Utility. The property files specify the type of repository, the connection information for the repository, the location of the repository property files on the computer in which Alphablox Analytics runs, and the name of the DDL file.

The following example shows a property file for a repository residing in an Oracle database on a server named *oracle817*:

```
RepositoryTarget=JDBCTarget
java.naming.factory.initial=com.alphablox.jndisp.AlphabloxCo
ncontextFactory
java.naming.provider.url.server=oracle817
java.naming.provider.url.port=1521
java.naming.provider.url.sid=orc1817
database_driver=oracle.jdbc.driver.OracleDriver
fileroot=C:\alphablox\analytics\repository\servers\
commandfile=oracle.dmlsql
user=user
password=password
```

The following example shows a property file for a repository residing in a filesystem:

```
RepositoryTarget=ABXTarget
java.naming.factory.initial=com.alphablox.jndisp.AlphabloxCo
ncontextFactory
java.naming.provider.url=C:\alphablox\analytics\repository\
fileroot=C:\alphablox\analytics\repository\servers\
```


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Using Connection Pooling

This chapter describes how to configure Alfablox Analytics to use connection pooling with multidimensional and relational data sources.

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- “Connection Pooling - Overview” on page 212
- “MDB Connection Pooling” on page 213
- “DB2 OLAP Server and Hyperion Essbase Connection Pooling” on page 213
- “RDB Connection Pooling” on page 214
- “Alfablox Analytics Usage of RDB Connection Pooling” on page 214
- “Alfablox Analytics Data Sources and RDB Connection Pooling” on page 215
- “Alfablox Analytics Repository and RDB Connection Pooling” on page 215
- “Configuring Connection Pooling with BEA WebLogic” on page 216

Connection Pooling - Overview

Each time a web-based application needs to interact with a multidimensional or relational database, it must first connect to it. Each of these connections incurs overhead, using resources to establish the connection, maintain it, and release it when it is no longer required. In web-based applications, user interactions with databases are typically short and, often, more time is spent during connecting and disconnecting to a database than is spent on the request themselves.

To more efficiently handle these database interactions, application servers and databases typically offer connection pooling. Connection pools are a group of pre-established database connections that can be shared with applications, allowing the needed database interactions, but not consuming as much time and resources as individual connections.

If available and properly configured, Alphablox Analytics can utilize connection pooling to improve the performance of your applications. Connection pooling with Alphablox Analytics can be used with application servers (IBM WebSphere and BEA WebLogic) for relational database connection pooling, or with the connection pooling support in IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services.

MDB Connection Pooling

Multidimensional database connection pooling is not supported using standard JDBC connections, which only work with relational data sources. For DB2 OLAP Server or Hyperion Essbase, Alphablox Analytics can use the implementations of connection pooling available in IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services.

DB2 OLAP Server and Hyperion Essbase Connection Pooling

IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services can be configured to support connection pooling. Each defined connection pool specifies the DB2 OLAP Server or Essbase username and password to use. A connection pool's access can be defined for all users ("Allow Everyone") or for a list of specified users and groups. If an Alphablox Analytics data source specifies the IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services adapter and the connection pools are configured properly in IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services, Alphablox Analytics can use these connection pools. For details on configuring Essbase connection pools, see the IBM DB2 OLAP Server Deployment Services or Hyperion Essbase Deployment Services documentation.

RDB Connection Pooling

An RDB connection pool is a named group of identical JDBC connections to a relational database created when a connection pool is registered on an application server. A web-based application can “borrow” a connection from the pool, use this connection during an interaction with the database, then return the connection to the pool by closing the connection.

The following table highlights benefits of using connection pooling:

Benefit	Description
Improved response time	Each time a resource attempts to access a database, it must connect to that database. When a connection pool starts up, it creates a specified number of physical database connections, eliminating the overhead of creating database connections for each application. By eliminating the overhead of creating, maintaining, and releasing connections, connection pools significantly improve the response time for resultset retrievals.
Abstraction from underlying databases	Connection pooling provides a layer of abstraction from underlying databases, making it easier to switch application databases without having to deal with vendor-specific SQL exceptions. Instead, you only have to work with the connection pooling exception from the application server.
Concurrent connection management	If you have a limited number of database connections due to licensing restrictions, connection pooling might be able to be used to manage the number of concurrent database connections.

Alphablox Analytics Usage of RDB Connection Pooling

If you are using WebSphere and WebLogic application servers with Alphablox Analytics, the following can utilize connection pooling:

- Alphablox Analytics Data Sources
- Database-based Alphablox Analytics Repository
- RDB cubing
- ReportBlox
- CommentsBlox
- JDBC Connection beans

All of the Alphablox Analytics features listed above, other than Alphablox Analytics data sources and any relational database-based Alphablox Analytics Repository, will automatically take advantage of RDB connection pooling, if available and configured properly.

Alphablox Analytics Data Sources and RDB Connection Pooling

To use RDB connection pooling with Alphablox Analytics and WebSphere or WebLogic application servers, the “Application Server Data Source Adapter” option must be selected on your Alphablox Analytics Data Source definitions. This adapter option only appears when Alphablox Analytics is configured to use supported WebSphere and WebLogic application servers.



When using WebSphere or WebLogic connection pools to access data sources, you can use Alphablox Analytics with any of the relational databases supported on the application servers.



The Apache Tomcat configuration of Alphablox Analytics does not support RDB connection pooling.

Alphablox Analytics Repository and RDB Connection Pooling

To enable or disable RDB connection pooling with a relational-based Alphablox Analytics Repository, following these steps:

Enabling

- 1 Create an Alphablox Analytics Data Source for the defined connection pool on your application server. See the directions above for details.
- 1 Run the Repository Conversion Utility.

Windows:

```
<serverDirectory>/tools/convert/ConvertRepository.exe
```

Unix:

```
<serverDirectory>/tools/convert/ConvertRepository.bat
```

- 2 If Alphablox Analytics is using WebSphere or WebLogic, option 8 (“Configure Web Application Server Connection Pooling”) will be available. Select this option, then press Enter.
- 3 Select option 1 (“Turn On connection pooling”), then press Enter.

- 4 Enter the JDNI name of the data source defined in the application server.

Disabling

- 1 Run the Repository Conversion Utility.
- 2 If Alfablox Analytics is running on WebSphere or WebLogic, option 8 (“Configure Web Application Server Connection Pooling”) will be available. Select this option, then press Enter.
- 3 Select option 1 (“Turn Off connection pooling”).

Configuring Connection Pooling with BEA WebLogic

When using BEA WebLogic connection pooling with relational data sources, BEA WebLogic requires that you create a WebLogic user for each data source in order to access the defined connection pool.

To configure Alfablox Analytics correctly to work with WebLogic connection pooling, the Alfablox data source definition Default Username and Default Password must be a WebLogic user. If you are not using connection pooling, you do not need to create a WebLogic user to access relational data sources.

Using Clustered Environments

This chapter describes how to configure and use Alphablox Analytics in clustered environments, allowing for scalable analytic applications. Two clustering environments are discussed: the WebSphere clustering environment and the WebLogic standalone clustering environment.

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- “Overview of Clustered Environments” on page 218
- “WebSphere Clustering Environments” on page 218
- “WebLogic Clustering Environments” on page 218
- “Cluster Console Commands” on page 219

Overview of Clustered Environments

For increased scalability and availability, Alphablox Analytics can run on a cluster of two or more servers. The more servers in the cluster, the greater the number of users that the system can support. A cluster provide two key features:

- **Scalability:** The capacity of a cluster is not limited to a single machine. New servers can be added to the cluster dynamically to increase capacity
- **High Availability:** A cluster uses the redundancy of multiple servers to insulate clients from failures.

Note: If an Alphablox Analytics configuration is set up to run in a clustered environment, the repository must reside in a relational database. See “Overview of the Alphablox Analytics Repository” on page 196 to learn more about the Alphablox Analytics Repository and configuring it using a relational database.

WebSphere Clustering Environments

For information on configuring and installing Alphablox Analytics in a WebSphere clustering environment, see *Using Alphablox Analytics in WebSphere Clustered Environments* in the *Installation Guide*. For details on configuring and using WebSphere clusters, see the WebSphere Server documentation.

WebLogic Clustering Environments

A WebLogic cluster is a group of WebLogic servers that work together to provide scalability and reliability that is not available with a single server environment. While appearing to clients as a single server, a cluster is in fact a group of servers. These WebLogic clusters can be multiple instances on the same physical machine, or WebLogic servers installed on multiple physical machines.

Each Alphablox Analytics host communicates with all of the other nodes in the cluster to notify each other when anything in the repository has changed. Any changes to the repository (for example, a new user) are stored directly in the repository and each node can read and modify the repository.

Configuring and Installing Alphablox Analytics in WebLogic Clustering Environments

For information on configuring and installing Alphablox Analytics in a WebLogic clustering environment, see *Using Alphablox Analytics in WebLogic Clustered Environments* in the *Installation Guide*. For details on configuring and using WebLogic clusters, see the WebLogic Server documentation.

Creating New Applications in WebLogic Clustering Environments

For instructions on defining new Alphablox Analytics applications in a WebLogic clustering environment, see “Defining an Application When Using WebLogic Clusters” on page 84.

Using WebLogic Vertical Clusters

A vertical cluster configuration can be used to improve the scalability of Alphablox Analytics applications that work with Microsoft Analysis Services or to host multiple server instances on a single machine for efficiency and cost savings.

For Microsoft Analysis Services users, WebLogic vertical clusters allow Alphablox Analytics applications to bypass the Microsoft Analysis Services 2000 process limit of 2 GB on Windows operating systems by running multiple instances of Alphablox Analytics on a single machine. This can improve scalability of Microsoft Analysis Services.

Vertical clusters can also be used on single, powerful machines where you want to leverage your IT investments and reduce maintenance issues associated with the use of multiple machines.

For information on configuring and installing Alphablox Analytics in a WebLogic clustering environment, see *Using Alphablox Analytics in WebLogic Clustered Environments* in the *Installation Guide*. For details on configuring and using WebLogic clusters, see the WebLogic Server documentation.

Cluster Console Commands

In addition to the administrative user interface, you can also use the Alphablox Analytics console to enter the information on the **Cluster Options** page. To display the current cluster property settings, enter the following in an Alphablox Analytics console window:

```
get service cluster
```

The screen output to the console is similar to the following:

```
get service cluster
Service Cluster Manager Properties:

IsClustered ..... false
  (Is clustering enabled [true|false])
LeadHost .....
  (Name or IP address of the lead AAS host in the cluster)
PortNum ..... 7855
  (The port number on which the lead host listens for cluster
```

```

messages)
MaxHosts ..... 10
    (The maximum number of AAS hosts in the cluster)
StartupTime ..... 60
    (Time, in seconds, each normal node waits while connecting
to
    the cluster)
LiveIsClustered .... false
    (Clustering is currently enabled)
LiveLeadHost .....
    (Current name or IP address of the lead AAS host.)
LivePortNum ..... 7855
    (Current port number the lead host is listening on.)
LiveMaxHosts ..... 10
    (Current maximum number of AAS hosts allowed in the
cluster)
LiveStartupTime .... 60
    (Current time each normal node waits while connecting to
the
    lead host)

```

The following table lists the cluster console commands and a description of what each one does:

Command Syntax	Description
<code>cluster shutdown</code>	Shuts down all of the instances in the Alphablox Analytics cluster. The <code>CLUSTER SHUTDOWN</code> command can be run from the console of any of the hosts in the cluster.
<code>get service cluster</code>	Lists the current settings for the cluster properties. The properties that begin with “Live” (for example, <code>LiveIsClustered</code>) return the actual values the cluster manager is using; they are not user configurable. The other properties can be set using a <code>SET SERVICE CLUSTER</code> command, as described below.

Command Syntax	Description
<pre>set service cluster <property> <value></pre>	<p>Changes the value of the cluster property to the value specified.</p> <p>The valid entries for <i>property</i> are:</p> <ul style="list-style-type: none"> IsClustered LeadHost PortNum MaxHosts StartupTime <p>The new settings take place when the cluster manager restarts (typically when Alphablox Analytics is restarted).</p>
<pre>set service cluster IsClustered <True False></pre>	<p>Sets the state of the cluster to <i>enabled</i> or <i>disabled</i>. When set to true, clustering is enabled. When set to false, clustering is disabled.</p>
<pre>set service cluster LeadHost <lead_host></pre>	<p>Sets the lead host name or IP address (<i>lead_host</i>). The name or IP address must resolve over your network to the machine on which the lead host is installed.</p>
<pre>set service cluster PortNum <port_number></pre>	<p>Sets the port number (<i>port_number</i>) in which the lead host listens for cluster communications. This port must be available on the lead host or the cluster startup will fail.</p>
<pre>set service cluster MaxHosts <maximum_hosts></pre>	<p>Sets the maximum number of hosts (<i>maximum_hosts</i>), including the lead host, allowed in the cluster. Any normal host that attempts to join the cluster after <i>maximum_hosts</i> has been reached is denied entry to the cluster.</p>

Command Syntax	Description
set service cluster StartupTime <startup_time>	Sets the number of seconds (<i>startup_time</i>) in which a normal node attempts to join the cluster upon startup. After the <i>startup_time</i> has been exceeded, the normal node host automatically shuts down.
show hosts	Lists all the hosts currently connected to the cluster. If clustering is disabled, SHOW HOSTS returns nothing.

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Alphablox Analytics Console Commands

Alphablox Analytics can be administered through its Console or from web pages under the **Administration** tab of the Alphablox Analytics home page. Most administrative activities (for example, creating and editing users, groups, etc.) that are configured through the Alphablox Analytics home page user interface can also be configured through console commands. This chapter provides information about using the Console and lists the available Console commands.

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- “Accessing the Console” on page 224
- “Command Syntax” on page 225
- “Essbase-Specific Console Commands” on page 232
- “Notes About Console Commands” on page 235

Accessing the Console

There are two ways to access the Alphablox Analytics console:

- HTML Console
- Telnet Console

HTML Console

To access the Console from the Alphablox Analytics home page, click the **Administration** tab, **Server** link, **Launch Server Console** link. The Console HTML page opens:

```

Alphablox Analytics Server Console Session - Microsoft Internet Explorer
5/2/00 3:42:57 PM [INFO] Cube FoodMartCube. Started
5/2/00 3:42:22 PM [SYSTEM] Console C2: Console 'Session 1' started

Session 1
Running Since ..... Fri Jun 02 15:42:20 PDT 2000
ID ..... 3655065468499878848
Owner ..... 127.0.0.1
Expires ..... 29 minutes
Time Since Last Activity ..... Less than a minute
User ..... DSOKOLSKY
Authentication ..... NTLM
Pending Peer Events ..... 0
Event Channel is Active ..... No
Total Events ..... 0

Enter Console Command:
  HISTORY

General: HELP STATUS MESSAGES SESSIONS SERVICES SETTINGS SHOW
Objects: GROUPS USERS ACLs APPLICATIONS DATA SOURCES CUBES CONTENT LOG

```

Administrators can also open the Console in a telnet session, through the Console window that launches if you start Alphablox Analytics from the Windows **Start** menu, and through the window in which Alphablox Analytics started (on UNIX systems).

Telnet Console

To access the telnet console, start a telnet session to the machine in which Alphablox Analytics is running, specifying the telnet port configured on the **Telnet Console** administration page (20023 by default). For example, if you are running Alphablox Analytics on a machine named *pastrami*, enter the following at a command prompt:

```
telnet pastrami 20023
```

On Windows machine, the installation process puts a shortcut to the telnet console on the **Start Menu, All Programs** group, **Alphablox Analytics** folder, instance name folder (typically **AlphabloxAnalytics**), **Console**.

Enter the console username and password to authenticate to the telnet console.

To end your telnet console session, enter the following command:

```
release
```

Command Syntax

Alphablox Analytics commands use the following syntax:

```
COMMAND object [value(s)] COMMAND object [value(s)] object  
[value(s)]
```

where:

- object is one of:
 - SERVER (the default)
 - CONSOLE *console ID* (where *console ID* is the ID of a specific active console, for example, C1)
 - the name of a server object. Allowable characters are A-Z, a-z, 0-9, underscore, or special characters (for example, accented characters) when running in a language other than English. The display of the name is case sensitive but the actual name that is authenticated is case insensitive. The names *Public*, *Private*, and *Properties* are reserved and cannot be used for an object name.
- value further qualifies the object

For example, in the following line, *get* is the command, *user* is the name of a server object, and *admin* is the name of a specific user object.

```
get user admin
```

If you enter a command followed by an object, a message is displayed showing the required value(s) for that command. For example, if you enter the following:

```
create data source
```

The following message is displayed:

```
Create data source takes more parameters: data_source_name
adapter_name SERVER server_name [property value]...
```

The property names are the names on the corresponding user interface pages. For example, if you are creating a DB2 OLAP Server or Hyperion Essbase data source, it has property names *application*, *database*, *username*, *password*, *maxrows*, *maxcols*, and *useasuserauth*.

Command Abbreviations

To speed command entry, the console supports command abbreviations. For example, H is the abbreviation for the HELP command. If two or more commands begin with the same letters, the abbreviation must be long enough to be unique. For example, both the START and STATISTICS commands start with STA; adding the next letter creates a unique abbreviation (STAR for START and STAT for STATISTICS).



Note these tips on using commands:

- The console supports abbreviations for the entire command line syntax. For example, H C retrieves help for the CREATE command; G U L retrieves the properties for the user whose name begins with L.
- It is not necessary to enclose value strings in quotes, **except** for the name of a database adapter (for example, “ibm db2 olap server”).
- When using abbreviations for general properties, use the first letters of the property names, not their descriptions. For example, for the property name DefaultMessageLevel whose description is Initial Console Message Level, use an abbreviation such as DEFAULTM.

Console Command List

Most commands can be entered on both the Console screen (reached through the **Launch Server Console** link on the **Server** page under the **Administration** tab) and the Alphablox Analytics command screen. However, a few commands are supported only from one or the other. Additionally, not all commands are supported through telnet. For a list of console commands for the Cube Server, see the *Cube Server Administrator's Guide*. For a list of commands specific to clustering, see “Cluster Console Commands” on page 219. For a list of commands specific to Extensible User Manager, see “Extensible User Manager Telnet Console Command” on page 174.

Command and Example	Purpose and Explanation
ADD object value object value add group admin user radams	Adds the second object to the first object Adds the user named radams to the group named admin
CREATE object value(s) create user radams haggis create data source TBC hyperion essbase adapter server ebserver1 application demo database basic username user1 password password1 maxrows 1000 maxcols 1000 useaasuserauth false	Creates an object such as a user or group Creates a new user with values of radams for name and haggis for password Creates a data source named <i>TBC</i> that accesses the demo/basic application on the Hyperion Essbase server named <i>ebserver1</i> .
DELETE object value delete user radams delete outlinecache...	Deletes an object from the server and repository Deletes the user named radams Deletes an entry from the DB2 OLAP Server or Essbase cache.
EXIT	Stops Alphablox Analytics and exits the Console screen. This can only be done from the Analysis Server command screen; it cannot be done from the Console screen reached through the Alphablox Analytics home page.

Command and Example	Purpose and Explanation
ExtUserManager	For Extensible User Manager console commands, see “Extensible User Manager Telnet Console Command” on page 174.
GET object value get get user radams	Displays information about an object Displays information about the Server (because Server is the default object) Displays the properties for the user named radams
HELP object help help create	Displays help information for the named command Displays a list of all commands Displays a description and syntax for the create command
KILL object kill 1046976892932726235	Kills the current instance of the named object (usually a user session) Kills the session with the ID 1046976892932726235.
LOAD object value load user <userName> load theme load license	Loads an object into the server workspace Loads user <userName> into the server workspace Loads all available themes into the server workspace. (Note that the command does not support loading only a named theme.) Loads (updates) license file (license.xml), located in Alphablox Analytics bin directory.
LOCK	Locks the local access to the server. To access Analysis Server after entering this command, you need to enter your user name and password. This can only be done from the Analysis Server Console screen and telnet.

Command and Example	Purpose and Explanation
<p>MESSAGE object value(s)</p> <p>message review 20</p> <p>message review debug 20</p> <p>message C2 Testing</p>	<p>Sends a system message to other console (s) or log files(s)</p> <p>Sends the last 20 messages to the current console</p> <p>Sends the last 20 DEBUG messages to the current console</p> <p>Sends the message “Testing” to console C2</p>
<p>OBJECTS object</p> <p>objects</p> <p>objects user</p>	<p>Displays information about manageable objects</p> <p>Displays a hierarchy of manageable objects</p> <p>Displays information about users</p>
<p>RELEASE</p>	<p>Releases the remote server console from which this command is entered. This can only be done from the Analysis Server Console screen.</p>
<p>REMOVE object object</p> <p>REMOVE group admin user radams</p>	<p>Removes the source object from the target object.</p> <p>Removes user radams from the group admin.</p>
<p>REPORT object</p> <p>report debug</p>	<p>Sets the message level for the current console to DEBUG, VERBOSE, INFO, SYSTEM, WARNING, ERROR, or FATAL.</p> <p>Sets the message level to debug.</p>
<p>RESUME object</p> <p>resume user</p>	<p>Starts the named service from a suspended state.</p> <p>Starts the User Manager from the previous suspended state.</p>
<p>RUN object</p> <p>run abc.console</p> <p>run createUsers.txt</p>	<p>Runs the command file named by target.</p> <p>Runs the abc.console command file.</p> <p>Runs the <i>createUsers.txt</i> file. (This file might be a batch file containing a series of create user commands for creating new users and establishing their initial passwords. See Note 2 for an example.)</p>

Command and Example	Purpose and Explanation
SAVE object value save save user radams	Saves the target's properties Saves all General properties now (because General is the default object). Changes entered on the Console are for the current session only and are lost unless this command is issued, or Alphablox Analytics's Save on Exit property is set to <i>yes</i> . Saves the properties of user radams
SET object value object value set user radams password castle set smtpserver mail set resolveAliasesToBaseMembers	Sets a value on the object. Sets the password for user radams to <i>castle</i> . Sets the SMTP server to the mail server named <i>mail</i> . Sets the SMTP server to the mail server named <i>mail</i> .
SHOW object show topics show server show user radams show theme show outlinecache... show hosts show	Gets information for the target. Lists all the topics for which information is available. Displays all server topics, including users. Displays information about the user named radams. Displays theme name and descriptions. Displays all the entries in the DB2 OLAP Server or Essbase cache. Displays the name of each machine in the cluster if clustering is enabled. Displays a list of objects. The SHOW command also displays, if it has not already been loaded, the version of the DB2 OLAP Server or Hyperion Essbase client library API loaded.

Command and Example	Purpose and Explanation
<p>START object</p> <p>start user</p>	<p>Starts a service from a stopped state.</p> <p>Starts the User Manager from the previous stopped state.</p>
<p>STATISTICS object value</p> <p>statistics user</p> <p>statistics user radams</p>	<p>Displays available statistics about the target.</p> <p>Displays statistics for all users.</p> <p>Displays statistics for user radams.</p>
<p>STOP object</p> <p>stop user</p>	<p>Stops a running or suspended service. Use START to take a service out of a stopped state.</p> <p>Stops the User Manager.</p>
<p>SUSPEND object</p> <p>suspend user</p>	<p>Suspends a service. For example, suspending the User Manager prevents new user sessions from instantiating. Use RESUME to take a service out of a suspended state.</p> <p>Suspends the User Manager</p>

Essbase-Specific Console Commands

Alphablox Analytics stores DB2 OLAP Server and Hyperion Essbase outlines cached in memory to improve performance. This section describes the syntax of the two commands used to manage the outline cache and the command to resolve alias names to base member names. The following commands are included:

- “RESOLVEALIASESTOBASEMEMBERS Commands” on page 232
- “SHOW OUTLINECACHE Command” on page 233
- “DELETE OUTLINECACHE Command” on page 234

RESOLVEALIASESTOBASEMEMBERS Commands

In a DB2 OLAP Server or Essbase database, you can set up aliases to member names. The RESOLVEALIASESTOBASEMEMBERS server property is designed to be used with bookmarks that save queries with aliases that might resolve to different members at different times. For example, if you bookmark a query that references an alias called *This Quarter*, the actual member in the DB2 OLAP Server or Essbase database to which the query refers is different today than it was six months ago. If you want your bookmarks to end up retrieving the current data for this quarter, you must set the RESOLVEALIASESTOBASEMEMBERS server property to TRUE.

The following is the syntax for the RESOLVEALIASESTOBASEMEMBERS console command:

```
set resolvealiasestobasemembers true | false
```

The following command returns the current state of the RESOLVEALIASESTOBASEMEMBERS server property:

```
get resolvealiasestobasemembers
```



```
ResolveAliasesToBaseMembers .... false
  (ResolveAliasesToBaseMembers)
```

To enable this feature, enter the following console command:

```
set resolvealiasestobasemembers true
```



You can abbreviate this command by typing in enough letters to ensure a unique name, as follows:

```
set resolve true
```

SHOW OUTLINECACHE Command

The following is the syntax for the SHOW OUTLINECACHE command for DB2 OLAP Server or Hyperion Essbase data sources:

```
show outlinecache [essbasecachemanager [entry [entryname]]]
```

Use this command to display information about the cache manager or the entries it manages. For example, use the following command to show all the entries being managed by the DB2 OLAP Server or Essbase cache manager:

```
show outlinecache essbasecachemanager entry
```

The system responds with the following:

```
Entry
Entry MDB1.Financial.Current
....Total accesses: 7
....Current accessors: 1
```

The response shows that the DB2 OLAP Server or Essbase cache manager is currently managing only one entry, named MDB1.Financial.Current. This cache has been accessed a total of seven times (a cumulative number) and is currently being used by one connection.

DELETE OUTLINECACHE Command

The following is the syntax for the DELETE OUTLINECACHE command for DB2 OLAP Server or Hyperion Essbase data sources:

```
delete outlinecache [essbasecachemanager [entry  
[entryname]]]
```

Use this command to remove the named entry from the cache. Analysis Server will remove the entry only if the current number of connections (accessors) is 0. When an entry is removed, all memory resources associated with the entry are released. For example, use the following command to delete the entry named MDB1.Financial.Current from the cache:

```
delete outlinecache essbasecachemanager entry  
MDB1.Financial.Current
```

The system responds with the following, showing that named entry has been deleted:

```
MDB1.Financial.Current  
Cache entry deleted.
```

The following command and its response confirm that the entry is no longer in the cache:

```
show outlinecache essbasecachemanager  
  
EssbaseCache Manager  
Total entries: 0
```

Notes About Console Commands

This section describes some miscellaneous behavior and provides some tips for using the Alphablox Analytics console. The following topics are included:

- “Viewing General Properties” on page 235
- “Message Levels” on page 236
- “Running a Text File Through the Console” on page 236
- “Server Log Messages” on page 237

Viewing General Properties

Use the Alphablox Analytics Console to view general properties and objects. Most property changes take effect immediately; otherwise, a message indicates that Alphablox Analytics must be restarted before the change takes effect. For a complete list of current Alphablox Analytics properties, use the GET command.

Links at the bottom of the Console provide access to frequently-used information:

- **Help** presents a list of the Alphablox Analytics commands.
- **Status** provides status information on the Alphablox Analytics.
- **Messages** presents a scrollable view of the Alphablox Analytics log.
- **Sessions** presents status information on all current sessions on this instance of Alphablox Analytics.
- **Users** shows a list of users (regardless of whether they are logged on).
- **Services** shows the status of component of Alphablox Analytics. For a list of the services, see “Alphablox Analytics Architecture” on page 39.
- **Settings** shows the current setting for each Alphablox Analytics property (both startup and extended).
- **Show** presents a hierarchical list of Alphablox Analytics topics.
- **History** presents a history of commands issued through this Console.

For information on accessing the Console, see “Accessing the Console” on page 224.

Message Levels

Messages generated by the Alphablox Analytics can be sent to all active consoles and the active log file. Message information includes:

- date and time
- message level
- message text
- message source (a service or user name)

The following is a typical message:

```
01/9/99 12:25:33 PM [VERBOSE] Request 4223: Processing
request
'/servlet/AnalysisServer/console/consolestyle.css' [Session
41, User radams]
```

In order of severity (lowest to highest), the message levels are:

- **DEBUG:** debug information.
- **VERBOSE:** all system messages.
- **INFO:** minor system events for which no administrator action is necessary.
- **SYSTEM:** normal system events, such as creating a user.
- **WARNING:** a recoverable error, but suggests the administrator may want to investigate.
- **ERROR:** a non-recoverable error.
- **FATAL:** an error that causes the server to terminate.

Running a Text File Through the Console

Using the *run* command, the Console can execute a plain text file containing any number of Alphablox Analytics commands. For example, suppose you have a file named *d:\CreateUser.txt* containing the following lines:

```
create user radams blue
create user sadams green
create user lplanting purple
create user klawrence yellow
create user dmessink orange
```

You can run this file through the Console with the *run* command to create five new users and establish their initial passwords by executing the following command from the Console:

```
run d:/CreateUser.txt
```



The filename must be a fully qualified name.

Server Log Messages

Harmless messages like the following may appear in the Server log file:

```
[VERBOSE] Request 36: File not found
'...\swing\plaf\basic\resources\basic_en_US.class'
[VERBOSE] Request 37: File not found
'...\swing\plaf\basic\resources\basic_en_US.properties'
[VERBOSE] Request 38: File not found
'...\swing\plaf\basic\resources\basic_en.class'
[VERBOSE] Request 39: File not found
'...\swing\plaf\basic\resources\basic_en.properties' ...
[VERBOSE] Request 45: File not found
'...\swing\plaf\metal\resources\metal_en_US.class'
[VERBOSE] Request 46: File not found
'...\swing\plaf\metal\resources\metal_en_US.properties'
[VERBOSE] Request 47: File not found
'...\swing\plaf\metal\resources\metal_en.class'
[VERBOSE] Request 48: File not found
'...\swing\plaf\metal\resources\metal_en.properties'
...
```

In this example, the JVM is attempting to find the most appropriate resource bundle for the language and location of the client's locale. It is not required for Analysis Server to run properly; these messages can safely be ignored.

19

Administering Alphablox FastForward Applications

This chapter describes how you to administer Alphablox FastForward applications, including configuring and basic administration tasks.

Contents

- “Overview” on page 240
- “Roles of FastForward Users” on page 240
- “System Requirements for FastForward Applications” on page 241
- “Creating Alphablox FastForward Applications” on page 242
- “Administering FastForward Applications” on page 243
- “Report Access Categories and Security” on page 243
- “Layout and Controls” on page 244
- “Managing Reports” on page 244
- “Managing Folders” on page 245
- “Managing Application Properties” on page 246
- “Using the Application Log” on page 247

Overview

Alphablox FastForward is a sample application framework, pre-installed on Alphablox Analytics, for quickly developing, deploying, and sharing custom analytic views throughout business organizations. Out-of-the-box, the FastForward framework delivers common application services, including security, collaboration, customization, and personalization. Application administrators, typically OLAP administrators, can create new versions of an FastForward application, publish reports by selecting report templates and configuring report parameters, and then deploy the new application without ever looking at code. And, because of its flexibility and extensibility, JSP developers can modify or extend the application framework, and add new custom report templates for application administrators to configure and deploy.

Built into the FastForward application framework are features commonly found in reporting and analytic applications, including:

- exporting to Microsoft Excel
- generation of printable views
- easy saving and sharing of personal views of data
- emailing views to others
- easy navigation between different views

Roles of FastForward Users

The three major roles of Alphablox FastForward users include those of application administrators, template developers, and end users. A good synergy between these three groups will help ensure the success of FastForward-based applications. More about these three roles are briefly described below.

Application Administrators

Application administrators, typically OLAP administrators, should be able to create new versions of FastForward applications by defining a few settings, create reports based on the available report templates, then quickly deploy solutions to end users. If end user requirements cannot be met using an existing report template, the application administrator works together with template developers to create new report templates. An application administrator should be able to accomplish their work using their OLAP database experience, the documentation available here (and in the online Administration Help available in the Admin Tasks mode of a FastForward application).

Template Developers

Template developers are typically JSP developers primarily responsible for creating custom report templates when existing ones cannot be used by an application administrator to configure requested reports. In consultation with application administrators and end users, template developers should be able to create new report templates by modifying existing report templates or creating new ones as necessary.

Using the Blox tag libraries, server-side Java API, and client-side JavaScript API, as well as your web programming experience, template developers should be able to create templates for almost every conceivable need. Besides being familiar with building Alphablox Analytics applications and views, developers should also be familiar with the FastForward User Help (available from the Help button in user mode), the Administrator Help (available from the Help button in Admin Tasks mode).

End Users

End users, typically business analysts and other line of business users in your organization, should be able to log into a FastForward application and use published reports to analyze business issues. Depending on the interactivity available in a particular FastForward-based application, end users can manipulate data, drill around data hierarchies, change chart types, add comments, and more. After modifying views to answer particular business questions, users can preserve their current views, creating saved reports under the Private tab for later use or by sharing them under the Groups tab to defined groups of application users.

For each report, users typically have a few other options available from the application toolbar, located above the reports. Besides saving reports for online analysis, the export to Excel option allows users to export views to Microsoft Excel spreadsheets for offline analysis at a later time. Users can also print a copy of a particular view using the Print Preview option. And, if desired, they can open an email message containing a link to the current view, add comments, and send it to other application users.

If necessary reports are not available in their applications, end users typically request new reports directly from application administrators.

System Requirements for FastForward Applications

Other than the requirements specified in the System Requirements section of the Installation Guide, note that Alphablox FastForward works with the DHTML client only.

Creating Alhablox FastForward Applications

New versions of Alhablox FastForward applications are created by the following steps, while logged in with administrator rights:

- 1 Open Microsoft Internet Explorer to the Alhablox Analytics Admin Pages. By default, the Applications page appears.
- 2 On the Application page, launch the Alhablox FastForward application.
- 3 On the application toolbar, click on the Admin Tasks button.
- 4 The Template Application dialog window appears, offering two options, Create or Continue. Click on the Create button.
- 5 In the New Application window that appears, fill out the following fields:

Entry Field	Description
Context Name	Enter an application context name that should be used as the directory name. This name should have no spaces in it.
Display Name	The display name that appears in the Applications page. This name can have spaces in the name.
Description	Optional. A brief description of the application.
Administrator Role	Required. Sets the AdministratorRole value in the application's config.xml file (located in the application's WEB-INF directory). Default setting is AlhabloxAdministrator.



Do not configure or use the existing Alhablox FastForward application -- always create a new version. This sample application will be overwritten with each subsequent upgrade of the server, and your modifications will be lost.

Changing Administrator Roles

By default, an Alhablox FastForward application designates the AdministratorRole to AlhabloxAdministrator. To change the role that can administer a particular application, either set it in the New Application dialog above, or follow these steps:

- 6 Open the FastForward application's config.xml file, located here:

```
<applicationDirectory>/WEB-INF/config.xml
```

- 7 In the `config.xml` file, change the assigned role in the following section, replacing `AlphabloxAdministrator` with the new role designated to administer this particular application:

```
<param>
  <param-name>AdministratorRole</param-name>
  <param-value><![CDATA[AlphabloxAdministrator]]></param-
value>
</param>
```

For information about role definitions and how to create new ones, see “Role Definitions” on page 117

Administering FastForward Applications

The FastForward Administration application allows provides three general capabilities:

- managing published reports
- managing the basic look and feel of the FastForward application
- viewing and clearing the application log

Information about administering FastForward applications is also available by clicking Help button on the application toolbar when logged in to the Admin Tasks mode.

Report Access Categories and Security

FastForward applications have three report access categories for users: Published, Private and Group.

Published Reports

Published reports are managed from the administration screen as described below. Published reports, if not otherwise managed, are visible to any and all users who can access the FastForward application. However, the administrator can control access to published reports by setting security on report folders. If a user has access to a given folder he or she can access any report within that folder. The administrator assigns access to folders by associating a folder with one or more Alphablox Analytics groups.

Private and Group Reports

Private and Group access reports are created by users from previously published reports. Private access reports are only available to the user who created the report. Group access reports are available to users who are members of Alphablox Analytics user groups, and any user who is a member of a given group can create reports accessible to that group.

Layout and Controls

All applications based on Alphablox FastForward have a similar layout structure, including the navigation menu on the left and the application toolbar on the top right. Available reports are viewed in the report window, located below the application toolbar.

Navigation Menu

On the navigation menu, the following selections are available:

Button	Description
Create Folder	Creates a new folder named "New Folder". The Edit Folder screen is loaded in order to facilitate changes to the folder.
Create Report	Loads the "Edit Report" screen so that a new report can be edited. The report must be successfully saved before it will appear in the left hand report tree.
Delete Report	Pops up a dialog asking you to confirm the deletion of a report.
Copy	Copies the report with "Copy of" prepended to the name of the report. You can then rename the file.

Managing Reports

Alphablox FastForward provides basic report administration using the application's user interface while in the Admin Tasks mode.

Creating Reports

To create a report you click on the "Create Report" button in the Toolbar. The "Edit Report screen loads and you can configure the following settings:

Field	Description
Name	The name of the report as displayed in the tree.
Description	This short description is displayed when a user mouses over a report in the tree and when the report is loaded.
Template	The template drop-down list provides the name of every template available to the application. Report templates are stored in the application's <code>templates</code> directory. Depending on the specific report template, other parameters will need to be selected.
Save	Save the report. Errors may appear if the report parameters can not be validated.
Preview	Opens the report in a new browser window. Error may occur if parameters cannot be validated.

Modifying Reports

To edit a report, left-click on an existing report in the tree. This loads the "Edit Report" screen.

Deleting Reports

To delete a report, left-click on the report to delete, then click the delete report button in the toolbar.

Moving Reports

To move a report:

- 1 Place the mouse pointer over the report icon next to the report to be moved, press and hold the left mouse button.
- 2 While holding down the mouse button move the pointer to the desired destination in the tree, release the mouse button

Managing Folders

Folder administration is basic and can be accomplished using the application's user interface.

Creating Folders

To create a folder, click on the "Create Folder" button in the Toolbar. The "Edit Folder" screen load with the following editable fields:

Field	Description
Name	The name of the report as displayed in the tree
Description	The value displayed when a user mouses over a folder in the tree.
Access Groups	The list of available Alphablox Analytics user groups. Multiple user groups can be selected. If no groups are selected, then all users can access the report. (and a warning is displayed).
Save	Saves the folder.

Modifying Folders

To edit a folder, left-click on an existing report in the tree. This loads the "Edit Folder" screen, where changes can be made.

Deleting Folders

To delete a report, left-click on the report to delete, then click the delete report button in the toolbar.

Moving Folders

To move a folder:

- 1 Place the mouse pointer over the folder icon next to the folder you want to move, press and hold the left mouse button.
- 2 While holding the mouse button down, drag the folder to the desired destination in the tree, then release the mouse button.

Managing Application Properties

To manage application properties, click on the Global Settings button in the upper right hand corner of the page. The following settings can be modified:

Field	Description
Title	The title of the application. This appears at the top of the user's application as well as at the top of the administration page.

Logo	Displays the name of the file displayed as the logo in the user's application.
Upload Logo Image	Uploads a new logo image from any locally available file (GIF or JPEG format). Note that the upload does not actually occur until you click Save.
Theme	A drop-down list for selecting an installed theme. Note that the sample application is designed only for the <code>fastforward</code> theme.
Footer	Changes the text display at the bottom of a user's application page.
Admin Email	Sets the email address used for application feedback. Not setting this address leaves the feedback button disabled in the user's application page.
Save	This saves any changes in the edit fields above.

Using the Application Log

The FastForward Application framework has its own log file to report application-level information and anomalies. This log file can be viewed and cleared by clicking on the View Log File button.

A

OLAP Terms and Concepts

This section illustrates terms and concepts critical to understanding multidimensional analysis (MDA) and OLAP (online analytical processing). Beginning with terms used in two-dimensional analysis, we define their expanded counterparts in MDA. Then we illustrate the related terms used in OLAP databases.

For more OLAP definitions, see also the Alphablox Analytics Glossary and the OLAP Council Glossary.

Contents

- Two-Dimensional Analysis
- Multidimensional Analysis
- OLAP Database Terms

Two-Dimensional Analysis

Users who perform two-dimensional data analysis with such tools as spreadsheets and reports are familiar with the following terms, which are illustrated in the table that follows:

- A **row** contains a set of related data. The table contains two data rows.
- **Row labels** appear to the left of the data values. The row labels are **navy**.
- A **column** also contains a set of related data. The table contains four data columns.
- **Column labels** appear above the data values. The column labels are **maroon**.
- A **data point** (also called a **cell**) is the intersection of a row and a column. Data points have a gray background.
- A **data value** is the element that resides at a specific data point. The numbers 10 through 30 are data values.

A Two-dimensional Sales Table

	Qtr 1 Units	Qtr 2 Units	Qtr 3 Units	Qtr 4 Units
Diet Cola	10	15	20	25
Cola	12	18	24	30

Multidimensional Analysis

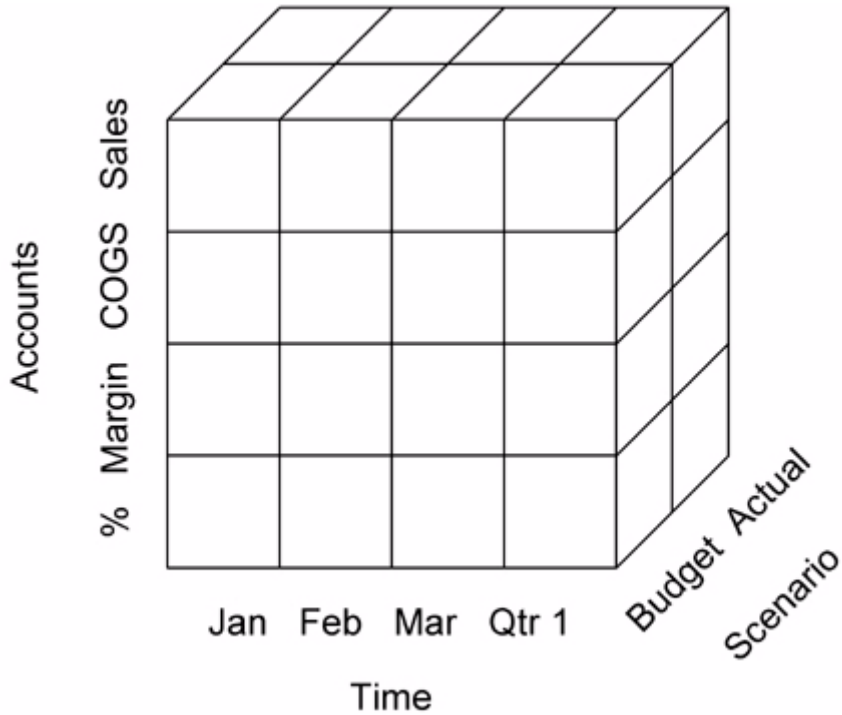
In **multidimensional analysis**, these terms and concepts take on additional complexities. MDA involves more than rows, columns, and their intersections. Although the medium for displaying multidimensional data is often a two-dimensional grid, MDA capabilities involve dimensions, hierarchies, members, titles, values, and instances, as well as rows, columns, and data points.

The following definitions apply to multidimensional data and are illustrated in the multidimensional matrix that follows:

- A **dimension** is a structural attribute of a data cube, and is composed of related, hierarchical members. For example, a Time dimension might have the following members: years, quarters, months, and weeks. A Geography dimension might have the following members: regions, countries, and cities.
- A **dimension member** is an element in a dimension. For example, Quarter and Month are members of the Time dimension.
- A **dimension hierarchy** organizes dimension members into parent/child relationships. For example, Month is a child of (belongs to) a Quarter; a Quarter is a child of a Year, and so on.
- A **dimension title** is the name by which the dimension is known, such as Time or Geography.
- A **dimension member title** is the name by which the dimension member is known, such as Month or Region.
- A **dimension member value** is an instance of a dimension member; 1998 is a value for the dimension member Year.
- A **data point** is the intersection of multiple dimensions. Data points in the multidimensional sales matrix below have a gray background.
- A **data value** resides at a data point. For example, in the multidimensional sales matrix, each of the numbers in the grayed area is a data value.

A Data Cube

The illustration shows data formatted into a cube with three dimensions, each with several members:



Dimension	Member
Accounts	Sales Cost of Good Sold (COGS) Margin Margin Percent
Time	Quarter 1, composed of: January February March
Scenario	Budget Actual

A Multidimensional Sales Matrix

The illustration below shows a hierarchical, multidimensional view of sales data, with two members of the Time dimension (Year and Quarter) appearing on the column axis, and two members of the Inventory dimension (Category and Product) appearing on the row axis.

		Column Axis					
		Qtr 1					
		Jan		Feb		Mar	
Accounts		Budget	Actual	Budget	Actual	Budget	Actual
Row Axis	Sales	300	350	300	325	325	325
	COGS	175	185	175	175	185	190
	Margin	125	165	125	150	140	135
	Percent	42	47	42	46	43	42

OLAP Database Terms

The following terms help to identify, organize, and retrieve data in an OLAP database. For example, when a user drills down from Qtr1, the OLAP action is to retrieve the “children” of Qtr1 (Jan, Feb, and Mar).

Sample Dimension Hierarchy	Term and Definition
<ul style="list-style-type: none"> [-] Year <ul style="list-style-type: none"> [-] Qtr1 <ul style="list-style-type: none"> [+] Jan [+] Feb [+] Mar [-] Qtr2 <ul style="list-style-type: none"> [+] Apr [+] May [+] Jun [-] Qtr3 <ul style="list-style-type: none"> [+] Jul [+] Aug [+] Sep [-] Qtr4 <ul style="list-style-type: none"> [+] Oct [+] Nov [+] Dec 	<p>Root: The topmost position in the hierarchy. In the example, the root is Year.</p> <p>Descendant: A member that is at least one generation below the Root. All the other dimensions in the example are descendants of Root. Jan is also a descendant of Qtr1 and Year.</p> <p>Child: A member that is exactly one generation below another. Jan is a child of Qtr1.</p> <p>Parent: A member that is exactly one generation above another. Qtr1 is the parent of Jan.</p> <p>Sibling: A member that is on the same generation as another. Jan, Feb, and Mar are siblings.</p> <p>Ancestor: A member that is one or more generations above another. Qtr1 and Year are both ancestors of Jan.</p>



The capital letter “I” used as a prefix to one of these terms (IParent, IChild, and so forth) designates “inclusion.” For example, on a Parent drill up, the result would show only the parent’s data. On an IParent drill up, the result would include the data for both the parent and the child.

B

Glossary

The terms provided in this glossary are relevant to Alphablox Analytics. In addition, refer to the discussion of “OLAP Terms and Concepts” on page 249. More extensive glossaries are available on the Internet, at such sites as A Web of Online Dictionaries and WhatIs.

2D

Refers to a two-dimensional display of information, using rows and columns. Examples include simple lists, reports, and two-dimensional spreadsheets.

3D

Refers to a multidimensional display of information, using page, row, and column dimension. GridBlox presents such a display.

A

ACL

Access Control List. A list of users allowed access to a particular service.

ASP

Active Server Pages. Dynamically created web pages (with an extension of .ASP), a Microsoft technology. These pages contain either JavaScript or Visual Basic code. When a web browser requests an ASP page, the web server retrieves the page, executes the embedded code, generates an HTML page based on the executed code, and sends the page to the web browser. ASP pages are similar to CGI scripts, but they allow Visual Basic programmers to work with familiar tools.

Alphablox Analytics application

A combination of (1) JSP files containing Blox, (2) the access information for data used by the application, and (3) a collection of properties that define how the pages appear to the user. The application resides on a web server and appears in a browser window in response to a user request.

ancestor

A dimension member that is one or more generations above another. See ancestor in OLAP Terms and Concepts for an example.

API

Application Program Interface, the interface used by programmers when writing source code. The API consists of the names of the library calls, and the number and types of arguments they take. In Alphablox Analytics, the API consists of the Blox methods and properties exposed to Java and JavaScript.

applet

See Java applet.

application database

A database that is resident on a server machine and exists to support specific applications. An application database may be extracted from a production database to provide applications with fast access to relevant data. Alphablox Analytics uses multidimensional and relational databases as the source for application data.

Application page

A single HTML page that is part of an Alphablox Analytics application.

authentication

The process of verifying the identity of a person or process. Typically, authentication requires that a user enter a valid ID/password pair.

axis

A coordinate used to organize and display data. An axis can display one or more dimensions. For multidimensional data, an axis is also defined as one edge of a cube.

- A line or bar chart displays data along horizontal (X) and vertical (Y) axes.

- A grid presents multidimensional data using row, column, and page axes. In addition, Alphablox Analytics can display an axis called “Other” that shows dimensions not currently in use. Placing a dimension on the Other axis removes it from the current view, but keeps it available for use.

B

Blox™

Reusable software components that facilitate the rapid assembly of applications for intranet/Internet-based, enterprise-wide analysis solutions. For information on how to assemble Blox into a complete application, see the *Developer’s Guide for the DHTML Client*. For detailed information on each Blox, see the *Developer’s Reference for the DHTML Client*.

C

Cascading Style Sheets (CSS)

A technology used by web page developers to define the appearance of HTML page elements. Similar to a style sheet used by word processing programs. For more information, see *Cascading Style Sheets: Designing for the Web* by Hakon Wium Lie and Bert Bos (Addison Wesley Longman 1997), or <http://www.w3.org/Style/>.

catalog

An organizational level in the structure of a data source. In DB2 OLAP Server or Essbase, this is called an “application.” In general, cubes of data are grouped into schemas which are grouped into catalogs.

CGI

Common Gateway Interface. A programming interface used for executing programs on web (HTTP) servers. CGI provides the structure for passing data from the server to the server's gateway program (which does the processing), and for returning the results from the gateway program to the web server back to the requesting client. Contrast with ISAPI or NSAPI.

child

A dimension member that is exactly one generation below another. See child in OLAP Terms and Concepts for an example.

collapse

To consolidate detailed information into a single, summary value. Contrast with expand.

column axis

An orientation for viewing multidimensional data. The column axis is one of three viewable axes (the others being page and row). A column displays the data values for dimension members. Placing a dimension on the column axis enables users to view data values for members of that dimension. For example, placing the Time dimension on the column axis enables users to view member identifiers (such as Year and Quarter) and associated data values (such as sales volumes).

cookie

An object containing information about a user's session, such as session ID, that is stored on the client machine.

CSS class

A CSS technology used to define an extension or override to an element's normal style.

CSV

Comma-separated values. A file format containing rows delimited by a newline character, and data values within the rows separated by commas.

D**DAA**

See “Dynamic Application Assembly™” on page 260.

data item

In multidimensional analysis, the value located at the intersection of two or more dimensions.

database connector

A programming interface that provides a common language for accessing a database across a network. Examples include JDBC (Java Database Connectivity) for Java implementations and ODBC (Open Database Connectivity) for Microsoft and Apple Macintosh applications.

data mart

A repository of data gathered from operations and other sources to meet the analysis and presentation needs of knowledge workers. This data may be derived from an enterprise-wide database or from a data warehouse, and is generally presented in terms familiar to a specific group of knowledge workers. A data mart emphasizes ease of access and usability for a particular purpose, such as sales analysis.

data warehouse

A central repository for data collected by an enterprise's business systems. A data warehouse is typically housed on an enterprise server. Data from various online transaction processing (OLTP) applications is extracted and organized for use by analytical applications and user queries.

deprecated

Used with parameters, classes, and methods to indicate they may cease to exist in the future. The need for deprecation occurs as a class evolves and its API changes: parameters and methods are renamed for consistency, and new ones are added. The old API remains until assemblers make the transition to the new one, but once an API is deprecated, assemblers shouldn't use it. Analysis Server writes messages to the client console whenever a deprecated item is encountered.

descendant

A dimension member that is at least one generation below the root (the topmost position in a dimension hierarchy). See descendant in OLAP Terms and Concepts for an example.

dimension

A structural attribute of a cube that helps to define its hierarchy. A dimension lists members, all of which are perceived by the user to be similar types of data. For example, a Time dimension might include members for years, quarters, months, and weeks. A Market dimension might include members for countries, regions, states, and cities. A dimension helps to organize data in a multidimensional data source, enabling multidimensional analysis.

DLL

Dynamic Link Library. An application file that runs as part of the application's process and address space. The DLL files are loaded when an application is started and remain as long as they are needed, therefore eliminating the repeated application retrieval time required for a CGI application.

drill down

To move downward through the hierarchy of dimension members. For example, a user might view financial data for North America, then drill down through US, Western states, California, Northern California, and finally Silicon Valley.

drill up

To move upward through the hierarchy of dimension members. For example, a user might view financial data for Silicon Valley, then drill up through Northern California, California, Western States, and finally US.

DSS

Decision Support System. An information and planning system that supports ad hoc query, analysis, and forecasting using a variety of information sources.

Dynamic Application Assembly™

An approach in which applications are quickly assembled from a set of components with well-defined behavior.

E**expand**

To show the supporting detail for a summarized value. Contrast with collapse.

extranet

A corporate web site that is accessible to the outside (Internet) world, but only via privilege mechanisms such as registered passwords. Extranets facilitate interaction with partners, customers, and others with a predefined relationship.

F**fat client**

A client that performs significant processing using client-resident application software that must be installed on the client. Contrast with thin client.

filter

A way to limit data returned from a query. For example, a filter might specify that the query return only data with a certain value for Year.

frameset

A set of two or more independently controllable sections (frames) in a browser window, each section displaying a separate HTML file. The file displayed in one frame can contain links to files that will appear in another (or the same) frame. Often, one frame contains user tools for navigation and selection, while other frames display the results of user actions.

G

GIF image

Graphics Interchange Format. One of the graphics formats supported by HTML.

grid

A multidimensional display of information that uses row, column, and page axes. A grid lets users drill down (and back up), slice through, and pivot the data display. GridBlox displays data in a grid.

group

The suppression of repetitive headings for multiple row or column items. Additionally, the automatic generation of total values for data items in the group. Programmers can define a group in relational databases with the SQL GROUP BY clause. Programmers define a group in multidimensional databases through the definition of the database hierarchy.

grouping

When displaying numeric data, the formatting of that data into digit groups (such as thousands), usually marked by a comma or dot.

H

hashtable

A Java data structure that maps keys to values. The following examples are taken from the JavaSoft Java API. The first creates a hashtable of numbers and uses the letters of the alphabet as keys (so that A points to 1, B to 2, and so on). The second retrieves a specific value (2) using its key (B).

```
Hashtable letters = new Hashtable(); // Creates a new
hashtable named numbers
numbers.put("A", new Integer(1));    // Populates the
hashtable with three keys
numbers.put("B", new Integer(2));    // (A, B, and C), and
```

```

maps them to integer
numbers.put("C", new Integer(3)); // values (1, 2, and
3, respectively)

Integer n = (Integer)numbers.get("B"); // Retrieves the
value to which the
if (n != null) { // key "B" points
    System.out.println("B = " + n); // If the value is not
null, prints
    // the key and the value to the system
} // output device

```

hierarchy

The organization of a dimension's members into parent-child relationships, typically where a parent member represents the consolidation of its children. For example, a hierarchy in a Time dimension might be year, quarter, and month. Each month is a child of a particular quarter, and each quarter is a child of a particular year.

HSB

A color model that describes colours in terms of hue, saturation, and brightness.

HTML

HyperText Markup Language. A text markup language that specifies how the text will appear in a browser window. HTML connects onscreen text to other text, images, and other objects, such as Java applets, that may reside elsewhere on the Internet.

HTML page

A text document that can contain standard HTML markup, text, graphics, multimedia objects, and Blox. HTML pages are displayed in web browsers.

HTML tag

Language code embedded in an HTML document that tells the browser how to display the document content. HTML tags include a name and optional attributes.

HTTP

Hypertext Transfer Protocol. A set of rules for exchanging files (text, images, sound, video, and multimedia) across the World Wide Web, or across an intranet.

I

instantiate

To create an object of a specific class. For example, when a user invokes an Alphablox Analytics application, Alphablox Analytics instantiates (creates an instance of) that application.

Internet

A worldwide network of computers that use a common set of networking and software protocols. The Internet allows users to share digital information, posted to web pages, across multiple platforms. See also extranet and intranet.

intranet

A corporate network for internal use that provides services similar to those provided by the Internet. See also extranet.

ISAPI

Internet Server Application Program Interface. A set of Microsoft Windows program calls, specific to Microsoft Internet Information Server, that lets you write a web server application that runs faster than a CGI (Common Gateway Interface) application.

J

Java applet

A program written in Java, a language developed by Sun Microsystems. Java applets are embedded in web pages and execute when the browser displays the page.

JavaScript

An object-based scripting language used to extend the capabilities and enhance the user interface of web applications. As with Java applets, JavaScript can be embedded in a web page.

JDBC

Java Database Connectivity. A primary API for relational database access in Java. JDBC is based on the Structured Query Language (SQL) Call-Level Interface. It allows programs to use SQL requests to access databases without using the proprietary interfaces to those databases. A separate module or driver for each database handles the SQL request and converts it into a request that the individual database system understands.

JPEG image

Joint Photographic Experts Group. One of the graphics formats supported by HTML. To conform to the DOS requirement for a three-character file extension, JPEG files typically have an extension of .jpg or .JPG.

JRE

The JavaSoft Java Runtime Environment™, which consists of the Java Virtual Machine, Java core classes, and supporting files. It is the runtime component of the J2SE Software Development Kit (JDK). The JRE is the smallest set of executables and files that comprise the standard Java Platform.

JVM

Java Virtual Machine. The entity responsible for interpreting and executing Java code.

L

legacy database

A database, typically resident on a mainframe and often using proprietary technology. It is usually a significant information vault for the enterprise.

M

metadata

Data that describes other data. Database schema and data dictionaries contain metadata.

MDA

Multidimensional analysis. The ability to analyze data by navigating through and displaying a subset of a database by querying, drilling down, slicing through, pivoting, and defining calculations to be performed on the data.

middleware

Software that manages the interaction between applications across heterogeneous networks. For example, JDBC drivers are middleware that allow programs to access databases without using the proprietary interfaces to those databases.

MIME

Multipurpose Internet Mail Extensions. Allows computer systems to exchange multimedia information in audio, graphics, video, and text formats using Internet mail standards.

multidimensional database

See OLAP database.

multi-SQL

Multiple SQL statements chained together to form a single, complex query. Related terms include correlated query, subquery, and nested query.

multi-tier access

See N-tier access.

N

N-tier access

The process of accessing data across multiple computing tiers. Simple client-server architectures use two-tier access, with the client requesting data stored on the server, and the server passing results to the client. Intranet architectures often involve a three-tier access, with a client browser requesting data via a web server, which in turn passes the request to a database server. Also called *multi-tier access*.

native SQL

The relational database programming language provided with a given database. Native SQL often includes functions that are optimized for that database. See SQL. Contrast with ODBC SQL.

NSAPI

Netscape Application Program Interface. Enables you to write a web server application that runs faster than a CGI (Common Gateway Interface) application.

O

ODBC

Open Database Connectivity. A database programming interface that makes it possible to access any data from any application regardless of which Database Management System (DBMS) is handling the data. ODBC inserts a middle layer, known as a database driver, between the application and the DBMS. This middle layer translates the application's data queries into commands that the DBMS understands.

ODBC SQL

An open, common programming language for accessing relational databases on a network. To provide nearly universal database access, ODBC SQL may not include some of the functions found in a database's native SQL. See SQL. Contrast with native SQL.

OLAP database

On-Line Analytical Processing database. A database using special indexing techniques to provide fast query processing of summarized data and multidimensional views of that data. DB2 OLAP Server is an example of an OLAP database.

P

page axis

An orientation for viewing multidimensional data. A page defines a slice through a multidimensional database. Placing a dimension on the page axis enables users to select a member from that dimension and view data only for that member. For example, placing the Market dimension on the page axis enables users to select New York from that dimension and view data only for New York.

parent

A dimension member that is exactly one generation above another. See parent in OLAP Terms and Concepts for an example.

persistence

A property of a programming language where created objects and variables continue to exist and retain their values between runs of the program.

pivot

To move a dimension from one axis to another. Assemblers can define a pivot through an Essbase Report Specification or through JavaScript. Users can perform a pivot through the user interface.

proxy server

A server that sits between a client and a server. The proxy server intercepts all requests to the server to determine if it should fulfill the requests itself. If not, it forwards the request to the server. In an Internet/intranet environment, proxy servers can dramatically improve web server performance by intercepting, saving, and serving pages that are frequently requested.

R

report specification

In DB2 OLAP Server or Hyperion Essbase, the definition of the result set to make available to an application. The report specification contains data extraction commands that define the data to retrieve from the database, and formatting commands that define the dimensions to appear on the page, column, and row axes in a grid.

repository

An information database that identifies objects and makes them available for reuse. The Alphablox Analytics Repository stores user and application objects, access control information, and configuration parameters.

RGB

A color model that describes colours in terms of red, green, and blue, the three colors of light which can be mixed to produce any other colour.

root

The topmost position in a dimension hierarchy. See root in OLAP Terms and Concepts for an example.

row axis

An orientation for viewing multidimensional data. The row axis is one of three viewable axes (the others being page and column). A row displays the data values for dimension members. Placing a dimension on the row axis enables users to view data values for members of that dimension. For example, placing the Product dimension on the row axis enables users to view member identifiers (such as Product ID or its alias) and associated data values (such as sales volumes).

S**schema**

An organizational level in the structure of a data source. In DB2 OLAP Server or Essbase, this is called a “database.” In general, cubes of data are grouped into schemas which are grouped into catalogs.

sibling

A dimension member that is at the same generation as another. See sibling in OLAP Terms and Concepts for an example.

slice

To filter a set of data by placing one or more dimensions on the page axis. For example, a cube of sales data may have product on the row axis, month on the column axis, and year on the page axis. Choosing a year slices the data, presenting the data just for the selected year.

SQL

Structured Query Language, which provides a user interface for accessing and retrieving data from a Relational Database Management Systems (RDBMS). See also ODBC SQL and native SQL.

T**TCP/IP**

Transmission Control Protocol/Internet Protocol. The basic communication language (protocol) used to connect host machines on the Internet. Also called Transport Control Protocol/Internet Protocol.

tier

A level in a computing hierarchy. Internet/intranet environments often implement a three-tier hierarchy: Tier 1 is a browser running on a client machine; Tier 2 is a web (HTTP) server running on a separate machine; Tier 3 is a database server running on yet another machine.

theme

A collection of design elements, such as fonts and images, that can be applied to an HTML page. Using the same theme across several pages is an easy way to ensure a consistent appearance.

thin client

A client that performs significant application processing, yet has no resident application software. Instead, the software is downloaded at the moment it is needed. A Java-enabled web browser is a thin client. The browser can display web pages and execute embedded applets. Contrast with fat client.

thread

The part of a program that can execute independently of other parts. Operating systems that support multithreading allow developers to design programs whose threaded parts can execute concurrently.

Thread-safe

Code that can have multiple, simultaneous, interleaved or nested invocations that do not interfere with each other, or code that is protected from multiple simultaneous executions by some form of mutual exclusion.

tuple

In Alphablox Analytics, a set of members (one from each of several dimensions) that defines a subset of a cube. In the grid below, tuples on the column axis include South, East, and West; tuples on the row axis include VCR QTR1, TV QTR1, and TV QTR2.

		South	East	West
VCR	QTR 1	10	20	30
TV	QTR 1	20	30	40
TV	QTR 2	30	40	50

U**URL**

Uniform Resource Locator. A draft standard for specifying an object, such as a file or newsgroup, on the Internet. URLs are used in HTML documents to specify the target of a hyperlink.

V**Vector**

An expansible array of objects that are called elements. The number of elements in a Vector can increase or decrease dynamically as program logic dictates. The number of elements is defined by the Vector's size, the amount of storage by its capacity. For related information, see Vectors and JavaScript.

W**web server**

A server process that sends out HTML pages in response to requests from remote browsers. The term also refers to the machine on which the process is running.

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