CAPLIN

Caplin Xaqua 1.0

Monitoring And Management Overview

December 2009

Contents

1 Preface

1.1 What this document contains

This document describes the Caplin Xaqua Management and Monitoring solution and its place in the Caplin Xaqua architecture.

About Caplin document formats

This document is supplied in three formats:

◆ Portable document format (*.PDF* file), which you can read on-line using a suitable PDF reader such as Adobe Reader®. This version of the document is formatted as a printable manual; you can print it from the PDF reader.

◆ Web pages (*.HTML* files), which you can read on-line using a web browser. To read the web version of the document navigate to the *HTMLDoc_m_n* folder and open the file *index.html*.

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http://support.microsoft.com/kb/896054/.

1.2 Who should read this document

This document is intended for people who want to understand the benefits of the Caplin Xaqua Management and Monitoring solution, and get an overview of how it works.

1.3   Related documents

◆   **Caplin Xaqua: Getting Started With The XMC**

Describes how to configure the Caplin Xaqua Management Console.

◆   **Caplin Xaqua: Customizing The XMC**

Describes how to customize the Caplin Xaqua Management Console.

◆   **Caplin Xaqua Management Console: API Reference**

The API reference documentation provided with the Caplin Xaqua Management Console.

◆   **Caplin Xaqua: Monitoring Socket Interface Specification**

Describes the commands and responses of the Monitoring Socket Interface.

◆   **Caplin Liberator: Administration Guide**

Describes how to install and configure Caplin Liberator.

1.4   Typographical conventions

The following typographical conventions are used to identify particular elements within the text.

Type	*Uses*
aMethod	Function or method name
aParameter	Parameter or variable name
/AFolder/Afile.txt	File names, folders and directories
`Some code;`	Program output and code examples
The `value=10` attribute is...	Code fragment in line with normal text
Some text in a dialog box	Dialog box output
`Something typed in`	User input – things you type at the computer keyboard
XYZ Product Overview	Document name
◆	Information bullet point
■	Action bullet point – an action you should perform

> **Note:**   Important Notes are enclosed within a box like this.
> Please pay particular attention to these points to ensure proper configuration and operation of the solution.

> **Tip:**   Useful information is enclosed within a box like this.
> Use these points to find out where to get more help on a topic.

1.5 Feedback

Customer feedback can only improve the quality of our product documentation, and we would welcome any comments, criticisms or suggestions you may have regarding this document.

Please email your feedback to documentation@caplin.com.

1.6 Acknowledgments

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2   Introduction

Caplin Xaqua contains full enterprise-wide monitoring and management capability. This feature allows a system administrator to monitor the activity and behavior of Caplin Xaqua components, ranging from a high-level view of the enterprise down to granular detail of every data item in the system.

Every application built with the Caplin DataSource SDK can be enabled for monitoring and management. This includes Caplin Liberator, Caplin Transformer, and all standard DataSource products such as DataSource for Reuters.

The Caplin Xaqua Management Console (XMC) is provided as a feature-rich, cross-platform GUI that is used to monitor and manage any available feature that has been exposed to the monitoring subsystem by a DataSource application.

The Caplin Xaqua monitoring and management solution is:

◆   Modular, flexible, and scalable.

◆   Easily extendable through API functions.

◆   Controllable using an extensible cross-platform GUI framework.

◆   Controllable through multiple APIs.

3   How does it work?

The Caplin Xaqua monitoring and management solution exposes information about the state of a DataSource application through standard attributes, allowing the application to be monitored and managed. Custom-built DataSources can easily extend this behavior by adding new items for monitoring and management using standard DataSource API functions.

These capabilities are provided by a plug-in module that is loaded at runtime by the DataSource process, allowing the monitoring and management features to be presented using a variety of mechanisms and technologies. Currently two types of plug-in module are available, and access to each is dependent on the issued server license.
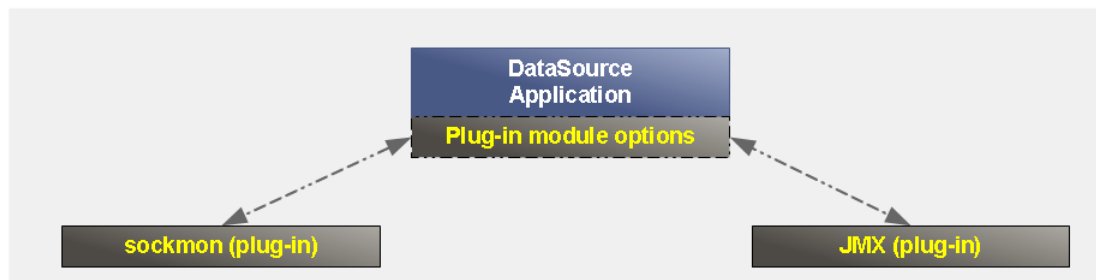
Alternative monitoring modules can slot into an application

3.1   Monitoring module options

sockmon

Provides socket-based monitoring and management using a simple command language.

JMX

JMX (Java Management Extension) provides a standard monitoring and management framework and API for applications written in Java. Using the JSR160 network protocol, applications with an embedded JMX server can expose objects for monitoring and management to JMX-enabled clients.

The Caplin Xaqua Management Console (XMC) is a graphical instance of such a JMX-enabled client. Using standard JMX protocols, the XMC provides custom, domain-centric displays that enable the user to clearly visualize and control Caplin Xaqua components. See the Caplin Xaqua Management Console [11] for further details.
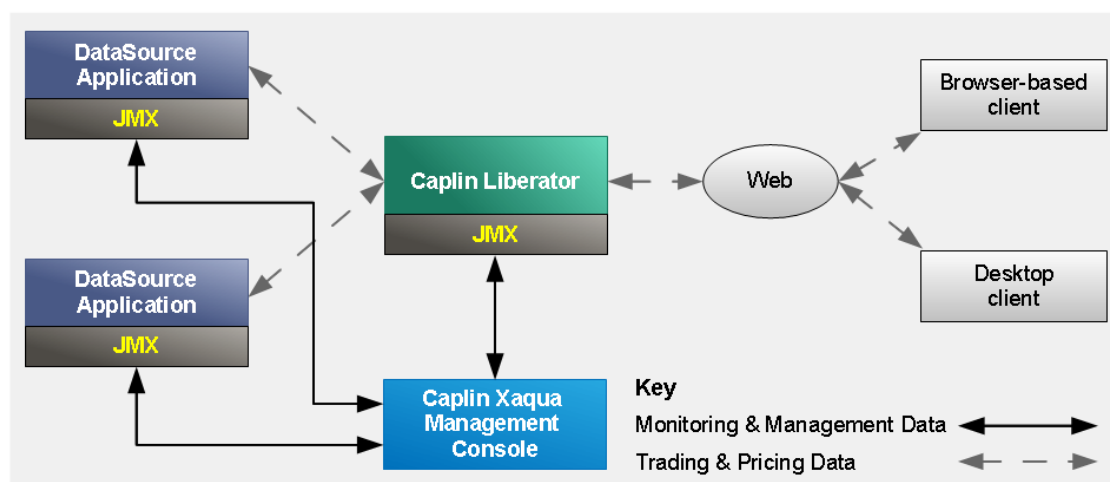
**The Caplin Xaqua Management Console
as part of the Caplin Xaqua infrastructure**

4   Monitoring vs Management

Caplin Xaqua components provide both monitoring and management functionality through the same interface. For brevity, where documentation refers to monitoring, management is also implied.

4.1   Monitoring

Monitoring is defined as viewing attributes of the currently running system. The majority of the items that are exposed by Caplin Xaqua fall into this category. They may be items that never change or items that change regularly. These attributes can usually have listeners registered that are notified of changes when they occur. Examples of monitoring attributes are:

◆   The current and peak counts of sessions logged-in to the Liberator.

◆   A list of objects that a particular session was viewing.

◆   The message count and rate for updates received by a DataSource.

◆   The license details for the system.

4.2   Management

Management is defined as performing an operation to modify part of the currently running system. Management items are exposed as operations that take zero or more parameters and return a value, much like a function in a programming language. Examples of management operations:

◆   Reconnecting peers.

◆   Re-validating user's permissions.

◆   Ejecting session(s) that are currently logged-in to the Liberator.

5   Key features

5.1   DataSource

Every DataSource exposes detailed information to the monitoring system as standard.

◆   System – Information related to the running process, such as CPU and memory usage, process id, and uptime.

◆   License – Details of the current license.

◆   Logging – Access to log messages written to various log files and control of logging levels and log file cycling.

◆   Peers – Information about configured and connected DataSource peers. Statistics for all messages sent and received. The ability to connect and disconnect and fail-over peers.

5.2   Liberator

Caplin Liberator exposes the following additional features to the monitoring system:

◆   System – Aggregated information about total number of sessions, objects, data throughput, and so on. Information about any configured clusters.

◆   Users – Information about all connected users and their sessions, including latency and object subscription details. Ability to eject and revalidate users and cancel subscriptions.

◆   Objects – Details about all objects in the system – type, stale status, update time, subscription counts, and so on. Details of which sessions are viewing each object.

5.3   PriceMaster

The PriceMaster system uses the monitoring and management system to view and control the following features:

◆   Vendor Permissions and mappings – Enables you to set up a sophisticated permissioning system defining which outputs are able to receive which objects.

◆   Page Construction – Enables pages to be built with any combination of the objects being received by PriceMaster.

◆   Data Formatting.

5.4   Transformer and DataSource adapters

Monitoring features are also available in other Caplin Xaqua products, including Caplin Transformer, and off-the-shelf DataSource adapters such as DataSource for RMDS.

5.5 Monitoring Object Naming

Each monitorable and/or manageable item is defined by a template that gives it a type name in a hierarchical namespace. This is prefixed by a server identifier for that process. For example, the logging template in the system *rttpd* would result in a template name of *rttpd.server.logging*.

Individual items are then identified by a primary key that uniquely identifies that item. For example, with the above template: *event_log* or *http_access_log*.

These are then used by the specific monitoring plug-in to create a suitable instance identifier. For example, in the JMX plugin, these two examples would create MBeans with the following ObjectNames:

rttpd.server.logging:name=event_log

rttpd.server.logging:name=http_access_log

Alternatively, in the sockmon plugin, they would be identified as follows:

rttpd.server.logging event_log

rttpd.server.logging access_log

This provides a consistent, navigable tree-like structure for the items. For example in the JMX console explorer view of the items, they are arranged using a collapsible tree:
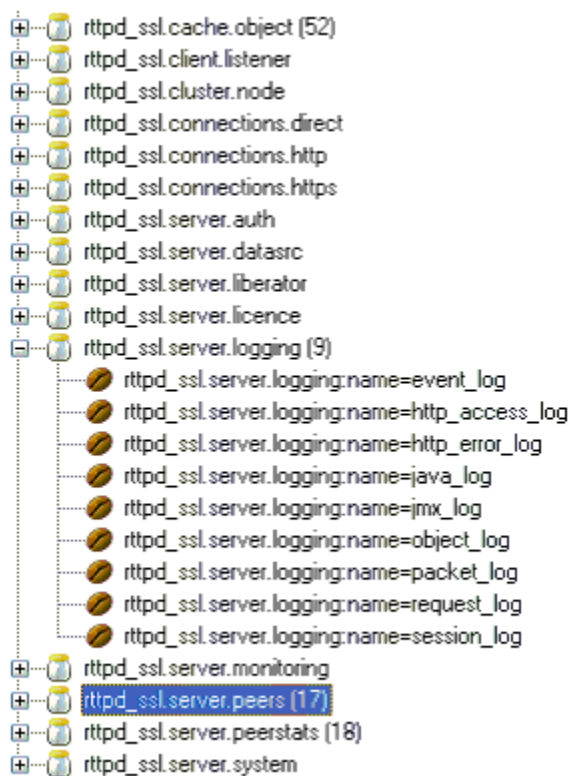
JMX console explorer example

5.6 Integrating with existing monitoring systems

Both of the standard monitoring modules can be used to integrate with existing monitoring systems.

The JMX module provides a standard JSR 160: JMX Remote API that can be accessed using existing JMX-aware applications such as alerting tools and graphical consoles.

The sockmon module can be accessed by applications that can make a socket connection, such as script-based monitoring tools or proprietary applications. The interface is text command based.

6   Caplin Xaqua Management Console

The Caplin Xaqua Management Console (XMC) is a fully-featured monitoring and management console for Caplin Xaqua components. It allows system administrators to easily monitor both the entire enterprise from a high-level view and drill-down to individual servers and items within those servers.
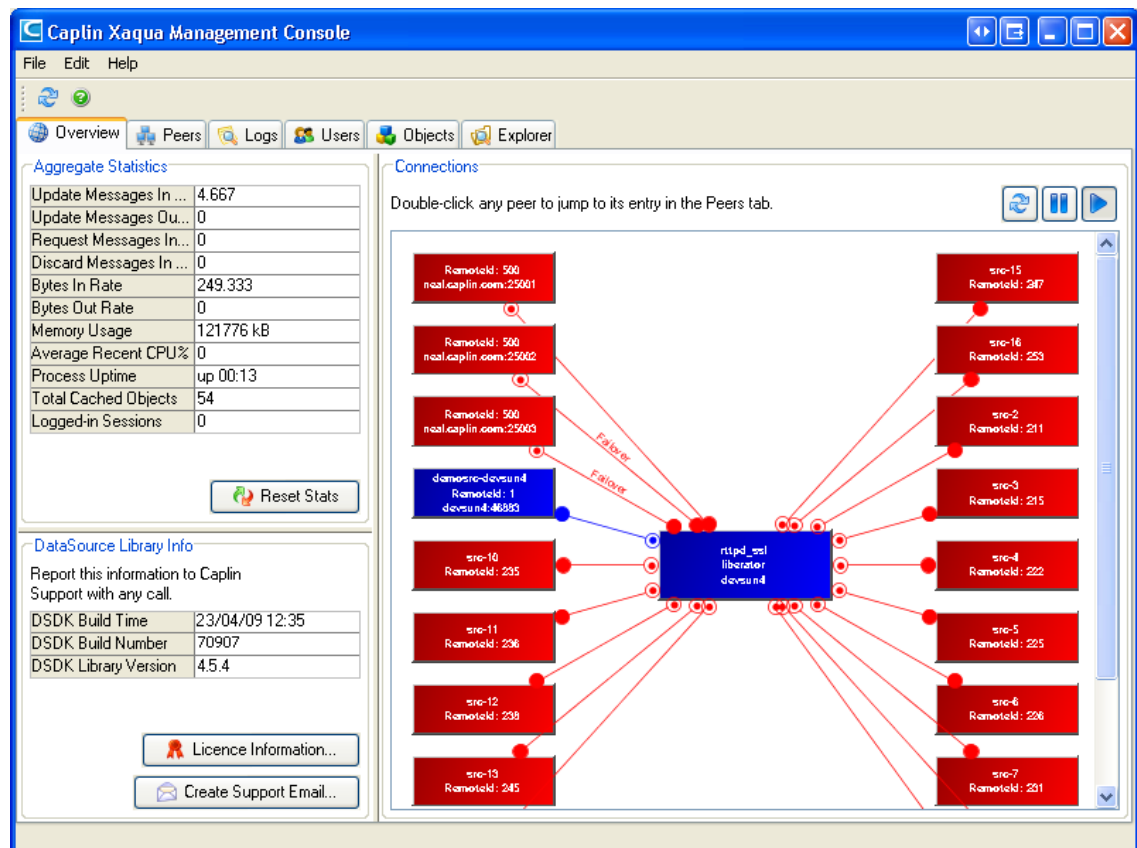
**A high level view of Caplin Xaqua components
in the XMC**

The console connects to each server that is running the JMX monitoring plugin and provides a graphical view of the system. It is based on an open framework that makes it easy to add new tabs to a server's console to facilitate the monitoring and management of custom features that a particular DataSource has exposed to the system.

6.1   DataSource views

Every DataSource will have the following common views (tabs) available by default:

◆   Overview – A view of the DataSource and its connected peers including configurable aggregate statistics, version details and license information.

◆   Peers – Information on all configured and connected peers with a detail view available showing message counts and rates. The ability to connect / disconnect and fail-over any connections.

◆   Logs – Details of all the available log files, their messages and control of logging levels and log cycling.

◆   Explorer – A powerful tree-based view of the entire monitoring system. This allows control over every aspect of any features that have been published to the monitoring subsystem.
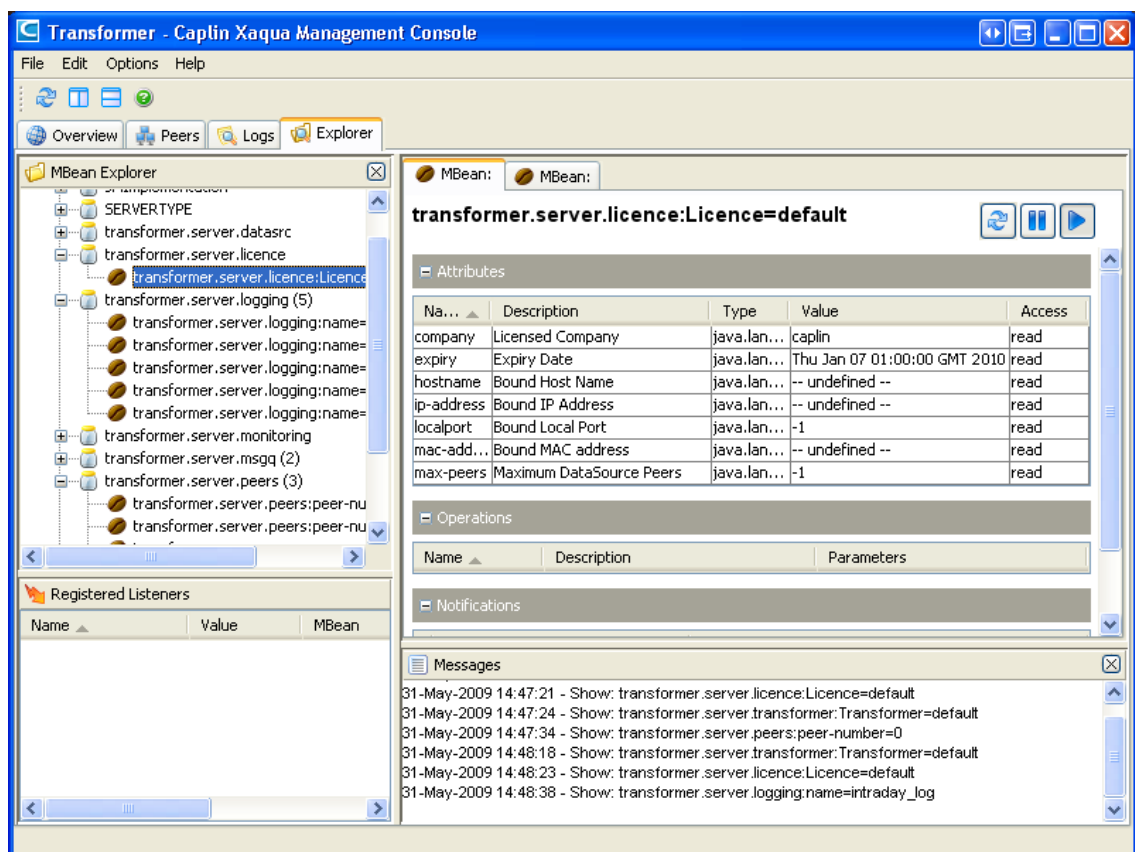
Explorer tab of the XMC
showing a Transformer License MBean

6.2   Liberator views

Caplin Liberator customizes the Overview to add details specific to Liberator, such as total users and objects. The following views are also provided:

◆   Users – A searchable view of all the users and sessions in the Liberator, with a detail view that shows information about latency, bandwidth, subscriptions, throttling, and so on.

◆   Objects – Detail on all the objects in the Liberator including information about their update rate, type, status, and sessions subscribed.

Users tab of the XMC
showing details about a Liberator user

6.3 PriceMaster views

The PriceMaster console includes the following views:

◆ Overview - Diagrammatically shows the input and output feeds connected to the PriceMaster. Clicking on the boxes representing input and output feeds in the diagram displays data about the connection. You can also click on PriceMaster itself to view connection information specific to PriceMaster.

◆ Permissions Editor - Enables you to set up a sophisticated permissioning system defining which outputs are able to receive which objects. As a user you are able to search for objects being received by PriceMaster and then add them to your permissioning list, setting the permissions as appropriate against each of the outputs to which you are connected.

◆ Page Construction - Enables pages to be built with any combination of the objects being received by PriceMaster. Objects are added to your page template simply by being dragged from the record pool. You can create columns in your template to represent the fields of the records which will be displayed on the page.

◆ Administration - Allows the current state of the cache to be viewed including individual record and page preview using real data. Additionally, objects can be deleted from the cache or they can be re-published to selected outputs.

6.4 Configuration

Each server console type (for example, Liberator, Transformer, PriceMaster, or a custom DataSource) is defined using an XML configuration file. This configuration file specifies which tabs are available in that console and their order and layout in the display.

A simple API is provided to allow new custom views to be created in Java containing components for viewing and controlling monitoring and management items. These could either be items within Liberator and Caplin's pre-built DataSources or a custom application developed with the DataSource SDK.

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