Amber Administration Guide

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Introduction

This document describes the Amber server administration system. The administration system allows system administrators to view and manage some of the characteristics in the Amber server.

The Amber Server is a Java application running on the server. It is capable of handling multiple separate applications in a single Java Virtual Machine (JVM). Incoming client connections from the Amber client components residing on client browsers are associated with corresponding applications. These applications then manage the connections and handle any messaging requirements to the client systems.

More information on the Amber Server and how it functions can be found in the Amber Development Guide.

Connecting to the Administration Interface

The Administration Interface for the Amber server is invoked by loading the Amber administration web page into a web browser. This page is typically invoked using the following URL:

```
http://server name/amber/admin/AmberAdmin.html
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This HTML page contains the required component definitions along with specifying the administration port number to use when connecting to the Amber server. The default value for the administration port number is 21386. See the Appendix: Configuring the Administration Interface for more details.

This starts the Administration interface.

The Amber Administration Application

This section describes the various parts of the Administration Application. The administration system is based on a series of screens. Each screen manages one part of the Amber Server system.

Logging In

Once the client browser is connected to the administration interface the user is presented with the log in screen. This is used to restrict access to the Administration System to only authorised users. To log into the Administration system type the administration user name and password into the defined fields and press the log in button. An invalid user name/password combination will bring up an error dialog. A correct combination will log the user into the administration system and present the user with a tool bar along the left hand side of the page and an Information Screen in the centre of the page.

Pressing the various buttons on the toolbar will take the user to the various screens of the administration system.

Information Screen

The Information Screen displays general statistics on the server. The user is presented with 4 graphs: 3 graphs on the current connection activity (one each for Normal, Secure, and Administration connections), and a graph on the current memory activity. These graphs are updated every 3 seconds. To the right of the graphs are absolute values which numerically display the same information as the graphs. Moving the mouse over the various graphs displays the values of the charts at each point in time.

The connection charts each plot 2 values: currently connected sessions and pending sessions. A connected session is a live amber application in use. A pending session is one where the connection to the server was terminated, either deliberately or accidentally. Should the pending session not be reconnected to the client in 2 minutes the session is terminated.

The memory chart also contains two values: the red line indicates the total memory, and the blue line the available memory. The total memory will scale up as required to the physical limit specified by the Java Virtual Machine.

Application Controller Screen

The Application Controller Screen allows the user to display more information on the various connections and also control them. The user is presented with a series of buttons at the top and bottom of the screen. These allow the user to control various parts of the administration system relating to applications.

The functions allow the user to create pending applications (applications which will be initiated by incoming connections) and also see the active applications (applications which are currently connected).

There are also several functions which affect the server as a whole. These include shutting the server down and forcing a Garbage collection within the Java Virtual Machine to recover free memory.

Top Buttons

The top buttons relate to displaying the current connection information. The buttons operate on each of the three types of connections. The connection types are:

- Normal. These are the typical Amber connections. These are connections which do not require high levels of security.
- Secure. These connections require that the information to and from the Amber server are encrypted.
- Administration. These connections relate to administering the Amber server. They are also not encrypted.

The type of connection to handle is specified in the drop-down list type. Changing this value alters which type of connection is affected by the buttons.

The top buttons are:

- Get Pending. This fills the right hand list with all possible ApplicationHandler's which the Amber Server understands. This information is fetched from the Amber Server database.
- Get Active. This button fills the left hand list with all currently active connections.
- Get All. This is equivalent to pressing both the Get Pending and Get Active buttons. Both lists are updated.
- Shutdown. This button shuts down the Amber Server.
- Kill App. This button terminates the currently selected application in the left hand list.
- GC. This forces a garbage collection within the Java Virtual Machine to recover any free memory.

Detail Fields

The detail fields display information on the applications understood by the Amber Server. Clicking on an entry in the left hand lists displays information on the active connection. Clicking on an entry in the right hand list displays information stored in the database. Using these fields new entries in the configuration database can be created and saved. The fields in the details area are:

- App ID. The integer number used to identify which application class should be attached to which incoming connection. Each application must have a unique App ID/App Sub ID combinations. This value must match the corresponding value in the HTML source.
- App Sub ID. A refining integer number used to identify which application should be started. This value is optional. See the required flag below.
- Required. If this checkbox is ticked both the App ID *and* App Sub ID are required to match the application to the incoming connection. If the checkbox is not ticked only the App ID value is used.
- Creation Date. The date the application was added to the configuration database. This field is ignored when creating a new configuration entry (see below).
- Expires. The maximum duration that an application can be connected to the server. Specified in milliseconds. This value is a long integer number. -1 is considered no duration.
- Class. The ApplicationHandler extended class which will be started when the connection is received. This is the full class name including the package but not the trailing .class.
- Information. A human readable text string describing the application function.
- Status. This reflects the status of the application. Pending/Active/Ended. This is not guaranteed to correctly reflect the state of the application. Set to Pending when adding applications.
- Transient. When ticked this application entry is considered transient, i.e. when a connection is received the corresponding entry in the database is removed. Thus this connection can only ever occur once.
- Multiple Connections. If this checkbox is ticked the application can be started multiple times. If not ticked only one instance of this application can be running at any one time.
- Mail Connection. If ticked the Amber Server will mail a specified address with a message whenever this connection is received (see the mail fields below).
- Public Application. Used by client applications (i.e Amber application systems rather than the normal browser type connections). This checkbox indicates when ticked that the client may list this ApplicationHandler as a possible application to run.
- Start Time. A read only field, this displays the time that the connection was received.
- Address. Again a read only field, this displays the address of the client connected to the application.
- To. The mail address to send connection mail to (see Mail Connection above).
- From. The address of the person which sent the mail message (see Mail Connection above).
- Message. The text message to send to the recipient (see Mail Connection above).
- SMTP Server. The SMTP server to use when sending the mail message (see Mail

Connection above).

Bottom Buttons

The bottom buttons relate to the information stored in the detail fields. They primarily relate to altering the Amber Server configuration database table. The buttons are:

- Add New App. This button takes the information in the detail fields and attempts to update the configuration database with it. Errors are displayed in the status field at the bottom of the page (under the buttons).
- Modify App. This attempts to update the currently selected Pending App entry with the new configuration details.
- Remove App. Removes the currently selected Pending App from the configuration database.
- Inspect App. Only meaningful for active applications. It displays the Inspection window allowing a display of the variables in the current application (see below).

Inspect Information Window

This window is invoked from the Application Controller Screen. It displays information on the values of the accessible fields in the currently selected application. This allows the administrator to view internal information in the application class itself.

At the top of the window is a drop-down list. This displays the class hierarchy for the application. This allows the user to select fields which exist in the current class and above. Thus the user can isolate fields outside the area of interest.

On the left of the window is a tree control which contains the field information on the application. Classes may be entered and their information also displayed. Clicking on an entry in the tree control causes the fields on the right of the window to display the type and value of the field.

At the bottom of the window is the Finished button, pressing this closes the window returning the user to the Application Controller Screen.

Database Query Screen

The Database query screen allows the user to access and manipulate any of the databases understood by the Amber Server. This screen should only be used by people with a good knowledge of SQL as it possible to greatly alter the target databases.

At the top of the screen is a drop-down list of the known databases. There should always be at least one database available which is the Amber Server DB. This corresponds to the configuration database for the Amber Server.

Below the drop-down list is two buttons: Open Connection which requests a connection to the database specified in the drop-down list. Close Connection closes the connection and returns it to the connection pool.

The SQL entry text area is below the connection buttons. The user types the required SQL statement into this area and presses the "Perform Query and Save to File" or "Perform Update" buttons (see below).

The Output Filename specifies an optional filename to which the result text is to be written. This allows the database results to be permanently recorded. Remember that this file is stored on the server *not* on the client machine. If this field is empty the information will not be saved to a file.

The "Perform Query and Save to File" button is used to perform an SQL query which returns a result set. The information in the result set is displayed in the text area below the buttons.

The "Perform Update" button is used for SQL statements which alter the database and do not return a result set.

Any results or errors are displayed in the text field at the bottom of the screen.

Device Management Screen (Enterprise only)

The Device Management Screen is used to display information on any devices and remote device systems connected to the Amber Server. As for any connection to the Amber System there are three types: Normal, Secure and Administration.

The drop-down list at the top of the screen indicates which type of connection is to be displayed in the lists below. Changing the value in this list updates the lists with the corresponding devices.

The left hand list displays the known device systems connected to the Amber Server. Clicking on a device system displays a list of its devices in the right hand list.

Below each list is a button. The “View System Details” button displays the known information on the remote device system in a separate window. The “View Device Details” performs the same function for the selected device in the device list.

File Manager Window

The last option in the tool bar on the left of the screen is the File Manager. Pressing the file manager button causes the File Manager Window to be displayed. Unlike the other parts of the administration interface this is a standalone window. This window allows the administration user to look at and manipulate the files in specified locations. There are two of these locations and they are specified in the AmberServer.properties file. The AmberRoot directory and the WebRoot directory. As a security precaution the Administration Interface will not ascent the directory tree beyond this point.

The File Manager Window consists of two lists: the left list is directories and the right list the files within a directory. The user can copy, move and rename files using the file manager. There are four buttons at the top of the screen they are:

- Up. This moves the user up one directory. The right hand display then displays the file for the parent directory.
- New Dir. This button allows the user to create a new subdirectory off the currently specified parent directory.
- Delete. This button deletes either the directory or file specified.
- Rename. This button renames the specified directory or file.

Both moving and copying a file to a new location use the same system. Click on the file in the right hand list view and drag to the destination directory on the left. By default this moves the specified file. The system then asks if the user if they wish to perform the operation. To copy a file perform the same operation but with the Control key pressed, the system then prompts to see if the user wishes to copy the specified file.

Appendix: Configuring the Administration Interface

In this section we will discuss the various configuration options for the Amber administration interface. All configuration is handled by altering the AmberServer.properties file which is located in the amberserver/config/amberserver directory off the installation directory.

Properties which relate to the administration interface are:

- AmberServer.AdminListenerPort. This property defines which TCP/IP port number the administration system listens on. The default for this port is 21386. Setting this value to -1 turns off the administration interface altogether.
- AmberServer.Admin.Username. This property defines the user name to use when logging into the administration system. The default value is “admin”.
- AmberServer.Admin.Password. This is the password to use when logging into the administration system. The default value is “password”.
- AmberServer.Admin.Class. The class to invoke when a new administration connection is received. This class must extend ApplicationHandler. The default value is amber.admin.Admin.
- AmberServer.AmberRootDirectory This is the one of the directories accessible to the File Manager. This directory is the root of the Amber Server.
- AmberServer.DocumentRootDirectory. This is one of the directories accessible to the File Manager. This directory is the root of the Web Server.