Run Document

Version 0.1

Prepared by: John Chislett

August 17, 2016

Table of Contents

Table of Figures

List of Tables

1. Document Control

The document control section describes the revision history and summary of changes made in the document. It will serve as the version control for the contents of the document.

Document Location

The source of the document will be found on xxxx.

Revision History

Revision Number	Revision Date	Summary of Changes Made	Changed By
1.	07/14/16	Draft	
2.	07/18/16	Draft	
3.	07/25/16	Draft	
4.	08/23/16	Draft	
5.	09/09/16	Final Draft	
6.	0/14/16	Page 24 – added daily to Sun-Sat batch jobs	

2. Introduction/Executive Overview

The main objective of EDIFIRE Directory is to provide a central repository for contact information for EDIFIRE employees and external clients. EDIFIRE Directory resides at 123 on an Oracle 7.3.4 database that provides internal and external contact information to web based applications via Lightweight Directory Access Protocol (LDAP). EDIFIRE Directory utilizes the application server, BEA WebLogic Server, as a layer between the user interface and EDIFIRE Directory database. The EDIFIRE Directory database receives data from both the MProfile database and HR PeopleSoft application. Web based applications such as EDIFIRE.com can access this vital contact information by invoking the LDAP service. Changes can also be requested via the EDIFIRE Directory application.

3. Scope

The purpose of this Runbook is to provide operational documentation for the EDIFIRE Directory application. It will facilitate the management of the application in the most efficient manner possible, and thereby maximize the value of the application to EDIFIRE, Incorporated. The primary audience of the document is the operator at 123. Operators are members of the Data Center who perform the routine system administration tasks. (i.e. site management, system monitoring, routine system maintenance). It should be used to understand the practices and procedures to be adhered to for the application.

The document contains a business and technical description of the application, online operations, and troubleshooting techniques. The business and technical overview provide a high level description of the functional capabilities of the application and how it is used. The system architecture section describes the application topology. The online operations, troubleshooting and batch processing sections details specific instructions for operation and maintenance. The document also contains Appendices that address the Enterprise wide strategy/approach for standard practices such as change management, problem management, monitoring and escalation.

4. References

This table provides key contacts regarding EDIFIRE Directory issues that may arise.

Issue	Reference Organization	Contact Name
Networking	EDIFIRE I&O Group	
Database	EDIFIRE DBAs	
Application	EDIFIRE	

Please refer to Appendix 1 “Contact List” for additional information.

5. Application Description

The Application Description Section gives a detailed description of the application. It is organized into business and technical descriptions:

5.1. Business Overview

The main objective of EDIFIRE Directory is to provide a central repository for contact information for EDIFIRE employees and external clients to applications such as web based applications such as EDIFIRE.com.

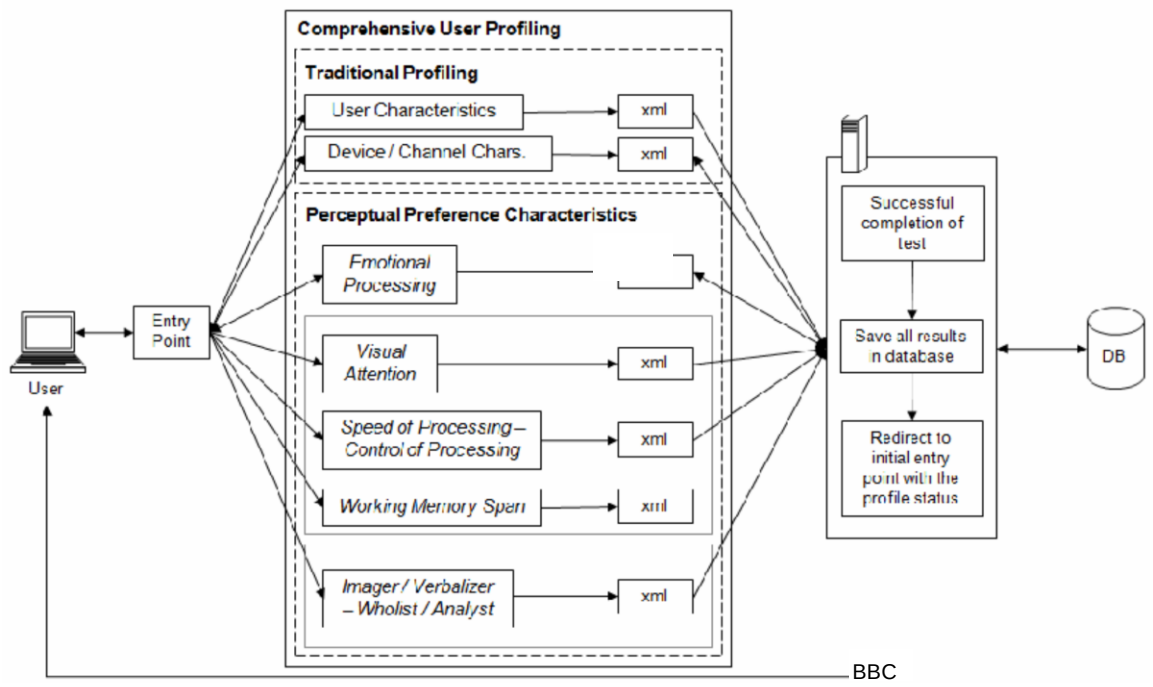
5.2. Technical Overview

The main client of the EDIFIRE Directory database is EDIFIRE.com. The database resides at 123 and runs on Oracle 7.3.4 and applications such as EDIFIRE.com can access this data via LDAP. Users of EDIFIRE.com do not have direct access to EDIFIRE Directory. EDIFIRE.com users can only access EDIFIRE Directory information via applications running on their web browser. EDIFIRE.com accesses EDIFIRE Directory by using the BEA WebLogic Application Server. BEA WebLogic serves as the layer between the user interface and the system or database. The PeopleSoft HR application sends personnel data to EDIFIRE Directory by using PowerMart, the data transformation engine. HR PeopleSoft is the input source and based on business rules, the information is modified before loading into the EDIFIRE Directory database.

Both the MProfile database and HR PeopleSoft application populate the EDIFIRE Directory database. Applications such as EDIFIRE.com, InMind, Edward, MMC Directory, Surety, and CANSYS may request data from EDIFIRE Directory via the use of LDAP.

The following diagram displays the data flow between MProfile, EDIFIRE Directory and LDAP.

Figure 1. Data Flow between MProfile, EDIFIRE Directory and LDAP



6. Application System Architecture

EDIFIRE Directory is comprised of the following three major components: an Oracle 7.3.4 database, a BEA WebLogic application server and LDAP. The BEA WebLogic application server contains the business logic for the EDIFIRE Directory application. It serves static and dynamic web pages as well as managing database access, security, and transaction services for EDIFIRE Directory. LDAP (Lightweight Directory Access Protocol) is the standard protocol for maintaining and distributing directory information over the Internet. The main objective for the LDAP directory service within EDIFIRE is to provide a standard mechanism for storing, distributing and accessing directory information. The HR PeopleSoft application and MProfile database both send personnel data such as names and addresses to EDIFIRE Directory.

Figure 2. EDIFIRE Directory Production Environment

6.1. Hardware

www.Edifire.c

Server Name	Purpose	Location
USNYCAS67	EDIFIREDirectory Application Server (BEA WebLogic)	123
USNYCU09	LDAP Server	123
Nantucket	EDIFIREDirectory DB (Oracle 7.3.4)	123

♦ **Table 1 – Hardware**

Refer to Appendix 2 "List of EDIFIRE Servers" for additional information.

6.2. Software

Server	All Software Residing On This Server
USNYCAS67	BEA WebLogic 6.1 sp2 Oracle Client NT 4.00.1281
Nantucket	Oracle 7.3.4

♦ **Table 2 – Software**

6.3. Database

Database Instance Name	DB Type	Version	Server Name/Location
Oltp15	Oracle	7.3.4	NANTUCKET / Andover

♦ **Table 3 - Database**

Refer to Appendix 2 "List of Servers" for additional information.

6.4. Networking

Refer to Appendix 8.1 "123 Data Center Network Environment" for additional information.

7. On-line Operations

EDIFIRE Directory is a 24 by 7 application that has no scheduled downtime.

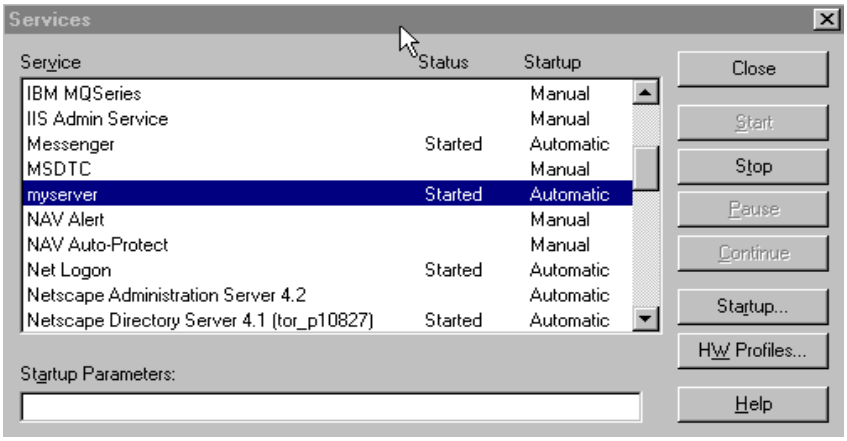
7.1. Startup Sequence for WebLogic Server

7.1.1. Starting Server from Windows Service Console

Note: All references to "myserver" in the screens should be "EDIFIREdir".

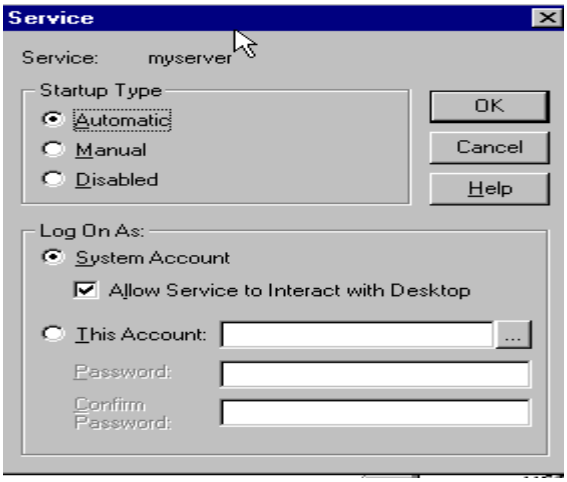
1. Power up the server first.

2. The EDIFIREDir application on WebLogic is setup as a Windows NT service. It will start automatically after a reboot. To ensure that the service is up and running, launch Windows Control Panel ➔ Services, in the row for service EDIFIREdir, and make sure the status says "Started".



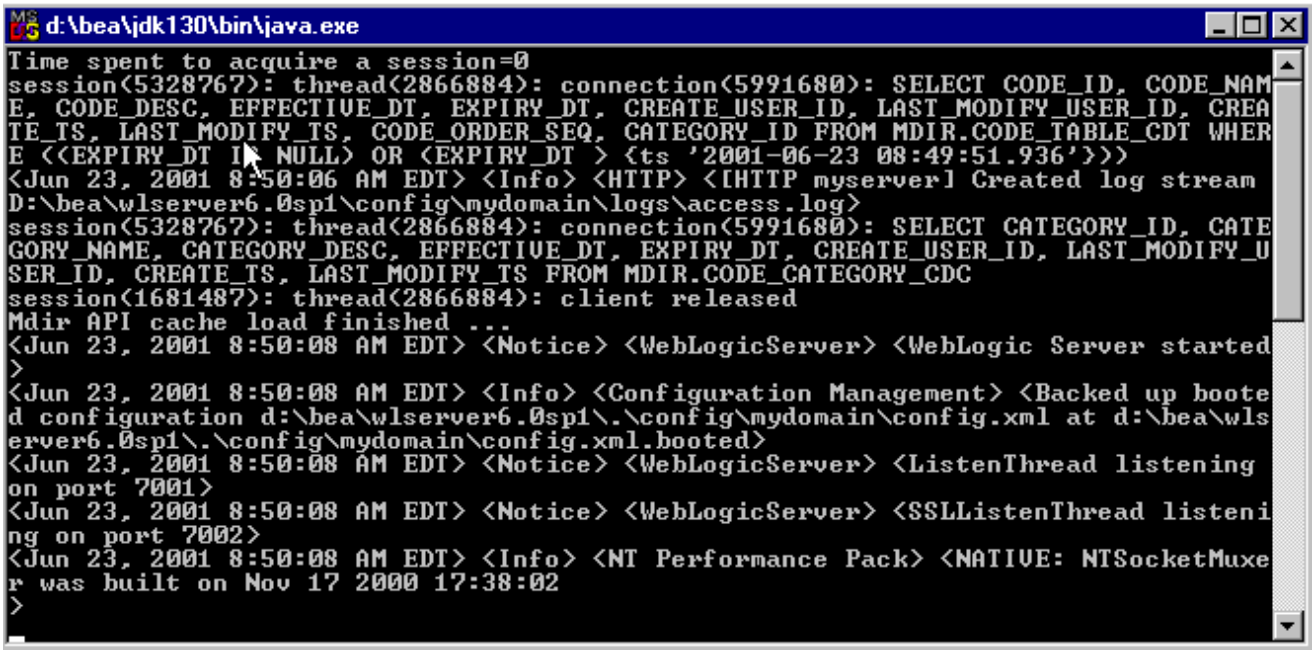
<Screen: EDIFIREdir in Started Status>

3. From the above screen, if the status is blank, then click the *Startup* button from the screen, the following screen will be displayed, *check Allow Service to interact with Desktop*, and Click *OK* button.



<Screen: Setting *EDIFIREdir* service to be interactive>

Then, *EDIFIREdir* screen will be displayed again. Highlight the service *EDIFIREdir*, click *Start* button, and a console window with the following information will be displayed:



<Screen: EDIFIREDir WebLogic Server Startup Window>

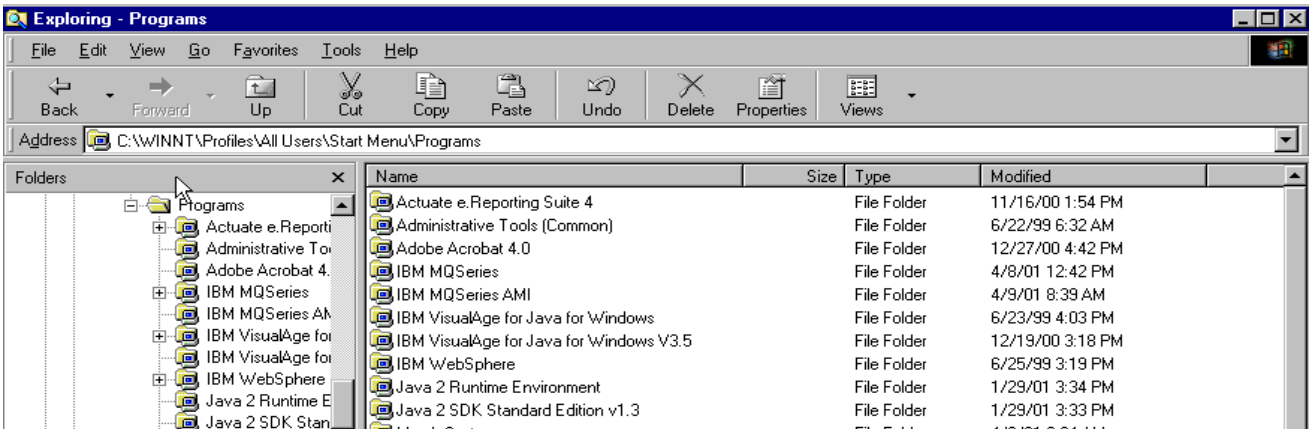
Starting Server from Start Menu

We can create and use the Windows shell folder and shortcuts for EDIFIRE directory WebLogic tasks such as installing the EDIFIREDir application as a windows service, uninstalling the service, starting WebLogic for EDIFIREDir application and cache refreshing.

To setup the Windows shell folder and shortcuts for EDIFIRE Directory, go to *C:\WINNT\Profiles\All Users\Start Menu\Programs*. Then, copy the folder *EDIFIREDir WebLogic based on the supplied EDIFIREDir WebLogic.zip file*.

The following screen shows the shell folder for the EDIFIRE Directory WebLogic:

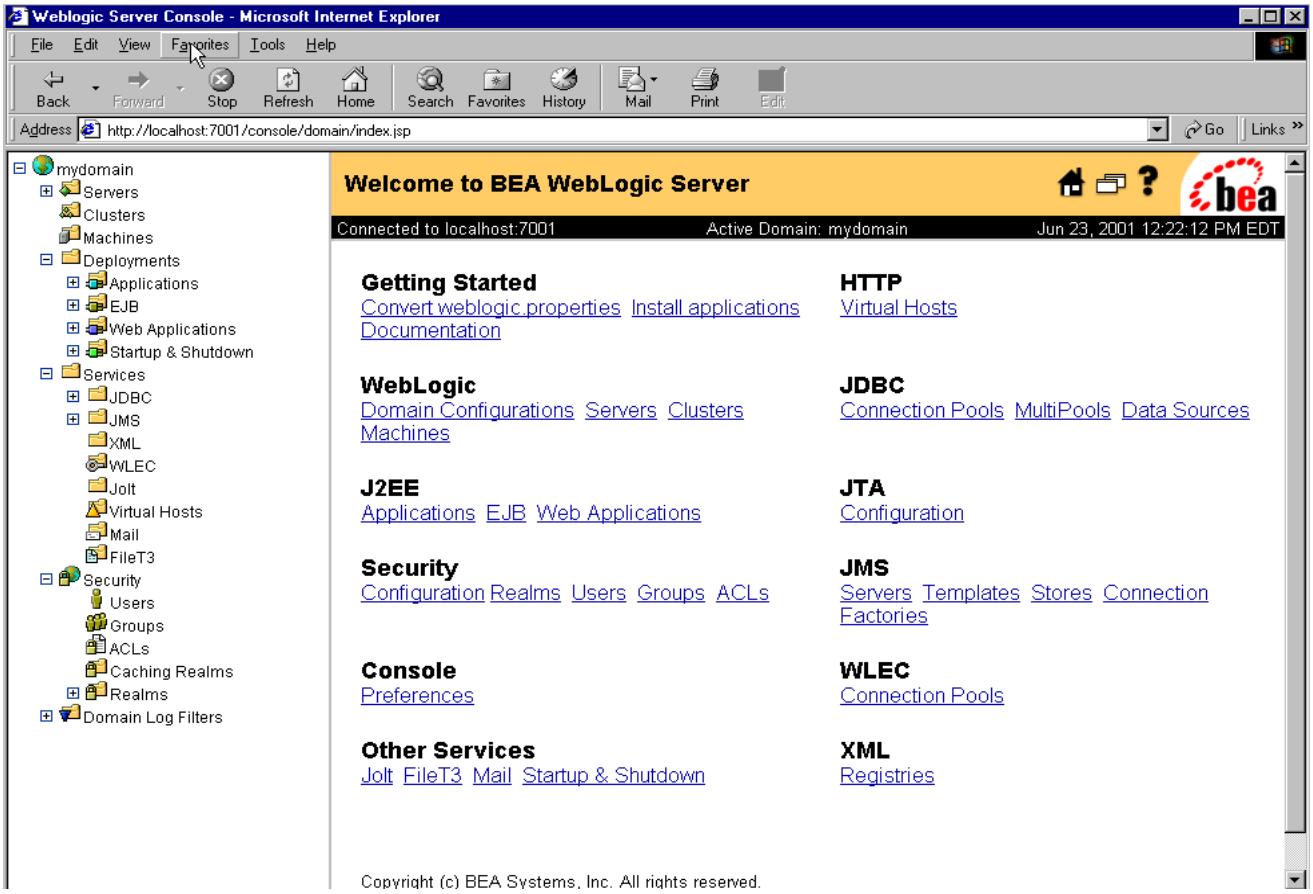
<Screen: Windows Shell Folder for EDIFIREDir WebLogic>



<Screen: Shortcuts for EDIFIREDir WebLogic Tasks>

7.2. WebLogic Administration Console

The WebLogic Server Administration Console runs in a Web browser such as Internet Explorer 5. It displays the components of the domain it administers, including clusters and independent WebLogic Servers, in a graphical tree in the left pane. The right pane displays details about the object selected in the left pane such as configuration pages and monitoring pages, or accessing logs. The top-level nodes in the domain tree are containers. If leaf nodes are present in those containers, you can click on the plus sign at the left to expand the tree to access the leaf nodes. Below is a sample snapshot from an Administration Console session.



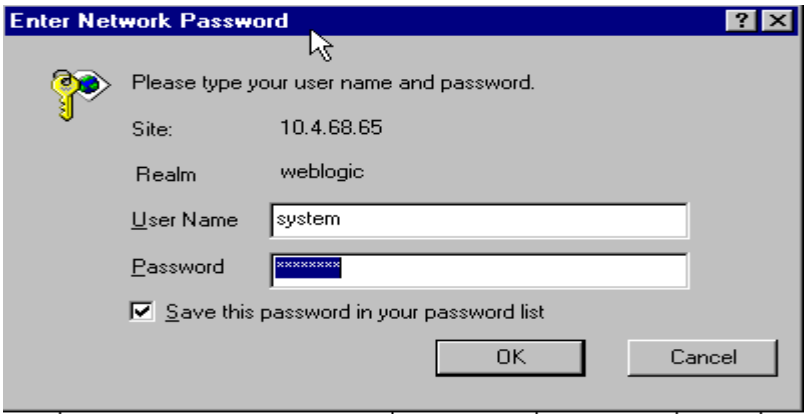
<Screen: WebLogic Administration Console>

Launch WebLogic administration console:
After starting the WebLogic Server, we can start the Administration Console by directing web browser to a URL for WebLogic console administration.

To launch the WebLogic administration console using a web browser, follows the steps described below:

1. Launch a web browser such as Internet Explorer 5, and type the URL as: http://host:7001/console/, where host is the DNS name or IP address of the server which hosts the EDIFIREDir WebLogic.

2. Then a login page will be displayed:



<Screen: Login page for WebLogic Administration Console >

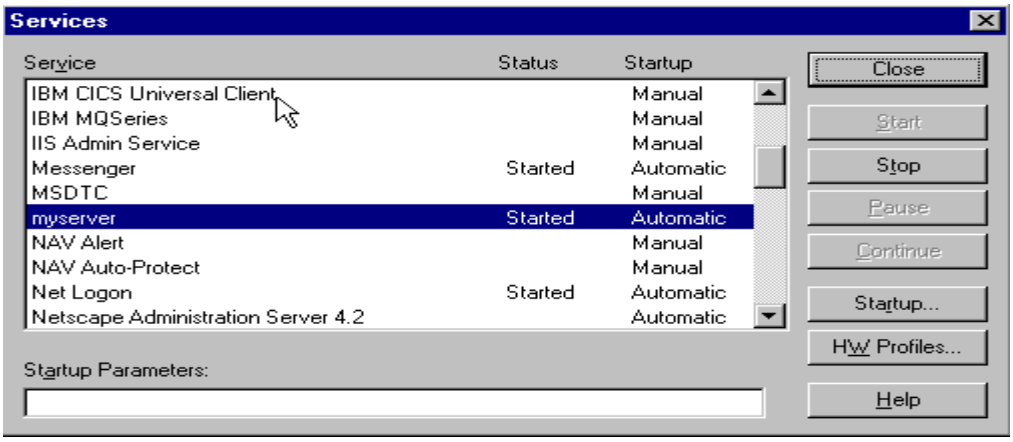
3. Type in the user name and password, and click OK button. It is recommended to use a powerful user Id such as *system* or a user Id in WebLogic *Administrators* group to login to WebLogic administration console for administrative tasks.

7.3. Shutdown Sequence for WebLogic Server

The EDIFIREDir WebLogic server can be shutdown by stopping the NT service *EDIFIREdir* from the control panel, or by using the WebLogic administration console.

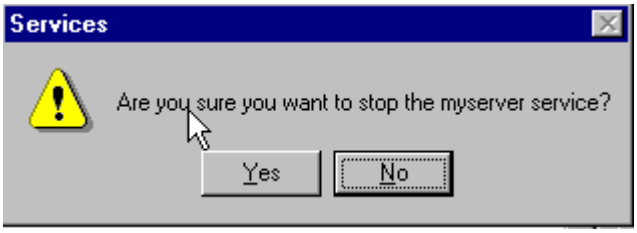
7.4. Shutting Down from the Control Panel

1. Launch Windows Control Panel ➔ Services, highlight the row for service *EDIFIREdir*, then click the Stop button.



<Screen: Stop *EDIFIREdir* Service>

2. The following confirmation window will be displayed:



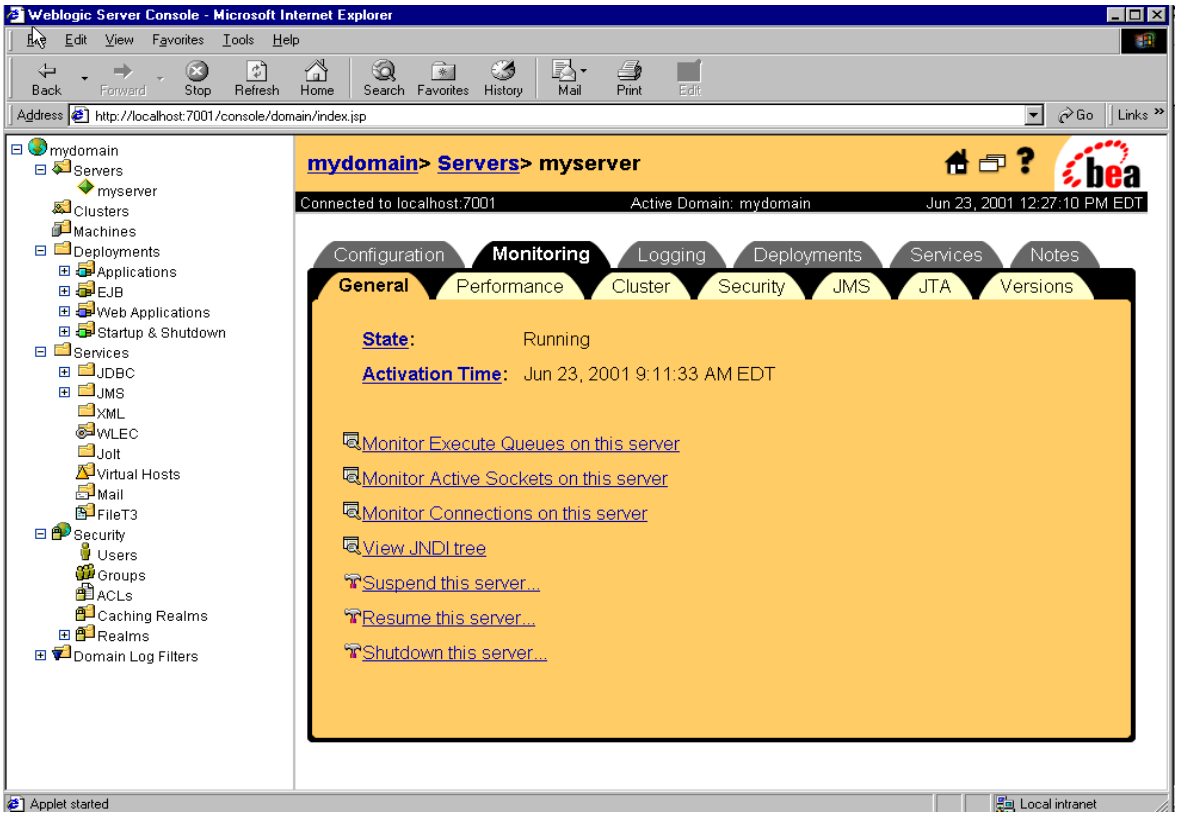
<Screen: Confirm Stopping EDIFIREdir Service>

3. Confirm the shutdown by clicking the Yes button.

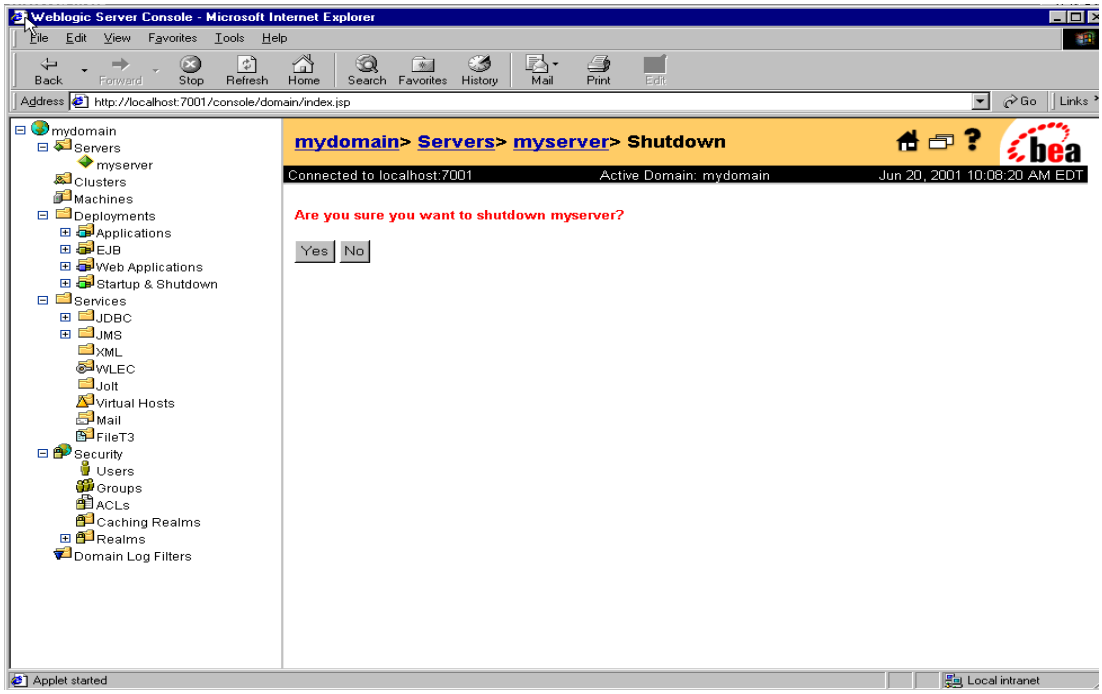
7.5. Shutting Down from the WebLogic Administration Console

1. Launch and connect to the WebLogic Administration console as described in WebLogic Administration Console section.
2. On the left pane, expand the node *Servers*, and select *EDIFIREdir*.
3. On the right pane, select the *Monitoring* tab as shown in the snapshot below.

<Screen: Monitoring Tab for EDIFIREdir>



4. Follow the link called Shutdown this Server and the following confirmation screen will be displayed:



<Screen: Confirming Shutting Down Server>

5. Click the *Yes* button to confirm.

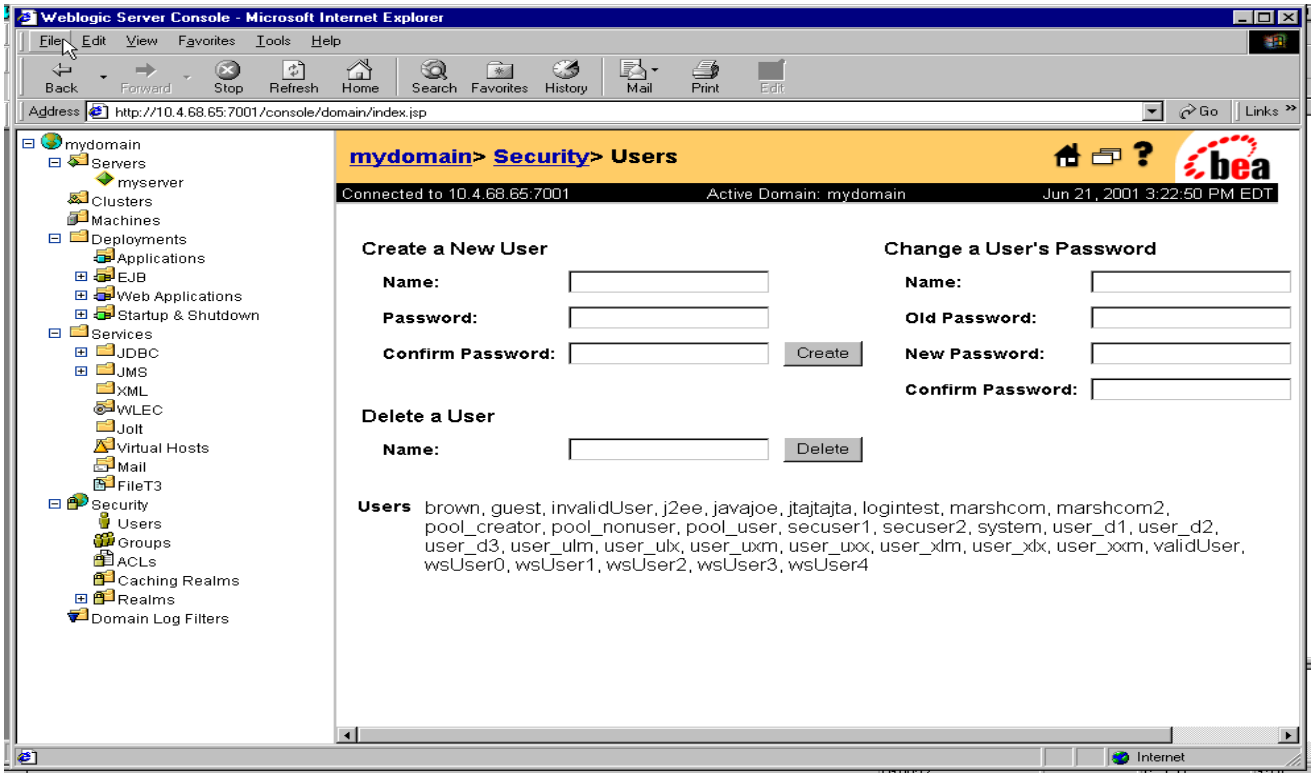
When WebLogic is deployed as one server, that is, as administration server and managed server, shutting down the server means shutting down both the administration server and managed server as well. No administrative work with WebLogic can be performed after shutting down the server. If we need to start the WebLogic server again, we will need to start the *EDIFIREdir* service from Control Panel→ Services as described in the Starting Server from Windows Service Console section. If the administration server and managed servers are deployed and started separately, shutting down a managed server should not affect the administration server.

7.6. Setting Up New Users for the EDIFIREDir Application

In order to use EDIFIRE Directory EJBs, users, mostly client applications should be the members of a pre-defined Weblogic group called ***EDIFIREdirusers***. Setting up a user in order to use the EDIFIREDir application involves creating a new WebLogic user Id, and adding the user to the *EDIFIREdirusers* group. The details are described as follows:

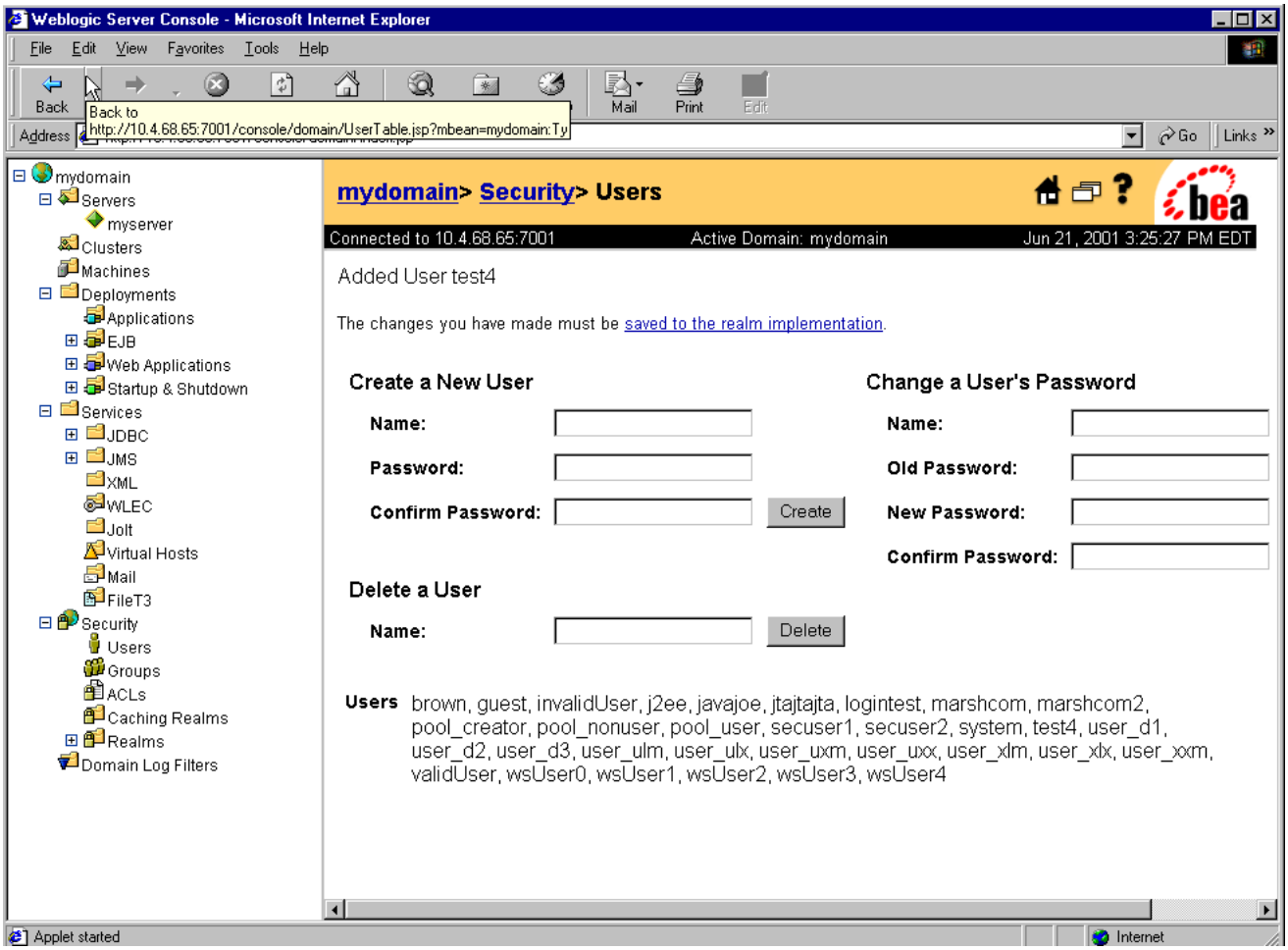
1. Login into the WebLogic administration console with a browser, preferably Internet Explorer 5 using the following url: http://<host>:7001/console/, where *host* is the DNS name or IP address of the WebLogic host machine.
2. On the left pane of the WebLogic administration console, click on the tree node: **/Security/Users**.

3. The following screen will be displayed:



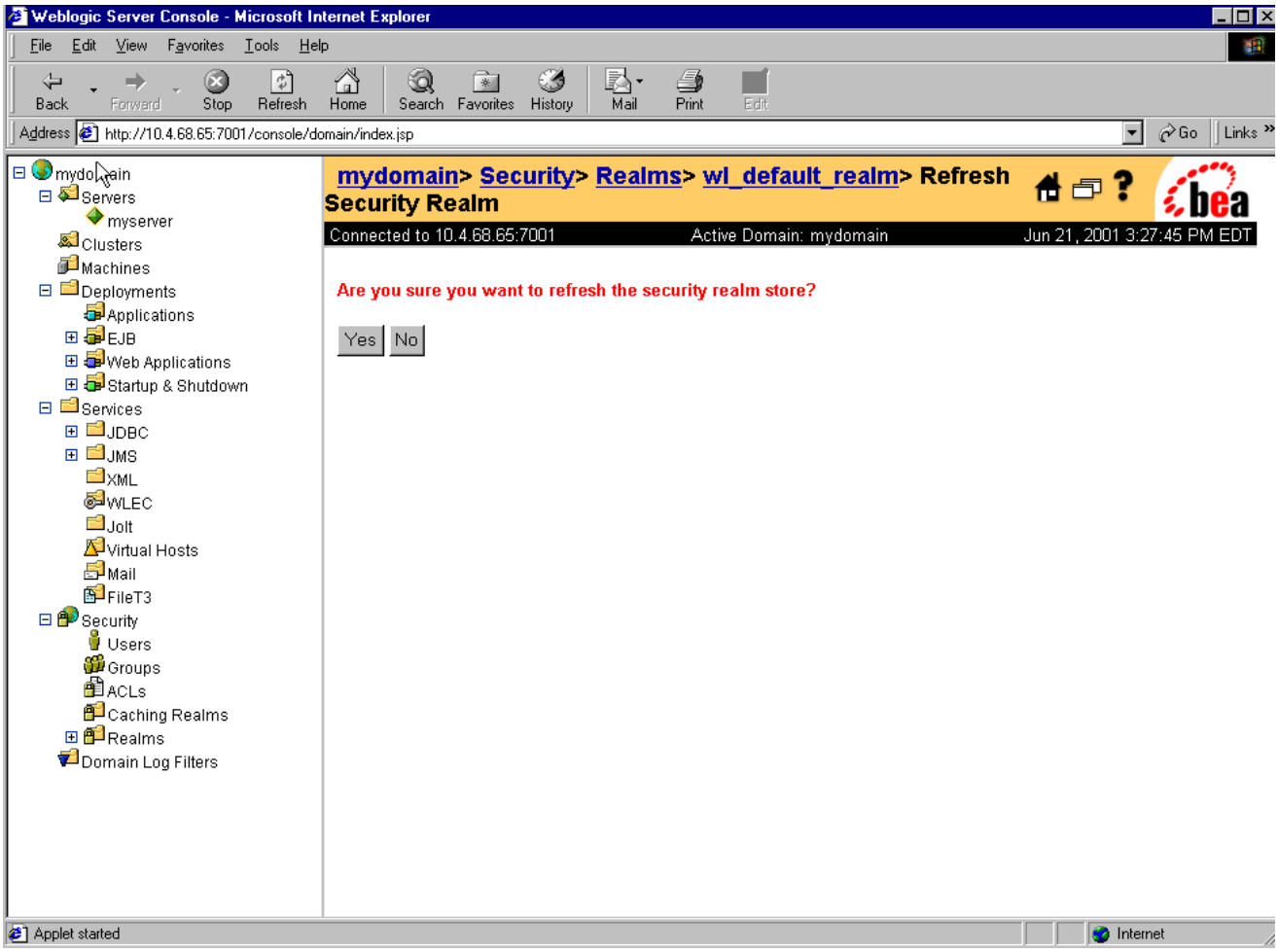
<Screen: Security-Users >

4. On the right side of the screen, under *Create a New User*, fill in the fields of *name, password, confirm password*, then click *Create*.
5. The following screen will be displayed:



<Screen: Saving a New User>

6. On the right side of the above screen, click the link *saved to the realm implementation* to make the new user information consistent.
7. The following screen will appear:

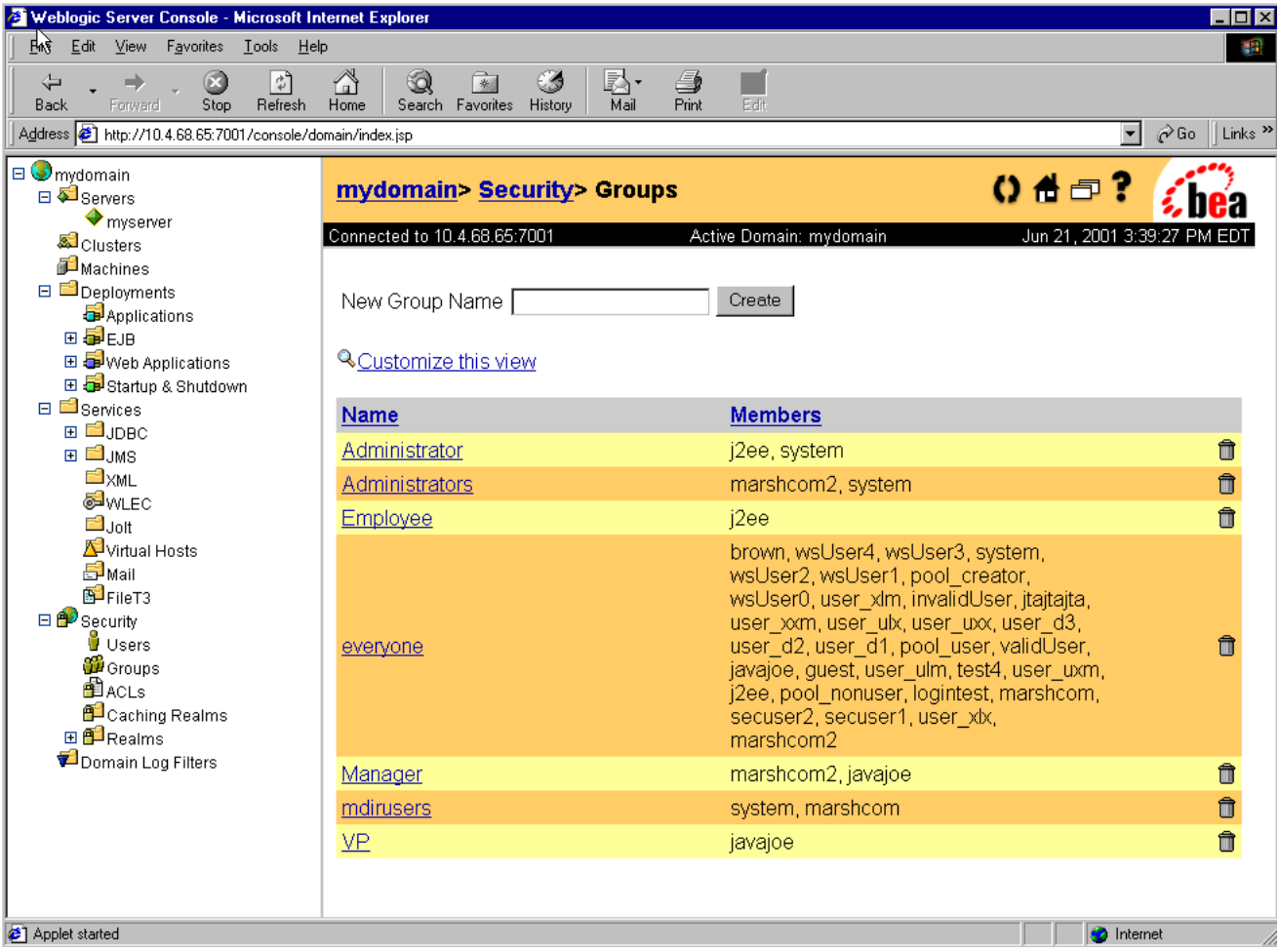


<Screen: Confirming Saving a New User>

8. Click the *Yes* button to confirm the change.

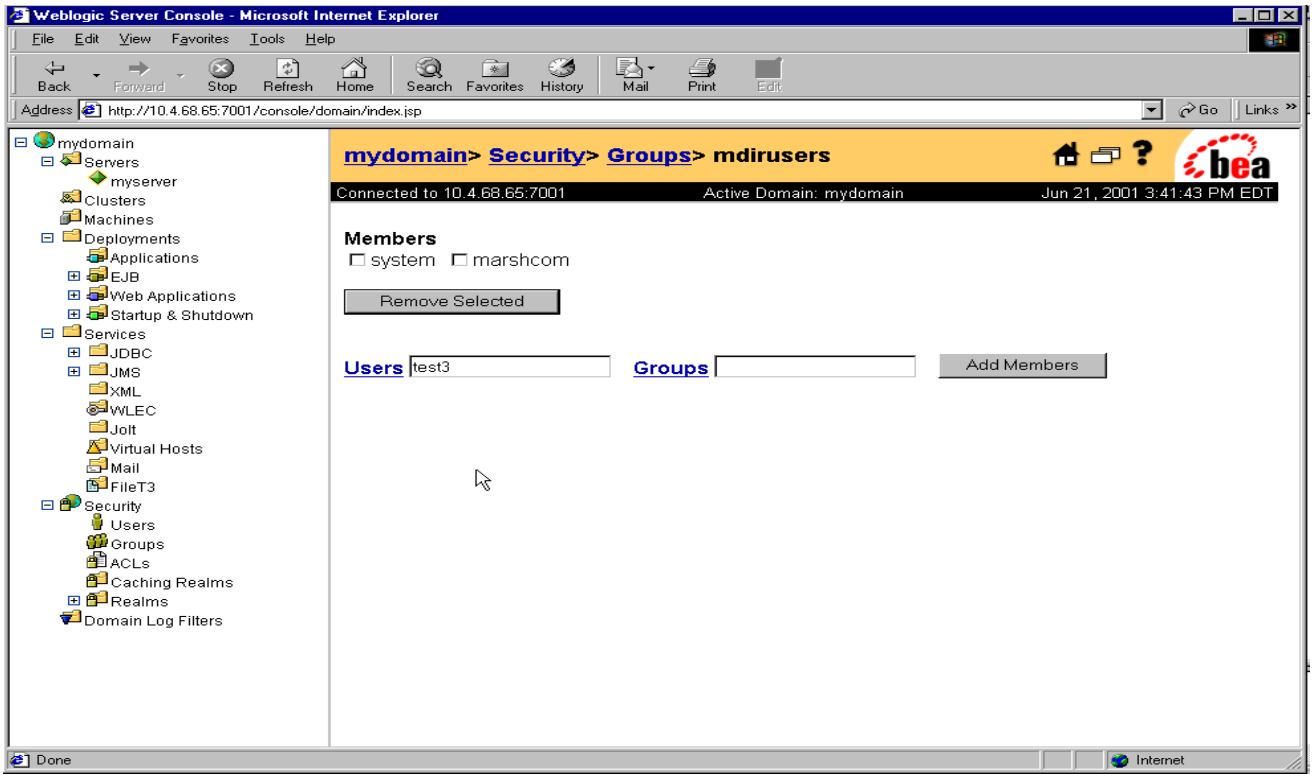
7.7. Adding a WebLogic User to the EDIFIREdirusers Group

1. On the left pane of the WebLogic administration console, click on the tree node: **/Security/Groups,** a list of groups will be displayed on the right side as shown in the following screen print:



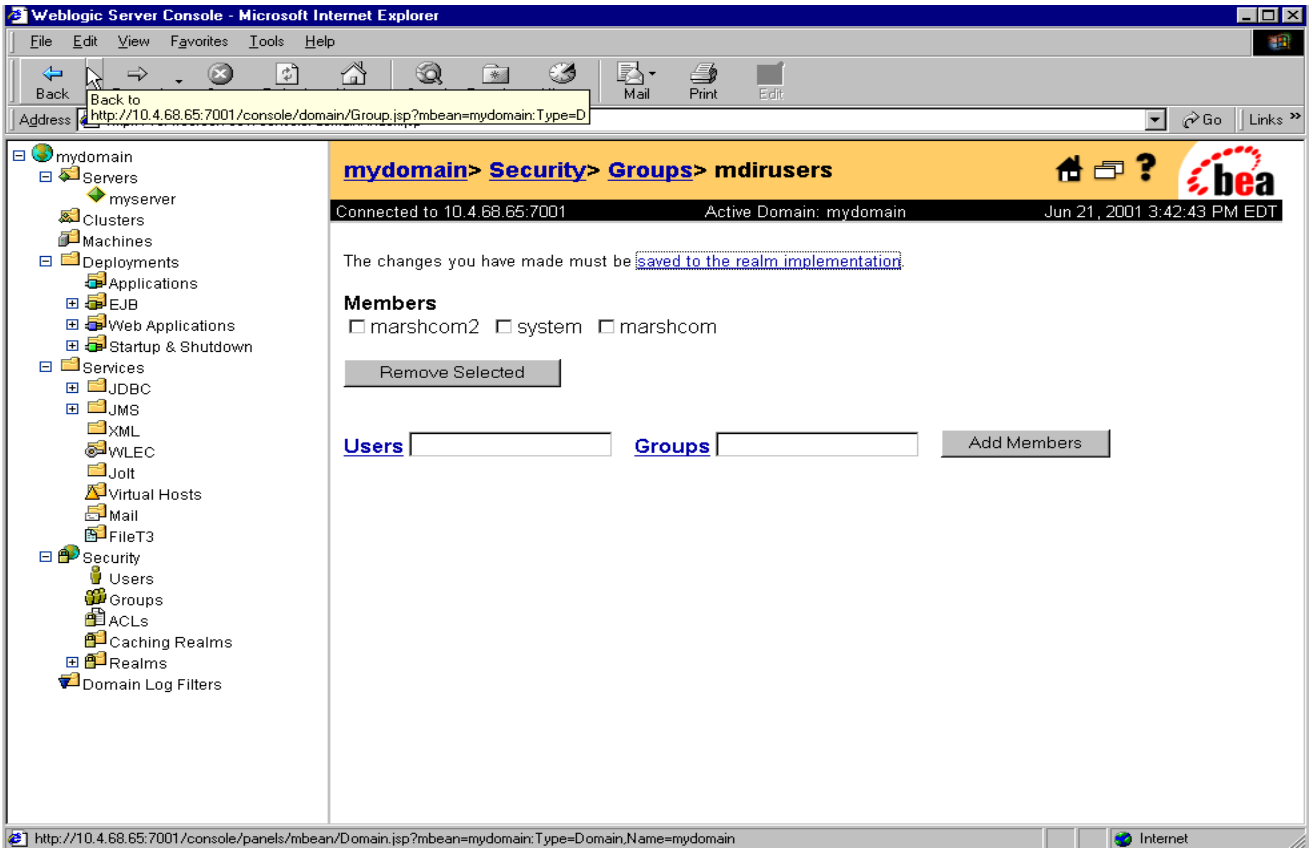
<Screen: Security-Groups>

2. Follow the link for the group name *EDIFIREdirusers*.
3. The following screen will be displayed:



<Screen: Security - EDIFIREdirusers>

4. Fill in the field *Users* with the WebLogic user to be added to the group.
5. Click the *Add Members* button.
6. Then, the following screen will be displayed to verify whether the change should be made.



<Screen: Saving Membership>

8. Trouble Shooting Procedures

The following table lists the possible error messages while running the test program (runtest.bat). This test program is located at D:\EDIFIREdir.

Error Description	Result	Possible Causes
Failed initial connection !! Com.EDIFIREmc.EDIFIREdir.util.FatalException: failed to connect to the applications server.null at com.EDIFIREmc.EDIFIREdir.client.EDIFIREdirOperations.connect(EDIFIREdirOperations.java:411) at com.EDIFIREmc.EDIFIREdir.client.EDIFIREOperations.<init>(EDIFIREOperations.java:140) at com.EDIFIREmc.EDIFIREdir.client.EDIFIREOperations.main (EDIFIREOperations.java:554)	Exits Test Program	• Wrong User for WebLogic connection • Wrong password for WebLogic connection • Wrong host or protocol, in general incorrect WebLogic URL
<Jun 21, 2001 11:19:57 AM EDT> <Info> <ConnectionManager> <Bootstrap unable to get a direct: 'Protocol: 't3"connection to: '0S:127.0.0.1:[7001,-1,-1,-1,-1,-1,-1]' on port: '7001' java.rmi.ConnectException: Destination unreachable; nested exception is: java.net.ConnectException: Connection refused: no further information		• WebLogic server is not running at the specified URL • WebLogic server is not ready yet to accept calls from clients

♦ **Table 4 - Troubleshooting**

9. Sanity Test

The best test to see whether the WebLogic server is running is trying to connect with a browser to the administration console. In the browser put the address: http://host:port/console where host and port are WebLogic host and port configured for this instance. If the console does not show up, a good way to troubleshoot is to launch the server using the desktop interaction as described in the Starting Server from Windows Service Console section. Remember the WebLogic log file can be used even if the server didn't start and we are not able to use the console.

10. Batch Processing

The following table displays all the batch processes associated with EDIFIRE Directory.

Batch Name	Description	Filename and Location (Server Name, Directory)	Scheduling Tool Used	Day & Time Batch is Run	Language Written
Mprofile to EDIFIREDIR	Synchronizes MDIR with updated information from the Mprofile system	m2mprocess.prl Nantucket, /var/opt/EDIFIREdir/bin	Crontab	Daily; Sun-Sat 4:30 AM	Perl
PeopleSoft to EDIFIREDIR	Updates EDIFIREDIR staging tables with the latest PeopleSoft data. This is a PowerMart process which consists of multiple mappings and transformation components. All are self contained within the PowerMart servers.	b_HRPeopleSoft_Load usnycu79	PowerMart Scheduler	Daily; Sun-Sat 3:00 AM	PowerMart
GINA/MNA to EDIFIREDIR	Updates EDIFIREDIR staging tables with the latest Company & Client data. This also is a PowerMart process.	b_Edifiredir_gina_delta usnycu79	PowerMart Scheduler	Tue, Wed, Thu, Fri 7:00 AM	PowerMart
EDIFIREDIR to Flat File	Creates a current subset image of EDIFIREDIR data for use by other EDIFIRE Applications.	b_Edifiredir_extract usnycu79	PowerMart Scheduler	Daily; Sun-Sat 7:00 AM	PowerMart
EDIFIREDIR to LDAP Refresh	Refresh job synchronizes the LDAP directory with changes in EDIFIREDIR.	run.csh usnycu09,/opt/netscape/server4/EDIFIREDIR/Apps/LdapBatch	Crontab	Daily; Sun-Sat 6:30 AM	Java

♦ **Table 5 - Batch Processes**

11. Change Management

123 handles change management for EDIFIRE Directory. There are no special change management procedures related to EDIFIRE Directory.

Refer to Appendix 3.3 “123 Change Management Control Procedure” for additional information.

12. Problem Management

123 handles problem management for EDIFIRE Directory. There are no special problem management procedures related to EDIFIRE Directory.

Refer to Appendix 4.2 “123 Problem Management” for additional information.

13. Business System Monitoring

13.1. Monitoring EDIFIREDir System via WebLogic Logging Component

EDIFIREDir WebLogic Log Messages
Log messages in WebLogic is a useful way to analyze systems and detect problems, and to track down the source of a fault.

Log messages generated by native WebLogic and EDIFIREDir are all stored in server log files under folder: *<WebLogic installation directory>\config\mydomain\logs:*

access.log: messages for server access;
wl-domain.log: filtered important messages from servers to domain;
WebLogic.log: messages for server subsystems.

These files are the source for the logging component of WebLogic administration console, they can be examined for possible problems. Among the three type of log files, server log file *WebLogic.log* is the one examined most.

Each log message in a server log file consists of the values of the attributes described below:

Message Attributes

- *Timestamp*: The time and date when the message originated, in a format that is specific to the locale.
- *Severity*: Indicates the degree of impact or seriousness of the event reported by the message. See the details for Message Severity described below.
- *Subsystem*: This attribute denotes the particular subsystem of WebLogic Server that was the source of the message. For example, EDIFIREDirAPI, EJB, RMI, JMS.
- *Server Name*: For this deployment, the server name is *EDIFIREdir*.
- *Machine Name*: The machine which hosts the EDIFIREDir WebLogic.
- *Thread ID*:

- *Transaction ID*: These four attributes identify the origins of the message. Transaction ID is present only for messages logged within the context of a transaction.

- *User ID*: The user from the security context when the message was generated.

- *Message ID*: A unique six-digit identifier. Message IDs through 499999 are reserved for WebLogic Server system messages.

- *Message Tex*t: Short Description of the message.

Message Severity:
Each WebLogic Server log messages have an attribute called **severity** which reflects the importance or potential impact on users of the event or condition reported in the message.
Defined severities are described below. Severities are listed in order of severity with Emergency being the highest severity.

- *Informational*: Used for reporting normal operations.
- *Warning*: A suspicious operation or configuration has occurred but it may not have an impact on normal operation.
- ***Error***: A user error has occurred. **If the subsystem is "EDIFIREDirAPI", it indicates EDIFIREDir application has a serious error, it usually needs human involvement to resolve the problem**. Otherwise, the error message is from subsystems of WebLogic, The system or application is able to handle the error with no interruption, and limited degradation, of service.
- *Notice*: A warning message: A suspicious operation or configuration has occurred which may not affect the normal operation of the server.
- *Critical*: A system or service error has occurred. The system is able to recover but there might be a momentary loss, or permanent degradation, of service.
- *Alert*: A particular service is in an unusable state while other parts of the system continue to function. Automatic recovery is not possible; the immediate attention of the administrator is needed to resolve the problem.
- *Emergency*: The server is in an unusable state. This severity indicates a severe system failure or panic.

The following is an example of a log message:
####<Jun 21, 2001 1:59:56 PM EDT> <Info> <Management> <tor_p10827> <EDIFIREdir> <ExecuteThread: '1' for queue: '__weblogic_admin_html_queue'> <system> <> <141039> <MBean=(mydomain:Name=EDIFIREdir,Type=Server) Attribute=(LogRemoteExceptionsEnabled) modified from (false) to (true).>

In this example, the message logs the attributes of: *Timestamp, Severity, Subsystem, Machine Name, Server Name, Thread ID, User ID, Transaction ID, Message ID, and Message Text. The log message has a severity of "Info".*

Log Messages from EDIFIREDir Application

In addition to the messages from native WebLogic subsystems, EDIFIREDirAPI application also logs the following messages to WebLogic server log file (located in

D:\EDIFIREDir\log). The possible messages from EDIFIREDirAPI are described as follows:

… <Severity> <Subsystem> <Message Text>
… <Info> <EDIFIREDirAPI> <EDIFIREDirAPI successfully started ...>

… <Error> <EDIFIREDirAPI> <EDIFIREDIR_001: Cannot get configuration for EDIFIRE directory>

… <Error> <EDIFIREDirAPI> < EDIFIREDIR_002: Missing LDAP server connection >

… <Error> <EDIFIREDirAPI> < EDIFIREDIR_003: Missing Database connection. >

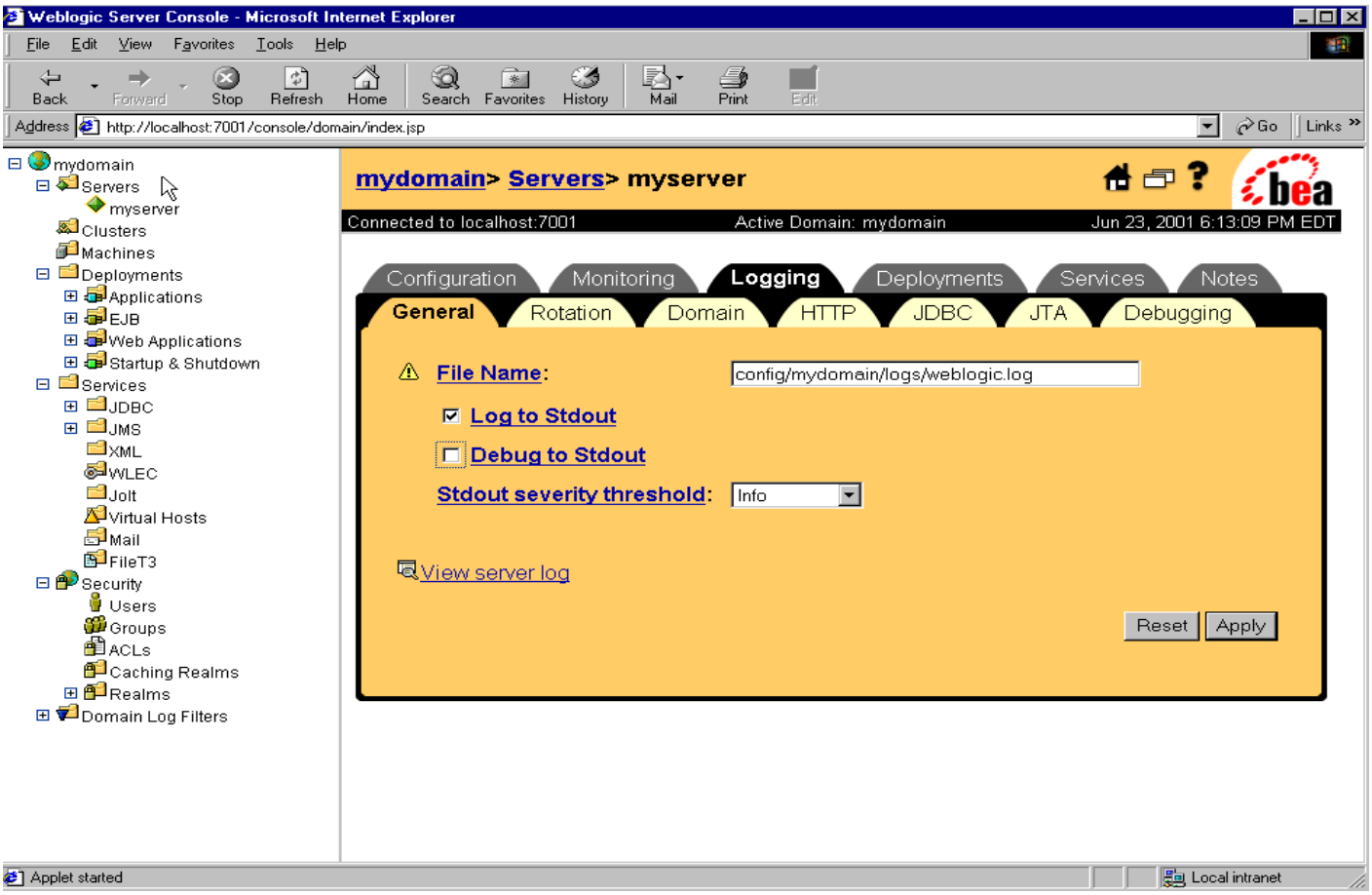
…<Error> <EDIFIREDirAPI> < EDIFIREDIR_004: Cannot start topLink server session >…<Error> <EDIFIREDirAPI> < EDIFIREDIR_005: Missing Sybase connection.>

…<Error> <EDIFIREDirAPI> < EDIFIREDIR_006: SQL Exception while calling Sybase stored procedure.>
…<Error> <EDIFIREDirAPI> < EDIFIREDIR_007: Exception during WebLogic startup.>

Among those EDIFIREDirAPI messages, there is only one message having the severity of *"Info"* and message text *of "EDIFIREDirAPI successfully started ..",* which indicates that EDIFIREDir WebLogic server has successfully started. This message should be checked from the server log after *EDIFIREdir* service is started to make sure that the EDIFIREDir application has started successfully.

The rest of the messages have severity *"Error",* which indicates a serious error from EDIFIREDir application. Each message text has the format: ErrorCode followed by error description. For Example: *EDIFIREDIR_002: Missing LDAP server connection*. A severity level **"**Error" log message from EDIFIREDirAPI indicates a serious error from EDIFIREDir application, human involvement may be needed to solve the problem.

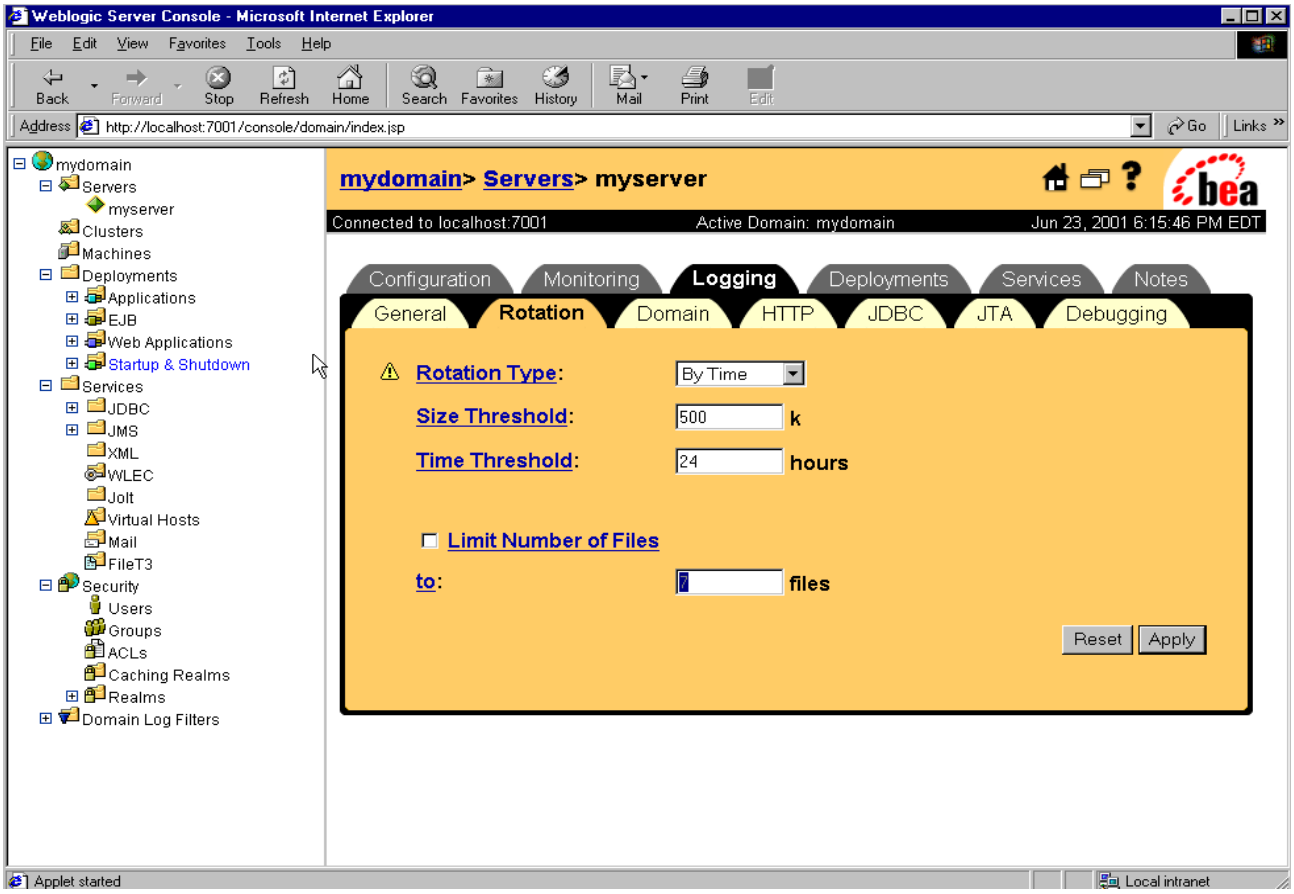
Configuring Logging from the WebLogic Administration Console
The WebLogic logging component can be configured via WebLogic administration console. First launch and login to the administration console, then click on the tree node of **Servers | EDIFIREdir** on the right side, and select the tab of *Logging*, a screen will be displayed as follows:



<Screen: EDIFIREdir | Logging | General Page>

From the general page of EDIFIREdir Logging configuration, we can change the log file name and check log to stdout.

From the above screen, click tab **Rotation**, a rotation configuration screen will be displayed:



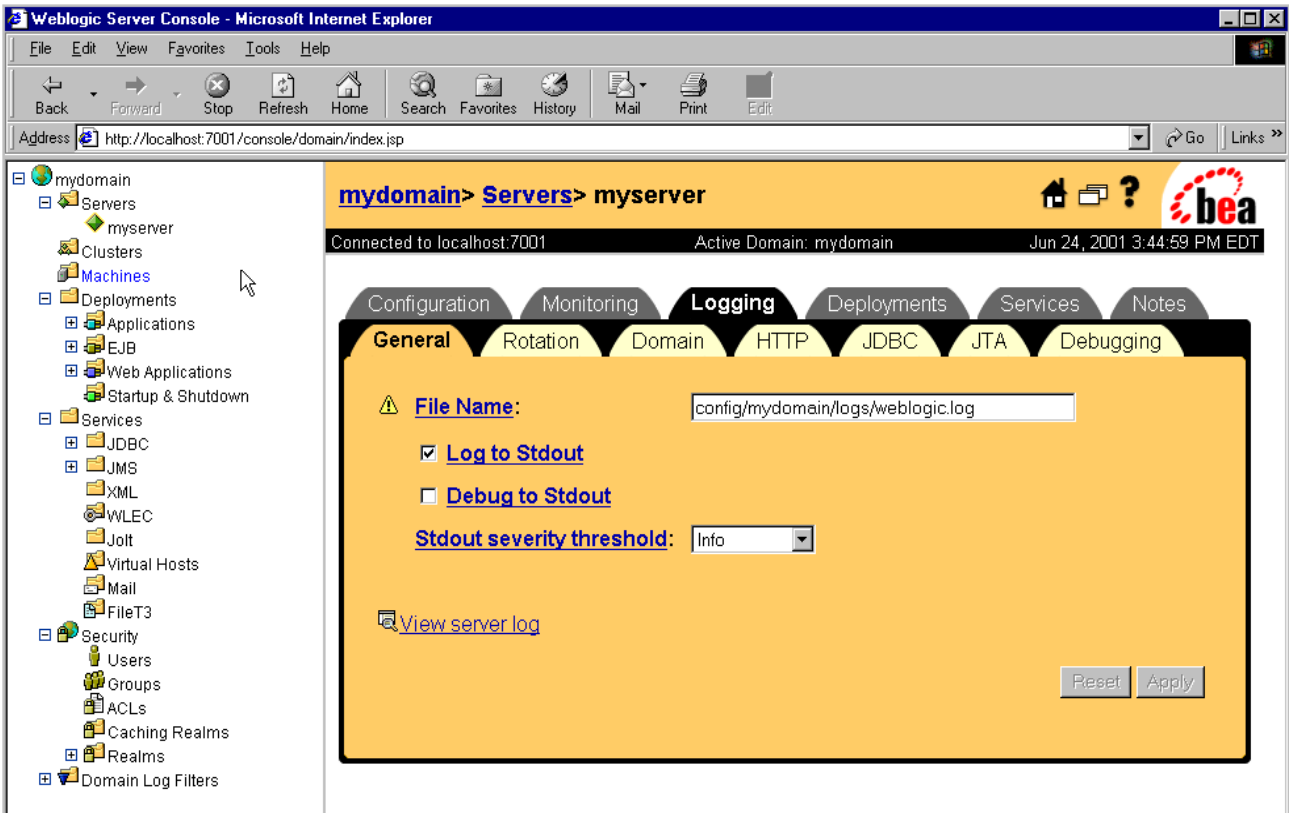
<Screen: EDIFIREdir | Logging | Rotation>

We can select *rotation type* of "*By Time*", and select the *Time Threshold* "24 hours" as show above. This means that WebLogic will create a different log file when the duration exceeds the value specified in Time Threshold. The log file names will be: *weblogic.log, weblogic.log00001, weblogic.log00002, …*

Query WebLog Server Log Messages via Administration Console

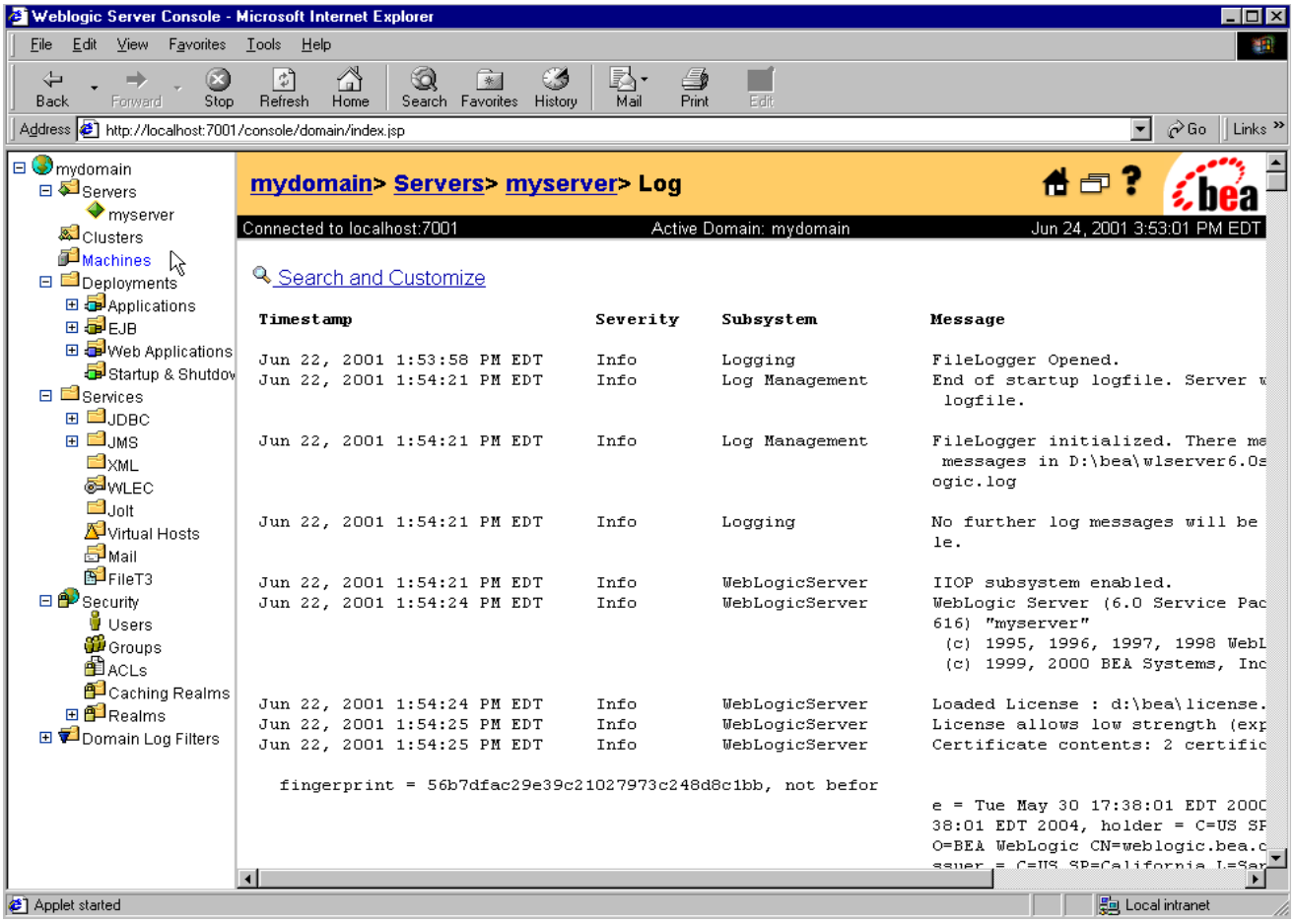
Instead of examining the complete list of log messages from WebLogic.log files directly, we can use the WebLogic administration console to filter out the log messages that are of interest to us. The steps are described in detail as follows:

1. Launch and login in to the WebLogic administration console.
2. Click on the tree node **Servers | EDIFIREdir**.



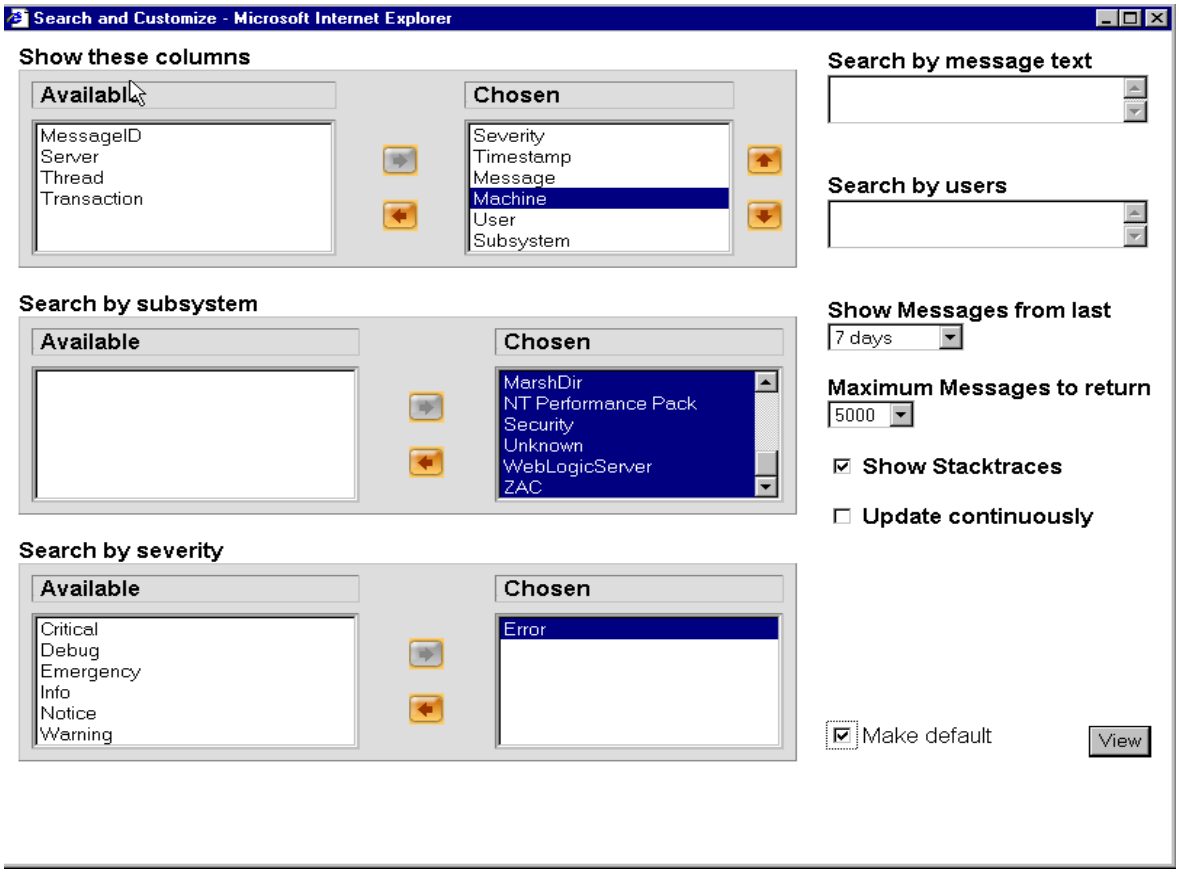
<Screen: Servers | EDIFIREdir | Logging | General>

3. On the right side of the screen, follow the link of *View server log*. This side displays the log messages based on the default selection criteria.



<Screen: Log Messages based on Default Criteria Setting>

4. We can configure the selection criteria to select the server log messages that we are interested in. Follow the link of *Search and Customize* and we can modify the criteria.



<Screen: Customizing Selection Criteria for Log Messages>

The above diagram shows how to customize log message criteria:
In the **Show these columns** box, the Chosen box specifies the attributes to appear in each log message;
In the **Search by subsystem** box, the Chosen box specifies the components as sources for log messages;
In the **Search by severity** box, the Chosen box specifies the severity level of the log messages. The messages with higher severity levels will also be displayed.
In the **Show Messages from last** box, specify the duration of the log messages.
After specifying all the criteria, click the *View* button to see the customized list of log messages.

14. Security

There are no specific security measures for EDIFIRE Directory other than those provided by the basic Oracle DB configuration and that which is provided by the 123 data center general security precautions. Security is present via J2EE security model section 7.7.

Refer to Appendix 9 “Security” for additional information.

15. Backup and Recovery

The 123 data center is responsible for backup and recovery of the EDIFIRE Directory server. SQL Backtrack is used to back up the database on a daily basis. A full backup is done around 8pm every day and retained on disk for 1 day. Backup tapes are sent off-site to Iron Mountain every day.

EDIFIRE can request data restores by opening a Service Center Ticket. The SLA on a restore is 48 hours. At that point 123 will request that day’s tape from Iron Mountain. This tape will be delivered to 123 by the next business day. 123 will then restore the tape to an existing server hosted at 123. The person performing the restore will inform the requester, allowing him/her access to the data and close the open Service Center Ticket.

Refer to Appendix 6 “Backup and Recovery” for additional information.

16. Disaster Recovery

There is no formal disaster recovery procedure in place. However, data can be reloaded from tapes, if necessary.

Refer to Appendix 7 “Disaster Recovery” for additional information.

17. Service Level Agreements

Refer to Service Level Agreement for additional information.