



Viewing and Managing Logs in Oracle WLS Environment

Objectives

After completing this lesson, you should be able to:

- Define and configure server and domain logs
- View and interpret the format of domain and server log files using the Administration Console
- Configure server standard output settings using the console
- Describe how applications can integrate with WLS logging infrastructure (Apache commons, log4j)
- Access online log message catalogs
- Create and apply a log filter using the console
- Configure log filter expressions

Road Map

- Logs and monitoring
 - Using log files
 - Integrating application logging
 - Logging file format
- Log filters



Oracle WebLogic Server Logs

Logs can aid in the discovery of:

- Any problems encountered while servicing requests
- Activity by day and time interval
- The IP addresses of users accessing an application
- Frequently accessed resources
- The amount of data sent and received

Server and Domain Logs

- A server log:
 - Logs all activity for a single server
 - Is stored in `SERVER_NAME/logs/SERVER_NAME.log` by default
- A domain log:
 - Logs key events for all servers in a domain
 - Is stored in `ADMIN_SERVER_NAME/logs/DOMAIN_NAME.log` by default
- Other logs:
 - HTTP
 - JMS
 - JDBC
- These logs are independently configured.

Configuring Server Logging


Settings for MedRecSvr1

Configuration Protocols **Logging** Debug Monitoring Control De



General HTTP

Save

Use this page to define the general logging settings for this server.

 **Log file name:** logs/MedRecSvr1.log

Rotation

 **Rotation type:** By Size 


Rotation file size: 5000


Begin rotation time: 00:00

Rotation interval: 24

☐ **Limit number of retained files**

Files to retain: 7

 **Log file rotation directory:**

☐  **Rotate log file on startup**

Attribute requires server restart.

Log file

Log rotation

Disabled based on Rotation type

Configuring Server Logging: Advanced

The screenshot shows the 'Advanced' configuration tab for server logging. It includes sections for general logging settings, individual loggers, and specific destinations like log files, standard out, and domain log broadcaster. Callouts provide additional context for several key settings.

Advanced

Minimum severity to log: Info

Logger severity properties:

Logging implementation: JDK

☐ Redirect stdout logging enabled

Message destination(s)

Log file :

Severity level: Debug

Filter: None

Standard out :

Severity level: Notice

Filter: None

Domain log broadcaster :

Severity level: Notice

Filter: None

Individual loggers here

Redirects server standard out to log file

JDK or log4j

Minimum severity of log messages to write to file

Minimum severity of log messages to also print to standard out

HTTP Access Logs

Settings for MedRecSvr1

Configuration Protocols **Logging** Debug Monitoring Control Deployments Services Security Notes

General **HTTP**

Save

☒ **HTTP access log file enabled** Indicates whether this server logs HTTP requests. (The remaining fields on this page are relevant only if you select this check box.) [More Info...](#)

Log file name: The name of the log file. [More Info...](#)

Rotation

Rotation type: Criteria for moving old log messages to a separate file. [More Info...](#)

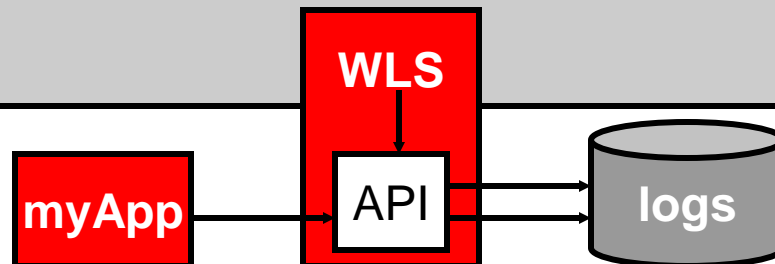
Rotation file size: The size (1 - 65535 kilobytes) that triggers the server to move log messages to a separate file.

The other options (rotation, number of retained files, and so on) are very similar to the other server logs.

Apache Commons Logging API

```
import org.apache.commons.logging.LogFactory;
import org.apache.commons.logging.Log;

public class MyCommonsTest {
    public void testWLSCommonsLogging() {
        System.setProperty(LogFactory.FACTORY_PROPERTY,
            "weblogic.logging.common.LogFactoryImpl");
        Log clog =
        LogFactory.getFactory().getInstance("MyCommonsLogger");
        // Log String objects
        clog.debug("Hey this is common debug");
        clog.fatal("Hey this is common fatal", new Exception());
        clog.error("Hey this is common error", new Exception());
        clog.trace("Dont leave your footprints on the sands of
            time");
    }
}
```



Using the Console to View Logs

Domain Structure

- MedRecDomain
 - Environment
 - Deployments
 - Services
 - Security Realms
 - Interoperability
 - Diagnostics**
 - Log Files**
 - Diagnostic Modules
 - Diagnostic Images
 - Archives
 - Context
 - SNMP

Summary of Log Files

Log Files

Showing 11 to 20 of 21 [Previous](#) | [Next](#)

	Name ^	Type	Server
<input type="radio"/>	HTTPAccessLog	HTTP Access	MedRecAdmSvr
<input type="radio"/>	HTTPAccessLog	HTTP Access	MedRecSvr1
<input type="radio"/>	JMSAFMessageLog/WsrnAgent_auto_2	JMS SAF Agent Log	MedRecSvr2
<input checked="" type="radio"/>	ServerLog	Server Log	MedRecSvr2
<input type="radio"/>	ServerLog	Server Log	MedRecAdmSvr

How do I...

- View and configure log files
- Change server log file
- Enable and configure log
- Enable configuration
- Configure diagnostic

Server Log

Server Name: MedRecSvr2 The server where this log file exists. [More Info...](#)

Log Name: ServerLog Logical name of the log file. [More Info...](#)

Server Log Entries(Filtered - More Columns Exist)

[View](#) [Previous](#) | [Next](#)

	Date ^	Subsystem	Severity	Message ID	Message
<input checked="" type="radio"/>	Feb 19, 2009 10:09:53 AM GMT+07:00	Deployer	Info	BEA-149060	Module common.jar of application medrec successfully transitioned from STATE_NEW to STATE_PREPARED on server MedRecSvr2.

Using WLST to View Logs

```
wls:/offline> exportDiagnosticData (logicalName='ServerLog',  
    logName='myserver.log', exportFileName='myExport.xml')
```

```
Input parameters: {logicalName='ServerLog',  
    logName='myserver.log', logRotationDir='.',  
    storeDir='../data/store/diagnostics', query='',  
    exportFileName='myExport.xml', elfFields='',  
    beginTimestamp=0L, endTimestamp=9223372036854775807L}
```

```
Exporting diagnostic data to myExport.xml ...
```

```
<Apr 3, 2009 11:23:56 AM EDT> <Info> <Store> <BEA-280050>  
    <Persistent store "WLS_DIAGNOSTICS" opened:  
    directory="/u01/app/oracle/product/fmw/11.1.0/wlserver_10.3  
    /server/data/store/diagnostics" writePolicy="Disabled"  
    blockSize=512 directIO=false driver="wlfileio2">
```

```
Exported diagnostic data successfully.
```

```
wls:/offline>
```

Message Attributes

Attribute	Description	Standard Out?
Timestamp	The time and date when the message originated, in a format that is specific to the locale	✓
Subsystem	The particular WLS subsystem that was the source of the message (Management, Security, EJB, RMI, JMS, and so on)	✓
Severity	The degree of impact or seriousness of the event reported by the message	✓
Catalog ID	The unique ID assigned to this type of event, to reference in the online documentation	✓
Server Name	The WebLogic instance that generated the message	
Thread ID	The server thread that generated the message	
User ID	The current security context, if any	
Transaction ID	The current XA transaction context, if any	

Message Severity

Severity	Description	Domain Log (by default)?
TRACE	Messages from the diagnostics framework	
DEBUG	Detailed internal messages (if debugging is enabled)	
INFO	Normal operations	
NOTICE	INFO message of greater importance	✓
WARNING	Suspicious operation or configuration	✓
ERROR	Error handling request, but no interruption in service	✓
CRITICAL	System or service error that may cause temporary loss or degradation of service	✓
ALERT	One or more services in an unusable state, requiring administrative attention	✓
EMERGENCY	Entire server in an unusable state	✓

Message Catalog Using the Web

BEA WebLogic Server and WebLogic Express 9.2 Messages - Mozil...

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> Index of Messages by Message Range (by Subsystem)

Index Of Messages By Message Range

Messages in the Message Catalog are part of the WebLogic Server Internationalization and Localization packages.

Range	Subsystem	Catalog
BEA-000001 - BEA-009999	ConsensusLeasing	DatabaseLessLeasing
BEA-000100 - BEA-000199	Cluster	Cluster
BEA-000200 - BEA-000399	WebLogicServer	T3Srvr
BEA-000400 - BEA-000499	Socket	Socket
000500 - 000599	RJVM	RJVM
BEA-000600 - BEA-000699	Common	Common
BEA-000700 - BEA-000799	T3Misc	T3Misc
BEA-000800 - BEA-000899	Kernel	Kernel
BEA-000900 - BEA-000999	Net	Net
BEA-001000 - BEA-001999	JDBC	JDBC
BEA-002000 - BEA-002499	IIOP	IIOP
BEA-002500 - BEA-002600	DRS	DRS
BEA-002601 - BEA-002799	Server	Server

Message Catalog Cross-Reference

```
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to ADMIN>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to
RESUMING>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <Cluster> <BEA-000162> <Starting "async" replication service
with remote cluster address "localhost">
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <Server> <BEA-002613> <Channel "Default" is now listening on
139.185.35.128:7023 for protocols iiop, t3, CLUSTER-BROADCAST, ldap, snmp, http.>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <Server> <BEA-002613> <Channel "Default[1]" is now listening on
fe80:0:0:0:21a:a0ff:fec0:63fb:7023 for protocols iiop, t3, CLUSTER-BROADCAST, ldap, snmp, http.>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <Server> <BEA-002613> <Channel "Default[2]" is now listening on
0:0:0:0:0:0:0:1:7023 for protocols iiop, t3, CLUSTER-BROADCAST, ldap, snmp, http.>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <Server> <BEA-002613> <Channel "Default[3]" is now listening on
127.0.0.1:7023 for protocols iiop, t3, CLUSTER-BROADCAST, ldap, snmp, http.>
<Feb19,2009 10:10:27 AM GMT+07:00> <Notice> <WebLogicServer> <BEA-000330> <Started WebLogic Managed Server
"MedRecSvr2" for domain "MedRecDomain" running in Production Mode>
<Feb19,2009 10:10:29 AM GMT+07:00> <Notice> <Cluster> <BEA-000102> <Joining cluster MedRecClust1 on
239.192.0.0:7030>
<Feb19,2009 10:10:29 AM GMT+07:00> <Notice> <WebLogicServer> <BEA-000365> <Server state changed to RUNNING>
<Feb19,2009 10:10:29 AM GMT+07:00> <Notice> <WebLogicServer> <BEA-000360> <Server started in RUNNING mode>
```

BEA-002613

Notice: Channel "channel" is now listening on *listenAddress:port* for protocols *protocols*.

Description The server successfully started the listen thread and server socket.

Cause None.

Action None.

Road Map

- Logs and monitoring
- Log filters



Log Filters

Log filters:

- Control the log messages that get published
- Are based on the values of message attributes
- Can be applied to different message destinations:
 - Server log file
 - Server memory buffer
 - Server standard out
 - Domain log file

Creating a Log Filter

The screenshot illustrates the process of creating a log filter in Oracle JDeveloper. It is divided into two main sections: the top section shows the initial navigation steps, and the bottom section shows the configuration details.

Top Section: Initial Navigation

- Domain Structure (1):** The left sidebar shows the project hierarchy. **MedRecDomain** is highlighted with a red box and a green circle with the number 1.
- Settings for MedRecDomain (2):** The right pane shows the configuration tabs. The **Log Filters** tab is selected, indicated by a green circle with the number 2 and a mouse cursor.

Bottom Section: Log Filter Configuration

The **Settings for MedRecDomain** window is shown with the **Configuration** tab selected.

- Save** button is visible.
- Config Log Filter Expressions:** A section with the instruction "Add expressions to create the rule for your Log Filter".
- Current Log Filter Expressions:** A text area containing the expression: `(SUBSYSTEM LIKE 'JMS') OR (SUBSYSTEM = 'MQ')`. An **Edit** button is next to it.
- Expressions:** A section with buttons: **Add Expressions**, **Combine**, **Uncombine**, **Move Up**, **Move Down**, **Remove**, and **Negate**. A green circle with the number 3 is next to the **Add Expressions** button, which has a mouse cursor over it.
- Below the buttons, two expressions are listed:
 - ☐ **SUBSYSTEM LIKE 'JMS'**
 - Or** (dropdown menu)
 - ☐ **SUBSYSTEM = 'MQ'**

Applying a Log Filter

Four sets of filters

Settings for MedRecSvr1

Configuration Protocols **Logging** Debug Monitoring Control Deployments Services Security Notes

General HTTP

— **Advanced** —

— **Message destination(s)** —

Log file :

Severity level: Debug

Filter: None
None
myLogFilter-0

Standard out :

Severity level: Notice

Filter: None

The minimum severity of log messages going to the server log file. By default all messages go to the log file. [More Info...](#)

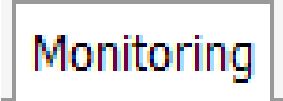

The filter configuration for the server log file. [More Info...](#)

The minimum severity of log messages going to the standard out. Messages with a lower severity than the specified value will not be published to standard out. [More Info...](#)

The filter configuration for log events being sent to the standard out. [More Info...](#)

Using the Console to Monitor

The Administration Console offers some monitoring capabilities:

Attribute	Description
	Many of the Console's objects have a Monitoring tab that allows you to view monitoring information for that object.
 Customize this table	You can customize the monitoring view by clicking the "Customize this table" link.

Monitoring Running Servers

Summary of Servers

Configuration

Control

[▶ Customize this table](#)

Servers (Filtered - More Columns Exist)

New

Clone

Delete

Showing 1 to 4 of 4 Previous | Next

<input type="checkbox"/>	Name ^	Cluster	Machine	State	Health	Listen Port
<input type="checkbox"/>	MedRecAdmSvr(admin)			RUNNING	✓ OK	7020
<input type="checkbox"/>	MedRecSvr1	MedRecClust1	MedRecMch1	RUNNING	✓ OK	7021
<input type="checkbox"/>	MedRecSvr2	MedRecClust1	MedRecMch2	RUNNING	✓ OK	7023
<input type="checkbox"/>	MedRecSvr3		MedRecMch2	RUNNING	✓ OK	7025

New

Clone

Delete

Showing 1 to 4 of 4 Previous | Next

Customizing Views

Customize this table

Filter

Filter by Column: Name Criteria:

View

Column Display:

Available

- Current Machine
- Status of Last Action
- Listen Address
- Cluster Weight
- Expected To Run

Chosen

- Name
- Cluster
- Machine
- State
- Health

Notice the Cluster column. It can be suppressed in the view.

Columns can be reordered.

Servers (Filtered - More Columns Exist)

New Clone Delete Showing 1 to 4 of 4 Previous Next

<input type="checkbox"/>	Name	Machine	State	Health	Listen Port
<input type="checkbox"/>	MedRecAdmSvr(admin)		RUNNING	✓ OK	7020
<input type="checkbox"/>	MedRecSvr1	MedRecMch1	RUNNING	✓ OK	7021
<input type="checkbox"/>	MedRecSvr2	MedRecMch2	RUNNING	✓ OK	7023
<input type="checkbox"/>	MedRecSvr3	MedRecMch2	RUNNING	✓ OK	7025

New Clone Delete Showing 1 to 4 of 4 Previous Next

Monitoring Individual Servers

Settings for MedRecSvr1

Configuration Protocols Logging Debug **Monitoring** Control Deployments Services

Security Notes

General Health Channels Performance Threads Timers Workload Jobs

Security Default Store JMS SAF JDBC JTA

This page provides general runtime information about this server.

State:	RUNNING	The current life cycle state of this server. More Info...
Activation Time:	Thu Feb 19 10:06:07 GMT+07:00 2009	The time when the server was started. More Info...
WebLogic Version:	WebLogic Server 10.3.1.0 Mon Feb 2 23:37:11 EST 2009 1189137	The version of this WebLogic Server instance (server). More Info...
Java Vendor:	BEA Systems, Inc.	Returns the vendor of the JVM. More
Java Version:	1.6.0_05	The Java version of the JVM. More
OS Name:	Linux	Returns the operating system on which the JVM is running. More Info...
OS Version:	2.6.9-55.0.0.0.2.ELsmp	The version of the operating system on which the JVM is running. More
JACC Enabled:	false	Indicates whether JACC (Java Authentication and Authorization...

Translates into uptime.

Network-Addressing Features

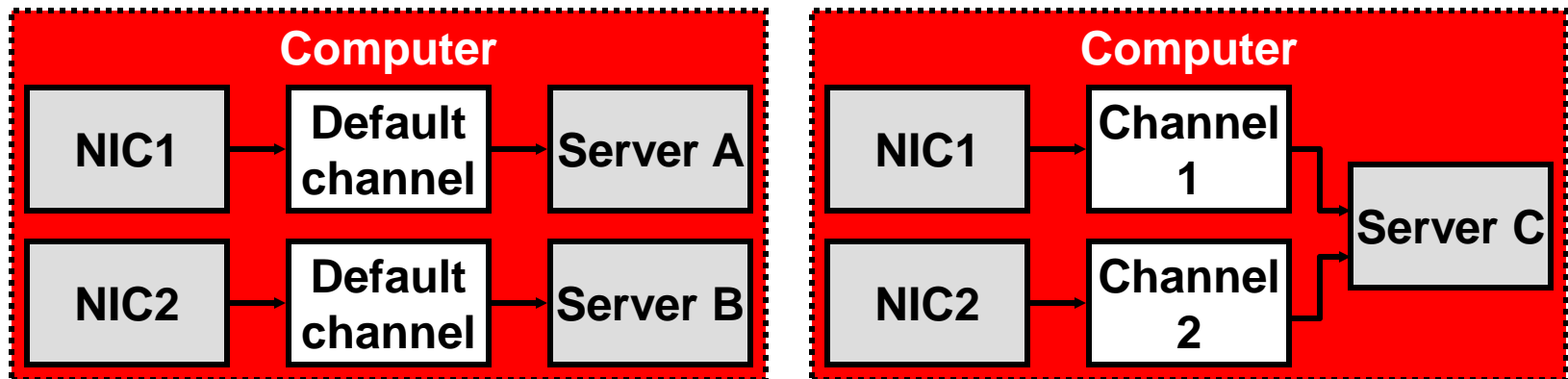
Add flexibility to the networking configuration:

- Multiple NICs for a single WLS server
- Specific NICs or multiple port numbers on an NIC for specific WLS servers
- Ability to use multiple IP addresses with each server
- Ability to use a single IP address with multiple ports
- Ability to configure the cluster multicast port number independently of the port numbers used by the cluster members
- Multiple SSL configurations on one server

Network-Addressing Features

Add flexibility to networking configuration by defining and using channels for:

- Administration-traffic-only port
- Interoperability with previous WebLogic Server versions



Quiz

Which is NOT a standard severity level for Oracle WebLogic Server log messages?

1. Debug
2. Transaction
3. Info
4. Notice
5. Error

Summary

In this lesson, you should have learned how to:

- Configure server and domain logging
- Locate and interpret the format of domain and server log files
- View logs using the Administration Console
- Describe message attributes
- Configure server standard output settings using the console
- Integrate applications with the WLS logging infrastructure
- Access online log message catalogs
- Create and apply log filters and expressions

Practice 9 Overview: Viewing and Managing WLS Logs

This practice covers the following topics:

- Configuring a logging filter
- Viewing logs