

# How to...

## Fine-Tune Performance of Enterprise Portal 6.0

Enterprise Portal 6.0

Public

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# 1 Introduction

Fine tuning SAP Enterprise Portal is a continuous process aimed at increasing the performance of processes in the portal environment.

The goal of this document is to provide tuning guidelines for Enterprise Portal to partners, consultants, and implementers.

It describes configuration settings, and provides procedures on how to set various parameters for your operating system, Java Virtual Machine (JVM), SAP J2EE Engine Cluster, the portal database, the browser, and the LDAP directory service, that lead to increases in the performance of processes in the Enterprise Portal cluster environment.

Settings are presented as independent configurations, and modifying each configuration separately leads to an increased performance of processes within an area of the portal.

For maximum increase in performance, it is recommended that you implement all modifications discussed in this document.



In different environments and systems, you may have different needs and expectations, and in addition, obtain different results. We highly recommend that you monitor the improvements achieved after making the configuration changes.

Furthermore, tests to increase the performance of the portal processes are continuously in progress. Therefore we recommend that you visit our Web site for up-to-date information on tuning guidelines for Enterprise Portal at:

**<http://service.sap.com> > Enterprise Portal 6.0 > Documentation & More > How-To Guides**

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## 2 Tuning the Operating System

Thread management changes are highly dependent on operating system (OS) resources. These changes bring about different results in different machine configurations.

To achieve optimal performance, you must configure each operating system with its required set of parameters.

For detailed information on how to implement the OS dependencies, refer to *SAP Software on UNIX: OS Dependencies*, at: <http://service.sap.com/netweaver> and follow the link *SAP NetWeaver in Detail -> Solution Life-Cycle Management -> Installation -> Installation & Upgrade Guides -> SAP Web Application Server -> Release 6.20*

Check also **SAP Note 492222**, SAP Software on UNIX: OS Dependencies, for updated kernel parameters.

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## 3 Tuning the Java Virtual Machine

This section contains Java Virtual Machine (JVM) command line properties to add to the configuration files of the SAP J2EE Engine Cluster server.

### 3.1 JVM Configuration Files

The following files contain JVM command line properties for the SAP J2EE Engine server:

- *cmdline.properties*
- *go.bat*

If you are using UNIX Daemon, add the settings in the **SAP J2EE Engine Config Tool** window. To open the SAP J2EE Engine Config Tool:

- Run the file *configtool* (*config.bat* in Windows) in the SAP J2EE Engine configuration folder at: **/usr/sap/<system name>/j2ee/j2ee\_<system number>/configtool**.

If you are running the SAP J2EE Engine Dispatcher node manually with the Server node starting automatically, add the settings to the file in the path:

**<J2EE Engine folder>/cluster/server/cmdline.properties**

If you are running the SAP J2EE Engine Server node and the Dispatcher node manually, add the settings directly to the file in the path:

**<J2EE Engine folder>/cluster/server/go.bat**

The table below shows the parameters on heap size and garbage collection (GC) to add to the JVM configuration files for SAP J2EE Engine server.

| Settings         | Actions and Notes   |
|------------------|---|
| <i>Heap Size</i> | <p>Heap size is the memory allocated to the Java Virtual Machine for use at run time.</p> <p>The heap size used by the Java Virtual Machine is a function of the number of running and cached objects an application needs to use, and the available amount of memory to the machine.</p> <ul style="list-style-type: none"><li>• Enterprise Portal 6.0 requires a minimum heap size of 512MB.</li><li>• In production environments, the recommended heap size is 1.5GB.</li></ul> <p>Make sure that the following properties have the same heap size value. If these have not been defined, add them to the JVM configuration files:</p> <p><b>-Xms&lt;HEAP SIZE&gt;</b></p> <p><b>-Xmx&lt;HEAP SIZE&gt;</b></p> <p><b>-Dmemory.manager=&lt;HEAP SIZE&gt;</b></p> <p>For example: <b>-Xms512M</b></p> <p>The maximum amount of memory allowed on 32 bit UNIX systems is 1.5GB. In 64 bit systems, the maximum value allowed is 4GB. A heap size larger than 1.5GB is not recommended.</p>  <p>The installation program for SAP Enterprise Portal 6.0 SP1, automatically configures this JVM setting for the SAP J2EE Engine server.</p> |

| Settings   | Actions and Notes   |
|--|---|
| <p><i>Heap Size with Multiple VMs</i><br/>(on the same host)</p> | <p>A single SAP J2EE Engine Cluster Server node is capable of utilizing approximately 1.5 CPUs. It is recommended to 'scale in' on the same host, by adding SAP J2EE Engine Cluster Server nodes.</p> <p>The SAP J2EE Engine Cluster Server nodes on the same host go through a full garbage collection (FGC) cycle at the same time. Simultaneous garbage collection (GC) on several Server nodes consumes a lot of CPU.</p> <p>To avoid simultaneous GC cycles, configure the heap size on each Server node with a different value, as doing so improves performance by distributing garbage collection periods.</p> <p><b>For example:</b></p> <p>Distribute the heap size for three SAP J2EE Engine Server nodes on a 4-way machine as follows: 512MB, 750MB, and 1.2GB.</p> <p>This configuration improves performance better than configuring each Server node with 1GB.</p> <p>For information on the portal infrastructure, refer to the guide <i>SAP Enterprise Portal Technical Infrastructure</i> in the zipped package, <i>EP6.0 SP1 Installation Guide (Portal, CM, TREX, Unification)</i>, at: <a href="http://service.sap.com">http://service.sap.com</a>, and navigate to <i>Enterprise Portal 6.0 &gt; Documentation &amp; More &gt; Installation</i>.</p> |
| <p><i>New Size</i></p>   | <p>This parameter configures the size of a "new" generation in the JVM memory heap. The default value for this parameter is 32MB.</p> <p>Objects that go through several collections and survive are moved to the "old" generation leaving room for newer objects. Objects that populate the "new" generation have not gone through a garbage collection cycle yet.</p> <p>The value for a new size is related to the value for the heap size you have defined.</p> <ul style="list-style-type: none"> <li>• For 512MB-999MB, the recommended New Size is 64MB.</li> <li>• For 1GB and above, the recommended New Size HEAP/3.</li> </ul> <p></p> <p>The installation program for SAP Enterprise Portal 6.0 SP1, automatically configures this JVM setting for the SAP J2EE Engine server.</p>   |
| <p><i>Perm Size</i></p>  | <p>This parameter configures the size of the "permanent" generation memory space that is allocated outside the JVM memory heap.</p> <p>Objects that populate this generation never go through a garbage collection cycle. Some portal applications, such as Content Management (CM) keep a large number of "permanent" objects in memory for fast reference.</p> <p>The value for perm size is related to the value for the heap size you have defined.</p> <ul style="list-style-type: none"> <li>• For 512MB-999MB, the recommended Perm Size is 64MB.</li> <li>• For 1GB and above, the recommended Perm Size 128MB.</li> </ul> <p>Configure the perm size by adding the following parameters to the JVM configuration files:</p> <p><b>-XX:PermSize=&lt;PERM SIZE&gt;</b></p>   |

| Settings                                   | Actions and Notes  |
|--|--|
|  | <p><b>-XX:MaxPermSize=&lt;PERM SIZE&gt;</b></p> <p>For example: <b>-XX:PermSize=128M</b></p>  <p>The installation program for SAP Enterprise Portal 6.0 SP1, automatically configures this JVM setting for the SAP J2EE Engine server.</p>  |
| <i>Disable explicit garbage collection</i> | <p>Explicit calls invoking the garbage collector should be disabled by default.</p> <p>Disable explicit GC by adding the following parameter to the JVM configuration files:</p> <p><b>-XX:+DisableExplicitGC</b></p> <p>Relevant where the SAP J2EE Engine has a memory manager that handles GC calls independently.</p> <p>For more information, refer to the section on Thread Manager Settings.</p>  <p>The installation program for SAP Enterprise Portal 6.0 SP1, automatically configures this JVM setting for the SAP J2EE Engine server.</p>  |
| <i>Soft Reference Policy</i>               | <p>This parameter configures the number of soft references that can stay alive on the heap. Soft references are used by applications to keep old objects from being collected for future use.</p> <p>On production systems that host a large number of concurrent users, reduce this value in order to free heap space for dynamically allocated objects. For such configuration, a value of 1 Millisecond per MB is recommended.</p> <p>Configure this size by adding the following parameter to the JVM configuration files:</p> <p><b>-XX:SoftRefLRUPolicyMSPerMB=1</b></p> <p>For this parameter, start with a value of 1(one).</p>  <p>You must configure this JVM setting for the SAP J2EE Engine.</p> |

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## 3.2 JIT Server Compiler

Configure the server JIT compiler to be used instead of the client virtual machine (VM). This VM setting has several performance improvements.

- Add the following parameter at the beginning of the JVM command line in the JVM configuration files:

**-server**



**Important:** this parameter is recommended for use only on multi-CPU systems, and with JDK1.3.1\_08 and above only.



The installation program for SAP Enterprise Portal 6.0 SP1, automatically configures this JVM setting for the SAP J2EE Engine server.

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## 4 Configuring SAP J2EE Engine Cluster 6.20

This section provides procedures on how to configure SAP J2EE Engine to make sure that the portal runs in a highly optimized environment. As SAP J2EE Engine Cluster is a separate platform on which the Enterprise Portal runs, you must configure it to increase the performance of the processes used by the Enterprise Portal.

For additional information on tuning SAP J2EE Engine Cluster 6.20, refer to the document *How to Tune SAP J2EE Engine 6.20 v3.0* available at: <http://service.sap.com/webas>, and navigate to *Tools & Demos* → *How-To Guides*.

### 4.1 Cluster Setup for Enterprise Portal

The portal cluster environment depends on the proper setup and configuration of SAP J2EE Engine. You can configure properties of SAP J2EE Engine in the SAP J2EE Engine Config Tool window.

To open the SAP J2EE Config Tool window:

- Run the file *configtool* (*config.bat* in Windows) in the folder:  
`/usr/sap/<system name>/j2ee/j2ee_<system number>/configtool.`

The following properties must be configured on each machine running SAP J2EE Engine Cluster:

| Property               | Actions and Notes   |
|------------------------|---|
| <i>ClusterHosts</i>    | <p>Defines a list of other SAP J2EE Engine Cluster hosts in the cluster environment to which the local SAP J2EE Engine Cluster host must connect.</p> <ul style="list-style-type: none"><li>• In the SAP J2EE Engine Config Tool window, open:<br/>Dispatcher → managers → ClusterManager → ClusterHosts<br/>It is used together with the property RepeatToConnect.</li></ul>  <p>Do not change the default, as this setting is automatically configured when you perform additional SAP J2EE Engine installations in the portal cluster.</p>  |
| <i>RepeatToConnect</i> | <p>This property takes a 'true' or 'false' value. When the value is 'true' the local cluster node attempts to connect to other hosts, and waits for the connection. When the value is "false," it does not wait to connect.</p> <ul style="list-style-type: none"><li>• In the SAP J2EE Engine Config Tool window:<br/>Dispatcher → managers → ClusterManager → RepeatToConnect<br/>It is used together with the property ClusterHosts. The two properties, <b>RepeatToConnect</b> and <b>ClusterHosts</b>, can guarantee consistent connection and failover recovery of the cluster. This joint action is effective when starting the cluster; after, the cluster connectivity is everyone-to-everyone.</li></ul>  <p>Do not change the default, as this setting is automatically configured when you perform additional SAP J2EE Engine installations in the portal cluster.</p> |

| Property                  | Actions and Notes  |
|---------------------------|--|
| <i>LocalLoadBalancing</i> | <p>This property takes a 'true' or 'false' value.</p> <p>When the value is false, SAP J2EE Engine cluster enables the particular Dispatcher to manage the load (of HTTP requests) on all Server nodes in the cluster across the network. A value of 'true' enables a Dispatcher to load balance HTTP requests locally with the Servers running on the same host.</p> <ul style="list-style-type: none"> <li>In the SAP J2EE Engine Config Tool window, set the value to true:<br/>Dispatcher → managers → ServiceManager → LocalLoadBalancing</li> </ul>   |
| <i>DependentElement</i>   | <p>This property defines the Server node synchronization method of the DBMS service to be either Primary, or non-Primary.</p> <p>This property takes a 'true' or 'false' value. When the value is false, the synchronization method for the DBMS service of the particular Server node is flagged as primary. This allows the Server node to keep a local copy of the SAP J2EE Engine deployment database. All other Server nodes can either reference the database without keeping a local copy, or update their local copies of the database after recovering from a failure.</p> <p>A value of 'true' configures the node to be a dependent DBMS service node, that reads the deployment database from a central node.</p> <ul style="list-style-type: none"> <li>In the SAP J2EE Configuration Tool window, set the value of this property to true:<br/>Dispatcher → managers → ClusterManager → DependentElement</li> </ul> |

For additional information on the portal landscape and cluster infrastructure, refer to the guide *SAP Enterprise Portal Technical Infrastructure* in the zipped package, *EP6.0 SP1 Installation Guide (Portal, CM, TREX, Unification)*, at: <http://service.sap.com>, and navigate to *Enterprise Portal 6.0 > Documentation & More > Installation*.

## 4.2 Thread Manager Settings

This section describes the recommended changes to the Thread Manager settings of SAP J2EE Engine Cluster.



The *How to Tune SAP J2EE Engine 6.20 v3.0* document recommends that you change the Thread Manager settings. Refer to the document *How to Tune SAP J2EE Engine 6.20 v3.0* available at: <http://service.sap.com/webas>, and navigate to *Tools & Demos → How-To Guides*.

Follow the guidelines below when changing the Thread Manager settings for portal cluster:

- The number of threads that each machine is capable of supporting depends on the amount of available memory, CPU, and other system resources.  
You need to conduct performance tests, to obtain the correct settings for a specific machine, as the settings in the document, *How to Tune SAP J2EE Engine 6.20 v3.0*, are not optimized for every machine.
- The portal itself contains a portal runtime (PRT) setting called **loadlimit.requests**. This property controls the maximum number of concurrent requests from the browser to the portal, at a time.

The value of this property must be the same as the value of the **MaxThreadCount** property of the SAP J2EE Engine thread manager. Both are set to 100 by default. See also PRT Thread Management.

### 4.3 Optimizing SAP J2EE Engine Log Files

Log files enable you to track possible unstable conditions of the portal during development and testing stages. An out-of-the-box portal installation has various log files containing portal runtime information.

In a production environment, these log files occupy portal resources, and can have an effect on the overall performance of the portal. Therefore, we recommend that you disable writing to all the log files in a production environment.

#### To change SAP J2EE Engine log levels:

1. Run the file *configtool* (*configtool.bat* in Windows) in the SAP J2EE Engine folder at: `/usr/sap/<system name>/j2ee/j2ee_<system number>/configtool`.

In the SAP J2EE Engine Config Tool window, change the following parameters:

- Dispatcher → managers → LogManager → LogLevel = 0
- Server → managers → LogManager → LogLevel = 0
- Server → services → http → EnableLogging = false
- Server → services → PRTBridge → EnableLogging = false

2. From the *File* menu, select *Apply* to save changes.

### 4.4 Enabling HTTP Compression for SAP J2EE Engine 6.20

The SAP J2EE Engine contains an HTTP compression feature that improves performance by reducing network traffic.

- Use this feature to disable compression for portal pages that need to work without compression.



**Important:** To use this feature with an installation of Enterprise Portal 6.0, you need SAP J2EE Engine Cluster 6.20 Patch Level 12 or higher, because it supports conditional compression.

#### To configure HTTP compression:

- Run the file *configtool*. For more information, see the section Thread Manager Settings.

The following are the properties to edit in SAP J2EE Engine Config Tool window:

| Settings                        | Actions and Notes  |
|---------------------------------|--|
| <i>HTTP Service Compression</i> | <ul style="list-style-type: none"> <li>• Change the values of the following properties as follows:<br/> Server → services → servlet_jsp → EnableZippedResponse = true<br/> Server → services → http → EnableZippedResponse = true</li> <li>• Change the values of the following property:<br/> Server → services → http → NotZippedFiles<br/> To enable script files compression, remove the <b>CSS</b> and <b>JS</b> reference from this line:<br/> NotZippedFiles = .zip, .cs, .rar, .arj, .z, .gz, .tar, .lzh, .cab, .hqx, .ace, .jar, .ear, .war, .css, .pdf, .js</li> </ul> |

|  |  |
|--|--|
|  | <p>Change maximum length to 1024<br/> <b>MinimumGZipLength = 1024</b></p>  |
| <i>Servlet_jsp Service Compression</i> | <ul style="list-style-type: none"> <li>• Change the values of the following property:<br/> Server → services → servlet_jsp</li> <li>• Change maximum length to 1024, <b>MinimumGZipLength = 1024</b></li> </ul>  |
| <i>HTTP Service Content Expiration</i> | <p>Sets the expiration for the static content in seconds. The default value for this property is 86,400 seconds, or 24 hours. The recommended value is 604,800 seconds, or 7 days</p> <ul style="list-style-type: none"> <li>• Change the values of the following property:<br/> Server → services → http → CacheControl<br/> Server → services → http → SapCacheControl</li> </ul> <p>For example; CacheControl = 604,800</p> |

#### 4.5 Using the SAP J2EE Engine Monitoring Server

SAP J2EE Engine contains a monitor server that provides valuable information of the state of the system at runtime. We recommend that you use this monitoring tool during fine tuning tests.

For detailed information on how to run the monitor server, refer to the SAP J2EE Engine administration guide, installed with SAP J2EE Engine Cluster.

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## 5 Tuning the Portal Platform

Various portal applications place information into different log files. We recommend that you disable writing to log files in a production environment.

To disable logging for the portal applications, edit the following files:

| File   | Action and Notes   |
|--|--|
| <i>Logger.xml</i>                              | <p>Portal applications are configured according to the <i>logger.xml</i> configuration file.</p> <p>Edit the <i>logger.xml</i> file by searching for the property <b>isActive</b>, and replacing its value in each of the following directories, as follows:</p> <p><b>isActive="true" change to isActive="false".</b></p> <ul style="list-style-type: none"><li>• &lt;J2EE Engine location&gt;<br/>/cluster/server/services/servlet_jsp/work/jspTemp/irj/root/<br/>WEB-INF/portal/<b>system/xml/logger.xml</b></li><li>• &lt;J2EE Engine location&gt;<br/>/cluster/server/services/servlet_jsp/work/jspTemp/irj/root/<br/>WEB-INF/portal/<b>portalapps/com.sap.portal.runtime.admin.logadmin/ logger/ logger.xml</b></li><li>• &lt;J2EE Engine location&gt;<br/>/cluster/server/services/servlet_jsp/work/jspTemp/irj/root/<br/>WEB-INF/portal/<b>portalapps/com.sap.portal.runtime.application.soap/logger/ logger.xml</b></li></ul>                                     |
| <i>system.log</i><br>and<br><i>default.trc</i> | <p>A major performance improvement is achieved by disabling log files. These files are written to the following directory:</p> <p><b>&lt;J2EE Engine location&gt;/cluster/server/services/log/</b></p> <p><b>To disable system.log:</b></p> <ol style="list-style-type: none"><li>1. Edit the <i>saplogging.config</i> file in the following directory:<br/><b>&lt;J2EE Engine location&gt;/cluster/server/services/log/work/</b></li><li>2. Change the value <b>/System.severity</b> to <b>NONE</b>.</li><li>3. Change the value <b>/Applications.severity</b> to <b>NONE</b></li><li>4. Change the line <b>.logs = log[defaultTrace]</b> to <b>.localLogs = log[defaultTrace]</b><br/>Reducing the application logs output level as described in this section also reduces the output to the <i>default.trc</i> file.</li><li>5. Monitor the folder <b>&lt;J2EE Engine location&gt;/cluster/server/log/</b> to make sure that these log files are not created.</li></ol> |

### 5.1 Turning Off Portal Monitoring

The portal contains several log services. One such log service uses Computing Center Management System (CCMS) data collection server. If you are not using CCMS to collect and monitor the portal data, you can disable the property for it.

**To disable the monitor in a production environment:**

1. Logon to the portal as an administrator.
2. In the top-level navigation bar, select *System Administration > System Configuration*.

3. From the *Detailed Navigation* panel on the left, select *Monitoring Configuration*.
4. Under *JARM, Java Application Responsetime Measurement* in the *Monitoring Configuration* iView on the right, uncheck the following:
  - Collect monitoring data
  - Write monitoring data to CCMS
5. Select *Save* in the iView.

## 5.2 Configuring Yahoo! Settings

If your portal works with content from Yahoo!, it is important to configure the Yahoo! settings to avoid unnecessary requests.

### To open the iView that contains Yahoo properties:

1. Logon to the portal as an administrator.
2. In the top-level navigation bar, select *System Administration > System Configuration*.
3. From the *Detailed Navigation* panel on the left, select *Service Configuration*.
4. In the Portal Catalog, under *Browse*, select and expand the Java class *com.sap.portal.yahoo > Services*, and right click *yahoo > Edit*.

The following are the settings in the Property List iView that are relevant to performance:

| Settings                                     | Actions and Notes   |
|--|---|
| Enable Connectivity to Yahoo!                | Takes true or false.<br>Set it to false if you do not want connections to Yahoo.                    |
| Enable Persistent Heartbeat Pulses to Yahoo! | Takes true or false.<br>Set it to false if you do not want connections to Yahoo.                    |
| Heartbeat Interval (in seconds)              | The default value is 120.<br>If you are connecting to Yahoo, you may want to increase this value.   |
| Heartbeat Time-out (in seconds)              | The default value is three.<br>If you are connecting to Yahoo, you may want to increase this value. |
| Interval of Status Entry to Log File         | The default value is 50.<br>If you are connecting to Yahoo, you may want to increase this value.    |

## 5.3 Optimizing Content Catalog Administration

For administration tasks in the Portal Catalog, it is recommended that you organize the content in a folder taxonomy.

Placing many objects in a single folder increases the time it takes for that folder to load.

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## 5.4 The PCD SQL Tracer

You can view and analyze PCD data using the PCD SQL Tracer. The PCD SQL Tracer utility provides the following information:

- Executed SQL statements
- Frequency of an SQL statement execution.
- Number of connections in the internal connection pool

By default the SQL trace is switched off. You can switch it on and off by setting the property **Pcd.PI.TraceLevel.Sql** in the *pcdStartup.installer.properties* file, in the folder: `<J2EE installation folder>/global/config/pcd`

**To switch the SQL trace on or off:**

- Set the property **Pcd.PI.TraceLevel.Sql** to 3 if you want to trace the SQL information to the *pcd.log* file.
- Set the property **Pcd.PI.TraceLevel.Sql** to 1 if you want to show the SQL trace information in the console in addition to saving it to the *pcd.log* file.

### 5.4.1 Tracing Single Activities in the Portal

You can modify the configuration parameters of the PCD at runtime, as follows:

- Start the component **com.sap.portal.pcd.admintools.configuration**.
- Modify the configuration parameters in the *pcdStartup.template.properties* file.
- Select the *Reload* button.

## 5.5 PRT Thread Management

The file *prtDefault.properties* contains various properties that can be configured for the PRT. You can find the file in the folder:

`<J2EE installation>/cluster/server/services/servlet_jsp/work/jspTemp/irj/root/WEB-INF/portal/system/properties`

The following table shows the properties in the file *prtDefault.properties*, to configure for the PRT:

| Setting                          | Action and Notes   |
|----------------------------------|--|
| <i>loadlimit.requests</i>        | <p>This property defines a limit for concurrent threads opened by the PRT. The value must reflect the expected number of concurrent users, as a concurrent user consumes one thread:</p> <p><b>loadlimit.requests=100</b></p> <p>In addition, the value of the property, in the file <i>prtDefault.properties</i> must be the same as the value of the property <b>MaxThreadCount</b> of the SAP J2EE Engine thread manager. See also Thread Manager Settings.</p> |
| <i>Async.Response.Pools.size</i> | <p>The number of buffers that the Page Builder can use to process asynchronous rendering of pages.</p> <p><b>async.response.pool.size=100</b></p> <p>Each buffer is used during the rendering of a portal page. Increasing this value increases the number of pages to be rendered asynchronously.</p> <p>A large value can have significant effect on the system, as it is affected by available system resources, such as memory.</p>                            |

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| Setting            | Action and Notes   |
|--------------------|--|
| <i>PRT monitor</i> | <p>A useful setting is to enable the PRT monitor. You enable this monitor to help identify bottlenecks in performance.</p> <p><b>To enable the monitor:</b></p> <ul style="list-style-type: none"><li>• Change the line "monitor.off=true" to "monitor.off=false".</li></ul> <p><b>To view the monitor output:</b></p> <ul style="list-style-type: none"><li>• Log on to the portal as an administrator, and navigate to:<br/>System Administration→Monitoring→Portal→Components Overview<br/>System Administration→Monitoring→Portal→Threads Overview</li></ul> |

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## 6 Tuning the System Database

Presently, this section contains information on Oracle systems.

### 6.1 Updating Classes12.jar

*Classes12.jar* contains the connectivity library for Oracle systems, and it must be updated to a specific version.

You can locate the file, *Classes12.jar* in the following folder:

**<J2EE installation>/server/additonal-lib/com/sap/jdbc\_driver\_references**

Do the following:

- Check the timestamp of the MANIFEST.MF file inside the *classes12.jar* file, by running the following command:

```
>unzip -l classes12.jar | grep MANIFEST.MF
```

The timestamp should not be older than- "02-19-03 15:28"

If the file is older than indicated, download an updated *classes12.jar* file from Oracle Web site, and replace the old one.

For more information, refer to the guide *EP6.0 SP1 Installation Guide (Portal, CM, TREX, Unification)*, at: <http://service.sap.com>, and navigate to *Enterprise Portal 6.0 > Documentation & More > Installation*.

Check also **SAP Note 580304** for updates on this JAR file.

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## 7 Tuning the LDAP Directory

### 7.1 LDAP Connection Pool

Enterprise Portal 6.0 uses an LDAP connection pool to recycle calls made to the directory. The default connection pool property, **ume.ldap.connection\_pool.max\_size**, has a value, **ume.ldap.connection\_pool.max\_size = 10**, that enables 50 concurrent logins.

When you change the value of the property to **ume.ldap.connection\_pool.max\_size = 20**, you enable 100 concurrent logins.

**To change the value of this property:**

1. Open and edit the file *sapum.properties*, from the path:  
**/usr/sap/<system name>/j2ee/j2ee\_<instance number>/ume/.**
2. Change the value of the property **ume.ldap.connection\_pool.max\_size**.



To support the required number of concurrent logins, the **MaxThreadCount** property in the Thread Manager of the SAP J2EE Engine, must be equal to the number of concurrent logins in the property, **loadlimit.requests** of the PRT, as one thread equals one concurrent request.

See also the sections on Thread Manager Settings, and PRT Thread Management.

## 8 Tuning the Browser

Configuring the browser and front-end devices for the portal leads to increase performance in the processes of the portal.

### 8.1 Setting the Browser for Compression

When using the Microsoft Internet Explorer as client browser, you must activate the HTTP 1.1 setting for the SAP Enterprise Portal compression filter to work.

**To set the compression filter:**

1. From the client browser menu bar, select *Tools* and then *Internet Options*.
2. Choose the *Advanced* tab and scroll to *HTTP 1.1* settings.
3. Make sure the *Use HTTP 1.1* checkbox is selected.
4. If your network operates with a proxy server, verify that *Use HTTP 1.1 through proxy connections* is also selected.
5. Click *OK*.

The following table contains browser caching information:

| Browser Settings                                 | Actions  |
|--|--|
| <p><i>MS Internet Explorer 5.0, 5.5, 6.0</i></p> | <p><b>Browser Caching</b></p> <p>You can improve the browser response time by using the browser cache. This enables your browser to cache resource files such as images, CSS, JS, txt, and many more.</p> <p>For detailed information on browser caching, refer to the section on <i>Accessing the Enterprise Portal</i> under the topic <i>Setting Internet Browser Options</i> in the <i>End User Guide</i> at:<br/> <a href="http://help.sap.com">http://help.sap.com</a> &gt; mySAP Enterprise Portal &gt; SAP Enterprise Portal .</p> <p><b>To use the browser cache in Internet Explorer (IE):</b></p> <ol style="list-style-type: none"> <li>1. From the <i>Tools</i> menu &gt; <i>Internet Options</i> &gt; <i>General</i> tab, click <i>Settings</i>.</li> <li>2. Under <i>Check for newer versions of stored pages</i> in the <i>Settings</i> dialog box, select either <i>Automatically</i> or <i>Every Time you start Internet Explorer</i>.</li> </ol> <p></p> <p>Do not choose <i>Every visit to page</i>.</p> <ol style="list-style-type: none"> <li>3. Click <i>OK</i> twice to save the settings for the browser cache.</li> </ol> |
| <p><i>Netscape 6.x</i></p>                       | <p><b>Browser Caching</b></p> <p>In Netscape 6.x, you can improve the browser response time by using the browser cache.</p> <p><b>To use the browser cache in Netscape:</b></p> <ol style="list-style-type: none"> <li>1. From the <i>Edit</i> menu, select <i>Preferences</i>.</li> <li>2. In <i>Category</i>, click <i>Advanced Cache</i>.</li> </ol>  |

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| Browser Settings | Actions  |
|------------------|--|
|                  | <p>3. Under <i>Document in cache is compared to document in network in the Cache pane</i>, select either <i>Never</i> or <i>Once per session</i>.</p>  <p>Do not choose <i>Every time</i>.</p> <p>4. Click <i>OK</i> to save the settings for the browser cache.</p> |

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