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SUPPORT CONNECT KNOWLEDGE SERIES

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Augment Your Problem-solving Capability

Welcome to the Finacle Global Support fortnightly knowledge bulletin! We're here to offer solutions for common challenges, share valuable tips, provide knowledge bytes, and keep you updated. Each edition is meticulously curated to ensure we share best practices and known resolutions. In this issue, you'll find the following articles:

- **Setting Debug Level for SSO Server Logging**
- **Enabling Auto Heap Dump Generation and GC Logs During OOM**
- **Get Ready for Our Exciting Webinar**

So, let's start reading!

Setting Debug Level for SSO Server Logging

Product: Finacle Core | Version: 10.2.03 to 10.2.18

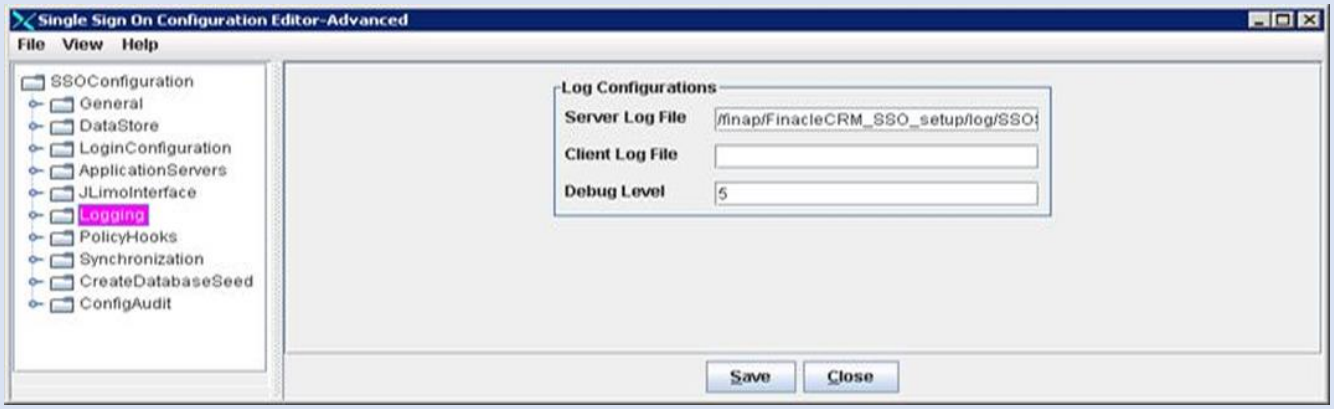
The **SSO** server's log level is managed by the **SSO_DEBUG_LEVEL** parameter, which ranges from 1 to 5:

1. **Level 1**: This is the minimum logging level, capturing only critical events, resulting in minimal log entries.
2. **Level 5**: This is the maximum logging level, recording detailed information suitable for debugging.

Steps to change the debug level:

- Run **configure.sh** located in the **SSO** installation directory
- In the configuration interface, navigate to **View -> Advanced -> Logging**
- Set the desired debug level (e.g., change from 5 to 1 for minimal logging)
- Revised configuration file - **SSOServerConfig.conf** is updated with the required debugging level
- For version below 10.2.09 , the file needs to be available under <deployedSSO>/WEB-INF/config and <deployedSSOAdmin>/WEB-INF/config
- For versions 10.2.09 and above the file will by default be available under <FINACLE_INSTALL_PATH>/common/config/SSO and <FINACLE_INSTALL_PATH>/common/config/SSOAdmin
- After the file in the requisite path is updated the application server can be restarted for the change to take effect

SSO Configuration Editor:



Configure.sh: This shell script is used to modify the **SSO** (Single Sign-On) configurations set during installation. It allows you to adjust various **SSO** settings, such as specifying paths, enabling languages, and other configuration details.

SSOServerConfig.conf: This file contains all the configuration details of the **SSO** system in an encrypted format. It manages various **SSO** settings and parameters and is typically located in the **SSO** installation directory. To access or modify the parameters in this file, you can run the configure.sh utility in the **SSO** directory using tools like **Mobaxterm** or **xmanager**. This will open a configuration details tab where you can view and modify the parameters. A server configuration password is required to save these changes securely, ensuring that only authorized personnel can access and modify these settings.

Alternate way of setting debug level: The debug level can be changed to desired level using FDM utility as well under FDM+ directory as shown below:

cd /CUT/FDM+

java –cp /FDM+/lib/fdmPlus.jar com.infy.finacle.fdm.utils.FDMUpdateSSO replace

For example**: Java –DCLASSPATH=/FDM+/lib/fdmPlus.jar com.infy.finacle.fdm.utils.FDMUpdateSSO replace /common/config/SSO SSO_DEBUG_LEVEL 5**

Application server needs to be restarted after the above change.

Enabling Auto Heap Dump Generation and GC Logs During OOM

Product: Finacle Digital Engagement Hub(DEH) | Version: Kubernetes Environment (11.9.1 onwards)

Usage of Heap Dump: A heap dump is a snapshot of all objects in the **JVM** memory at a specific moment. During **POD** eviction, heap dumps are useful for troubleshooting memory leaks and optimizing memory usage in Java applications. These dumps are typically stored as large binary **hprof** files, approximately equal to the configured **JVM** heap size.

Usage of GC Logs: Garbage Collector (**GC**) logs, generated by the **JVM**, detail the activities of the garbage collector. Enabling **GC** logs allows monitoring of memory consumption patterns, whether gradual increases or sudden spikes. This helps identify if memory is not being cleared from the heap or if the heap memory is insufficient for specific application use cases, providing insights necessary for resolving **POD** evictions caused by Out of Memory (**OOM**) kills.

Usage of Thread Dump: A Java thread dump shows what every thread in the **JVM** is doing at a particular point in time. This is especially useful if the application seems to hang under load, as the dump analysis will reveal where threads are stuck. When the application is very slow or hung, collect a set of thread dumps, generating about 5 dumps at intervals of 2 to 4 seconds.

Commands to be added in the deployment **YAML** file for the **DEH** pod to enable auto heap dump generation during **OOM**, enable **GC** logs, and generate thread dumps as follows:

For GC logs:

-Xlog:gc,gc+age*=trace,gc+heap*=trace,safepoint:file=/opt/GC/gc%%t_%%p.log:tags,time,uptime,level:filecount=25,filesize=50M*

For auto generation of heap dump:

-XX:+HeapDumpOnOutOfMemoryError-XX:HeapDumpPath=/opt/heapdumps/deh-admin$(date +-%Y-%m-%d-%H-%M-%S).hprof

For generating thread dumps at runtime:

Thread dumps cannot be configured in the **DEH** deployment **YAML** file and need to be generated at runtime when the application's response is very slow or hung. Run the following **jstack** command to generate 4 to 5 thread dumps within 2 to 4 seconds:

jstack -l {PID} >> tdumps.txt

Note:

- Replace and configure the appropriate paths for logs and dumps with persistent storage as per the bank's environment

- Since heap dump hprof files are large, increase ephemeral storage in the **YAML** file to nearly twice the size of the configured memory (heap size)
- The jstack command is not included in the product image by default. To use this command, it needs to be added through a custom image build
- Once these changes are applied and pods are restarted, ensure that the **DEH** begins writing the **GC** logs to the newly configured path

Get Ready for Our Exciting Webinar: Unveiling the New Finacle Support Center!

We're thrilled to announce an upcoming webinar that will take you on an exclusive tour of our revamped Support portal. Dive deep into the latest knowledge resources, master the art of effective searching, and discover so much more.

Stay tuned for more details – you won't want to miss this!

The revamped Finacle Support Center is now accessible through these URLs. Bookmark them for easy access and login!

- **Customer Access and Login:** https://support.finacle.com
- **Finacle Knowledge Center -** https://docs.finacle.com/en/signin