Log File Management Tool Deployment and User's Guide

Genesys Care/Support current

9/12/2022

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Log File Management Tool Deployment and User's Guide 8.5.105

The Log File Management Tool (LFMT) is an intelligent, configurable, centralized log collection tool developed by Genesys Customer Care for Genesys Engage On-Premise platforms.

Overview

The Log File Management Tool (LFMT) essentially copies Genesys Application log files, from their respective Hosts, via the Workbench Agent 8.5 component(s), and stores the log files in a centralized repository, thereby enabling search, filter and .zip packaging capabilities to expedite the analysis, progression and resolution of Genesys platform questions/issues.

Genesys Application (SIP, URS, GVP, Chat, IxN etc) log files are an integral part of Genesys software. These Genesys Application log files are the main sources of diagnostic information when troubleshooting Genesys application issues. The faster that relevant, accurate, and consistent log files are provided, the sooner an issue can be resolved. Unfortunately, many problems can occur when trying to retrieve the log files necessary for troubleshooting; common problems include:

- The log files for the time when the problem occurred have been overwritten or otherwise lost.
- Log files delivered are not within the event time frame.
- Log files provided were created with log levels not detailed enough for the investigation.
- The set of log files provided is inaccurate or incomplete.

LFMT is intended to minimize the above challenges and thereby reduce the time required to progress and resolve customer queries/issues.

Sections within this Overview chapter:

Data Privacy

> **Important**
>
> The Genesys Customer Care LFMT product currently does not support access or erasure requests for data that is stored for an extended period. In order to meet EU GDPR (European Union General Data Protection Regulation) compliance, customers/partners should ensure that the ‘LFMT Indexer’ application “retention_period” option is set to 30 days or less (if adherence to EU GDPR is required).

LFMT Components

The LFMT has four main components: LFMT Client, LFMT Collector, LFMT Indexer and Workbench Agent.

LFMT Client performs the following functions:

- Deploys as a plug-in to Genesys Administrator Extension (GAX).
- Genesys recommends LFMT is deployed on its own separate GAX instance so that it does not affect any other GAX Plugins that are used to manage/operate the contact center.
- Provides a graphical user interface to configure and control the LFMT solution.
  - Schedule log file collections.
  - Configure custom indexing on application log files.
  - Configure masking of sensitive data in application log files.
  - Search, select, and download log files collected by the LFMT Collector.

Important

- LFMT components should be running the same/latest 8.5.1xx release from a given LFMT Package
  - i.e. when downloading/using LFMT Package 8.5.105.12 - use/upgrade to the respective LFMT components within the LFMT 8.5.105.12 Package
  - i.e. do NOT run an 8.5.104 LFMT Collector with a 8.5.105 LFMT Client.

Important

- Genesys recommends LFMT is deployed on its own separate GAX instance so that it does not affect any other GAX Plugins that are used to manage/operate the contact center.

Important

One LFMT Client can serve multiple LFMT Collector/LFMT Indexer pairs.

LFMT Collector performs the following functions:

- Deploys on the LFMT Server Host(s).

- Initiates scheduled and real-time collection requests by the LFMT Client
  - Application hosts are queried for new or modified log files only.
  - Log files are copied from application servers to the LFMT Server Host(s).
  - Log files are compressed for transfer (~10:1).
  - Log files are encrypted for transfer (default is AES128-cbc).
- Creates log file packages resulting from user queries in the LFMT Client.
- Masks sensitive data in log file packages created by a user in the LFMT Client.

LFMT Indexer performs the following functions:

- Deploys on the LFMT Server Host(s).
- Indexes log files collected by LFMT Collector.
- Compresses log files for reduced storage.
- Purges log files based on a user specified retention period.

Workbench Agent performs the following functions:

- Deploys on the Genesys applications' hosts
- Receives scheduled or real-time log collection requests from the LFMT Collector
- Identifies new or modified log files to be sent to the LFMT Collector
- Log files can be compressed for transfer based on configuration (review the configuration section <name section>)
- Log files can be transferred securely or as plain text based on configuration (review the configuration section <name section>)

Supported File Types

The type of log files that can be managed by the LFMT are:

- Application log files—`*.log (including those that have been configured for circular logging)`
- Application snapshot log files that can be opened for writing—`*.snapshot.log`.
- Core and dump files created after an application terminates unexpectedly—`core.*` and `dmp.*`.
- Log files from third party applications configured in Configuration Server.

> **Important**
>
> For log files to be accessible by the LFMT, the application must be provisioned in Configuration Server with a configuration option of `all` set in the `[log]` section. The

value of this option should be set to the absolute path of the application log files.

Important

- Genesys does not create, validate or support customer regular expressions required within LFMT
- Genesys regex guidance made be provided, but the customer is responsible for creation, validation, testing and support of user defined LFMT regexes
- Genesys strongly recommends the customer comprehensively tests the regular expressions that you want to use for LFMT Indexing and Scrubbing before you define them in the LFMT Client
- A good resource to test LFMT Regexes would be the Genesys Log File Masking Utility (LFMU) as it uses the same Regex Engine approach for masking log files

Architecture

The following section describes the recommended architecture for an LFMT deployment.

LFMT components can be deployed on a single host for lab/test environments.

The recommended production architecture shows three hosts: the LFMT Server Host, the LFMT Client Host, and the LFMT Database Host.

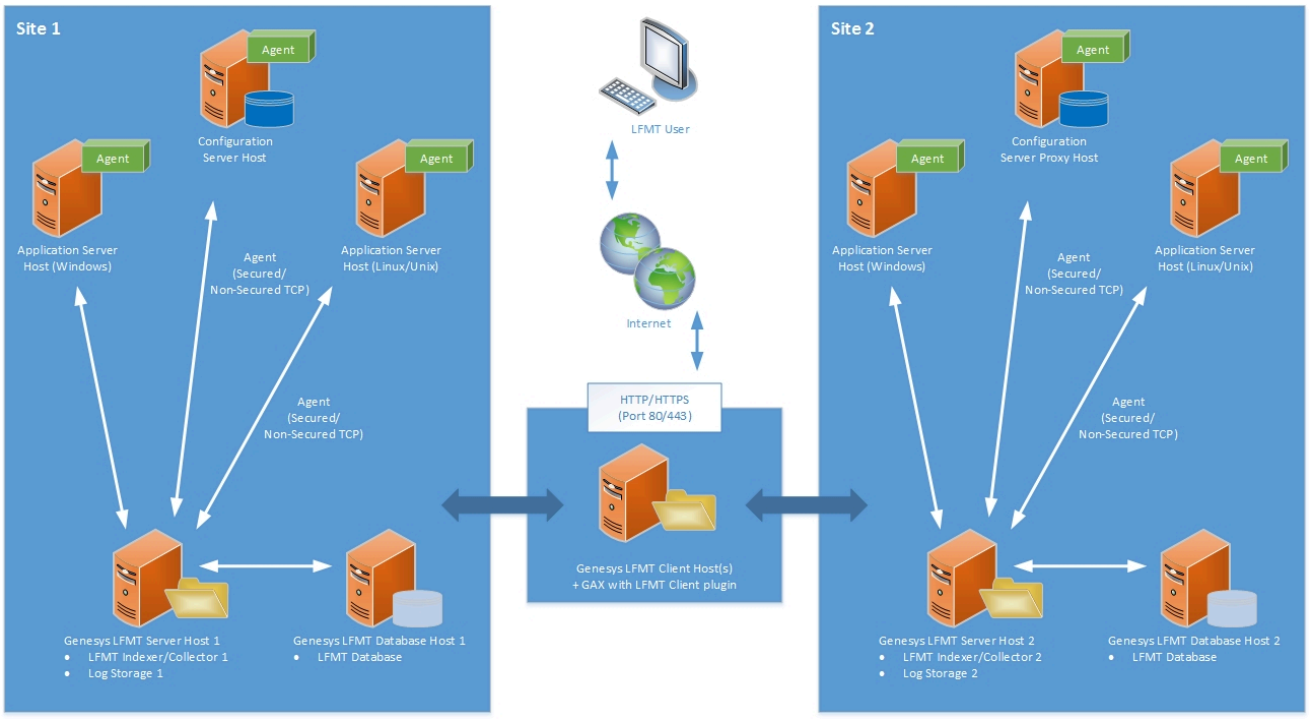
LFMT Server Host

The LFMT Server Host consists of the following components:

- Central Log Storage (CLS) repository, the central repository in which all log files for all applications using the tool are stored.
- LFMT Collector, which collects the log files for storage in the Central Log Storage (CLS) repository and creates packages for user downloads.
- LFMT Indexer, which monitors the CLS repository, indexes the files as they arrive at the CLS, and compresses the CLS files for storage.
- LFMT Collector connections to the Workbench Agent 8.5 components that are installed on the Genesys Application Servers (i.e. sip, urs, gvp etc) can be TLS enabled
- Workbench Agent 8.5 components can be installed on Linux or Windows Genesys Application Servers (i.e. sip, urs, gvp etc)

Important

- LFMT Collector and LFMT Indexer must be deployed on the same dedicated LFMT host.
- Multiple LFMT Indexer/Collector pairs can be deployed to service one LFMT solution.
- Only one LFMT Indexer/Collector pair should be deployed on a each dedicated LFMT host(s).



LFMT Client Host

The LFMT Client Host consists of the following components:

- Genesys Administrator Extensions (GAX), a web-based UI to which LFMT Client is a plug-in.
- LFMT Client, a GAX plug-in that provides the interface through which users specify the log files to retrieve, package, and upload to a given location.

Important

- LFMT Client and GAX must be deployed on the same host.
- Only one LFMT Client is required for each deployed LFMT solution - i.e. global visibility/ management of LFMT repo's from a single LFMT Client (GAX) instance

LFMT Database Host

The LFMT Database Host consists of the following components:

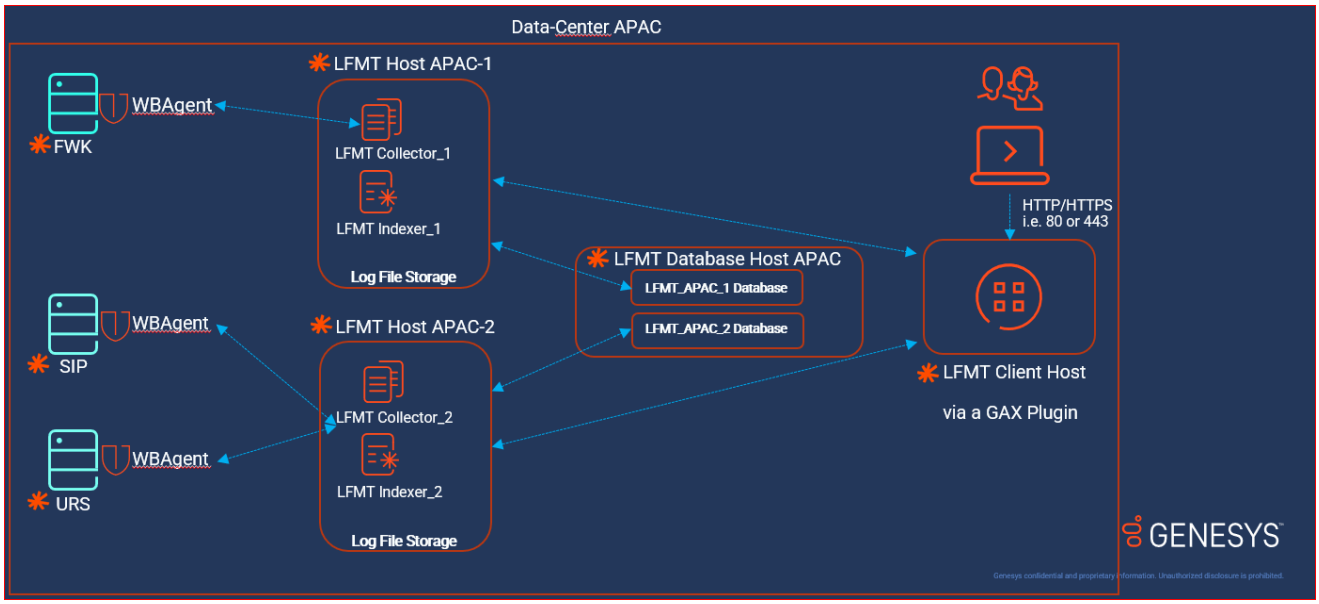
- LFMT Database, the central repository where all information about the copied log files is stored.

> **Important**
>
> - To improve performance, the LFMT Database Host should be deployed in the same locale as the LFMT Server Host.
> - One LFMT Database is required for each LFMT Indexer/Collector pair.
> - i.e. The APAC LFMT Indexer/Collector pair would connect to the APAC Database and the EMEA LFMT Indexer/Collector pair would connect to the EMEA Database

Example Architectures

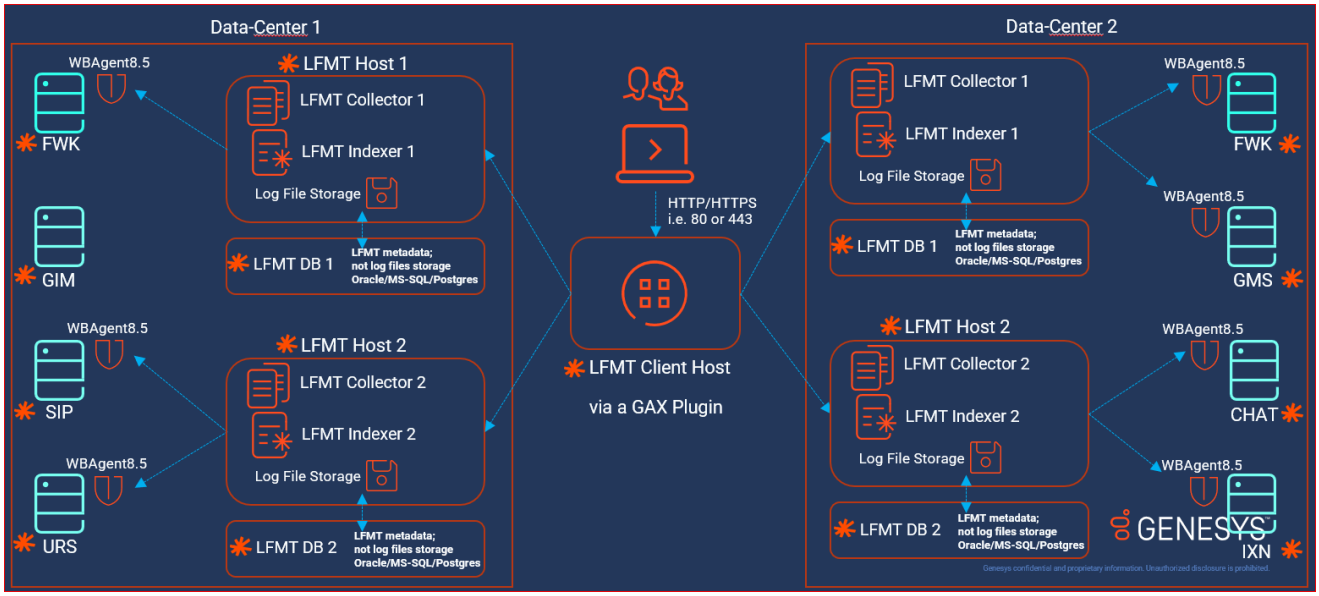
Multi Collector/Indexer Pair at a single Data-Center/Site

The example below details multiple Collector/Indexer pairs at the APAC Site/Data-Center; this deployment would be recommended if/when the log volume collections are high on the SIP and URS applications but low on the Framework applications and therefore multiple LFMT Collector/Indexer pairs are deployed/necessary.



Multi Collector/Indexer Pairs at multiple Data-Centers/Sites

In the example below the GIM logs are not being collected in DC-1 by LFMT, therefore the Workbench Agent 8.5 component is not installed on that Host/VM.


Data-Center 1
WBAgent8.5
FWK
LFMT Host 1
LFMT Collector 1
LFMT Indexer 1
Log File Storage
LFMT DB 1
LFMT metadata;
not log files storage
Oracle/MS-SQL/Postgres
GIM
WBAgent8.5
SIP
LFMT Host 2
LFMT Collector 2
LFMT Indexer 2
Log File Storage
WBAgent8.5
URS
LFMT DB 2
LFMT metadata;
not log files storage
Oracle/MS-SQL/Postgres
HTTP/HTTPS
i.e. 80 or 443
LFMT Client Host
via a GAX Plugin
Data-Center 2
LFMT Collector 1
LFMT Indexer 1
Log File Storage
LFMT DB 1
LFMT metadata;
not log files storage
Oracle/MS-SQL/Postgres
WBAgent8.5
FWK
WBAgent8.5
GMS
LFMT Host 2
LFMT Collector 2
LFMT Indexer 2
Log File Storage
LFMT DB 2
LFMT metadata;
not log files storage
Oracle/MS-SQL/Postgres
WBAgent8.5
CHAT
WBAgent8.5
GENESYS
IXN
Genesys confidential and proprietary information. Unauthorized disclosure is prohibited.

New in this Release

This section describes the new functionality for each release.

Release 8.5.105.12

The 8.5.105.12 Log File Management Tool release has an update to the LFMT Workbench Agent 8.5.105.02 component.

- Log File Management Tool (LFMT) Package 8.5.105.12 contains:
  - LFMT Client release 8.5.105.07 (requires GAX 9.0.104.15+)
  - LFMT Collector release 8.5.105.00
  - LFMT Indexer release 8.5.105.00
  - Workbench Agent release 8.5.105.02 (deleted space in "wbagent_startup.sh")
- Please see the Release Notes for further details.

Release 8.5.105.11 (obsolete - DO NOT USE)

The 8.5.105.11 Log File Management Tool release has an update to the LFMT Workbench Agent 8.5.105.01 component.

- Log File Management Tool (LFMT) Package 8.5.105.11 contains:
  - LFMT Client release 8.5.105.07 (requires GAX 9.0.104.15+)
  - LFMT Collector release 8.5.105.00
  - LFMT Indexer release 8.5.105.00
  - Workbench Agent release 8.5.105.01 (deleted space in "wbagent_startup.sh")
- Please see the Release Notes for further details.

Release 8.5.105.10

The 8.5.105.10 Log File Management Tool release has an update to the LFMT Client, specifically the LFMT Packages extension has been reverted to ".lfm".

- Log File Management Tool (LFMT) Package 8.5.105.10 contains:
  - LFMT Client release 8.5.105.07 (requires GAX 9.0.104.15+)
  - LFMT Collector release 8.5.105.00
  - LFMT Indexer release 8.5.105.00
  - Workbench Agent release 8.5.105.00 (support for Oracle Linux 7 - *LFMT Collector, Indexer and Client are NOT supported on Oracle Linux 7)
- Please see the Release Notes for further details.

Release 8.5.105.00

The 8.5.105.00 Log File Management Tool release supports an FTP Proxy via the Available Packages UI.

- Log File Management Tool (LFMT) Package 8.5.105.00 contains:
  - LFMT Client release 8.5.105.03
  - LFMT Collector release 8.5.105.00
  - LFMT Indexer release 8.5.105.00
  - Workbench Agent release 8.5.105.00 (support for Oracle Linux 7 - *LFMT Collector, Indexer and Client are NOT supported on Oracle Linux 7)
- Please see the Release Notes for further details.

Release 8.5.104.12

The 8.5.104.12 Log File Management Tool release supports GAX 9.0.104.xx. Please see the Release Notes for further details.

Release 8.5.104.11

The 8.5.104.11 Log File Management Tool release supports log4j 2.16. Please see the Release Notes for further details.

Release 8.5.104.10

The 8.5.104.10 Log File Management Tool release enables TLS support for connections to the LFMT database. Several bug fixes and performance improvements have also been made. Please see the Release Notes for further details.

Release 8.5.104

The 8.5.104 Log File Management Tool release primarily enables support for Oracle 19c. Several bug fixes and performance improvements have also been made. Please see the Release Notes for further details.

Release 8.5.103

The 8.5.103 Log File Management Tool release primarily enables support for OpenJDK 8 and 11. Several bug fixes and performance improvements have also been made. Please see the Release Notes for further details.

Release 8.5.102

The 8.5.102.00 Log File Management Tool release enables support for GAX 9.0.100.52 and later by using the LFMT Client 8.5.102.00 component; for GAX versions 8.5.209 to 9.0.001.37, please use the LFMT Client 8.5.101.06 component (also included in the 8.5.102.00 LFMT package). Several bug fixes and performance improvements have also been made. Please refer to the Release Notes for further details.

Release 8.5.101

The 8.5.101 Log File Management Tool release enables support for GAX 8.5.290.09 and later. This release also enables audit capabilities for all configuration changes made within the Log File Management Tool. Several bug fixes and performance improvements have also been made. Please refer to the Release Notes for further details.

Release 8.5.100

The 8.5.100 Log File Management Tool release significantly improves log file collection by moving to an agent-based transfer. By using an agent to perform the log file transfers, the Log File Management Tool no longer leverages rsync over SSH to transfer files. The transfers are now performed over a TCP/TLS connection to the agent, which prevents the need for public-key authentication between hosts.

In addition to the moving to an agent-based transfer, the following features have been added to the 8.5.1 release:

- Removed the requirement for Cygwin to be deployed to Windows application hosts
- Support for user roles to enable/disable LFMT functionality for different user groups
- Collection from multiple log file locations for a single app
- Support for circular log file types i.e. (File.log, File.1.log, File.1.log, File.x.log)
- Internet Explorer/Edge Support
- Resolved compatibility issues with other GAX plugins
- Raise alarms for collection failures
- Overall stability improvements

Release 8.5.000.XX

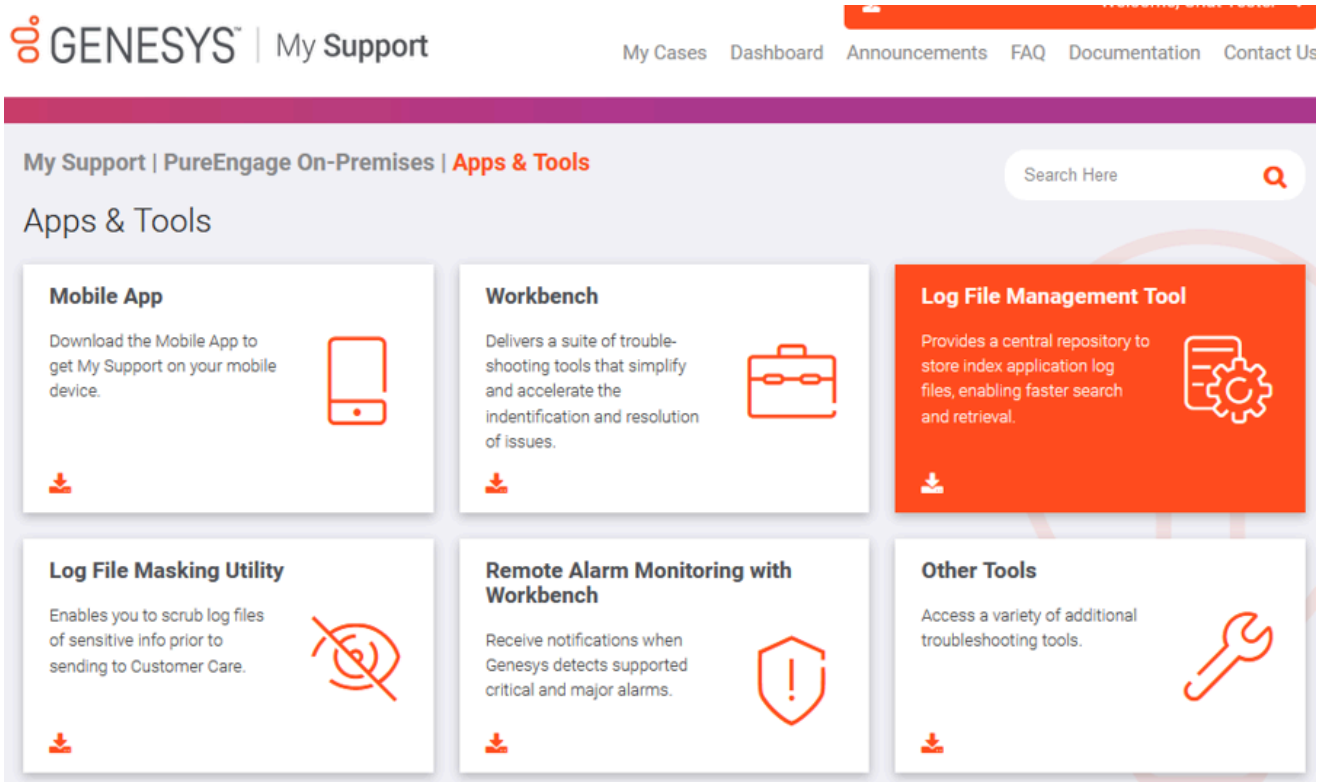
- LFMT Build 8.5.000.XX requires the Java 8 Runtime Environment (JRE).
- LFMT Build 8.5.000.XX requires a new LFMT database.
  - LFMT database(s) are configured using Database Access Point (DAP) configuration objects.
- LFMT Build 8.5.000.XX supports Windows 2012.
- LFMT Build 8.5.000.XX supports TLS connections to Configuration Server.
- LFMT Build 8.5.000.XX supports a distributed LFMT deployment.
- LFMT Client requires GAX 8.5.
- LFMT Client can schedule/force collections for multiple connected LFMT Collectors.
- LFMT Client can search multiple connected LFMT databases.
- LFMT Client provides ILIKE operation when filtering on custom indexes.
- LFMT Client allows setting time zone for scheduled collections.
- LFMT Client allows for the creation of custom regular expressions.
- LFMT Client displays to which applications custom regular expressions have been assigned.
- LFMT Client has new section 'Available Packages' for downloading previously created packages.
- LFMT Collector and LFMT Indexer are configured as separate applications in Configuration Server.

Downloading LFMT

Follow these steps to download LFMT:

1. Login to My Support.
2. Click **Continue to your Dashboard** button.
3. On the *Dashboard* screen, select the **Apps and Tools** tile.
4. On the *Apps and Tools* screen, select the **Log File Management Tools** tile.
5. On the *Genesys Care Log File Management Tool* screen, click **Download LFMT** link.
6. On the *Terms and Conditions* screen, click the checkbox to accept the Terms and Conditions, and click **Download**.
7. On the *zip* screen, click **Download** again.

The result of the above is a locally downloaded **LFMT_8.5.104.00.zip** file.



Known Issues and Limitations

- If/when using GAX 9.0.103.08+ and LFMT 8.5.104 or above, ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true** option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
- The LFMT Client requires the `netty-3.2.3.Final.jar` library in the `<GAX Install Directory>/webapp/WEB-INF/lib` folder to be renamed or deleted. This is applicable for GAX versions 8.5.220.20 and earlier.
- In a multisite environment, if one or more of the databases are down, the LFMT Client does not populate panes correctly.
- LFMT does not support changes to the GAX root URL.

CVE-2022-22965 vulnerability

- LFMT is deemed to be not impacted by the CVE-2022-22965 vulnerability.

log4j CVE-2021-44832 vulnerability

Important

- LFMT Package 8.5.104.13, released Feb 2022, now utilises log4j 2.17.1 - please upgrade to this LFMT release or later
  - LFMT 8.5.101.xx+ is/was deemed NOT impacted by CVE-2021-44832

log4j CVE-2021-45105 vulnerability

Important

- LFMT Package 8.5.104.13, released Feb 2022, now utilises log4j 2.17.1 - please upgrade

to this LFMT release or later

- LFMT 8.5.101.xx+ is/was deemed NOT impacted by CVE-2021-44832

LFMT Packages 8.5.101.xx to 8.5.104.10 - mitigation for the log4j CVE-2021-44228 vulnerability

Important

- LFMT Package 8.5.104.13, released Feb 2022, now utilises log4j 2.17.1 - please upgrade to this LFMT release or later
- LFMT 8.5.104.13 Package supports/requires GAX version 9.0.104.xx
- If your upgrade to the latest LFMT 8.5.104.13+ Package is delayed, in the meantime please follow the mitigation steps below

Important

- LFMT 8.5.104.12 Package, released 17th December 2021 supports log4j 2.16 and therefore avoids/remediates the mitigation steps below.
- LFMT 8.5.104.12 Package supports/requires GAX version 9.0.104.xx
- LFMT 8.5.104.11 Package, released 10th December 2021, supports log4j 2.16 but is restricted to GAX versions 9.0.100.52 to 9.0.103.xx

This page relates to the Genesys Advisory detailed here: https://genesys.my.salesforce.com/articles/Product_Advisories/Apache-Log4j-2-Java-library

Please follow the mitigation steps below in addition to the guidance in the Genesys Advisory above.

LFMT Collector

- Stop the LFMT Collector application(s)
- Run (i.e. with a tool such as 7Zip) the following command:

    - **zip -q -d <LFMT_COLLECTOR_INSTALL_LOCATION>/bin/lib/log4j-core-* org/apache/logging/log4j/core/lookup/JndiLookup.class**
- Restart the LFMT Collector application(s)

LFMT Indexer

- Stop the LFMT Indexer application(s)
- Run (i.e. with a tool such as 7Zip) the following command:
    - **zip -q -d <LFMT_INDEXER_INSTALL_DIRECTORY>/bin/lib/log4j-core-* org/apache/logging/log4j/core/lookup/JndiLookup.class**
- Restart the LFMT Indexer application(s)

LFMT Client

- Given that the LFMT Client is a GAX Plugin and GAX logging is used for the LFMT Client, please consult the GAX Release Notes/Documentation and/or raise a Genesys Support Case regarding GAX mitigation/remediation.

Workbench Agent 8.5

- Stop the Workbench Agent 8.5 application(s)
- Run (i.e. with a tool such as 7Zip) the following command:
    - **zip -q -d <WORKBENCH_AGENT_INSTALL_LOCATION>/lib/log4j-core-* org/apache/logging/log4j/core/lookup/JndiLookup.class**
- Restart the Workbench Agent 8.5 application(s)

Migration to LFMT 8.5.105

Moving from 8.5.xxx to 8.5.105.xx

LFMT Components

It is required that the LFMT Client, Collector, Indexer and Workbench Agents are updated to 8.5.105.xx and that the GAX instance in which the Client is installed upon is at least version 9.0.100.52 or greater. These components are not backwards compatible with the previous 8.5.100.xx, 8.5.101.xx, 8.5.102.xx,8.5.103.xx or 8.5.104.xx LFMT components.

> ### Important
> After updating the LFMT Client to 8.5.105.xx, please ensure that there is not an "original-gax-lfmt.jar" file in the {GAXInstall}/webapp/WEB-INF/lib directory. If this file does exist, please delete the file.

Database

Moving from LFMT 8.5.xxx to 8.5.105.xx does require a schema update to the already existing database tables. The update scripts are provided in the {CollectorInstall}/utilities/dbscripts folder. After the scripts have been run, all data will be preserved in the existing database.

Moving from 8.1.xxx to 8.5.104.xx

LFMT 8.5.xxx encompasses major changes to the tool's design and deployment. Currently, a migration path from LFMT 8.1.xxx to LFMT 8.5.xxx does not exist. For questions concerning how to best move to the LFMT 8.5.xxx architecture, please contact Genesys Customer Care.

LFMT Checklist

Use this section as a proactive checklist for successful LFMT planning, deployment and usage.

Item #	Description
1	Read this document thoroughly and plan your LFMT deployment carefully before starting the LFMT installation/deployment.
2	Given Genesys LFMT integrates to Genesys Engage components, ensure you have Genesys Engage knowledge, experience and training before installing LFMT.
3	Review the LFMT Architecture section to understand the LFMT architecture and components.
4	Review the New in this Release section to new release features/fixes.
5	Review the Additional Information section for details on TLS, Best Practices, FAQ's, Regex's and Release Notes prior to starting LFMT planning and deployment.
6	Review the Planning section to understand RDBMS sizing and requirements along with GAX dependencies. • This section also contains the LFMT Sizing XLS template which should be used to properly size your production LFMT deployment • If needed, this completed LFMT Sizing XLS template can be sent to Genesys Customer Care, via a standard Case for further sizing assistance/guidance/recommendations; create a Genesys Case with a Description of *LFMT Sizing Assistance* • Do not move onto production Deployment until your LFMT deployment has been planned/sized according to your specific site requirements
7	Review the Deployment section for Prerequisite and Deployment details. • Ensure DNS between the LFMT Host's and the Workbench Agent 8.5 Host's is functioning and robust • Hosts must be resolvable by hostname for LFMT to function properly • Aligning with other Genesys Engage products,

Item #	Description

	LFMT leverages a Genesys CME Template and Application Object approach
	• **CME Connections** from/to certain Applications must be configured for LFMT to function successfully - Example LFMT CME Connections diagram
	  • Connections Summary:
	  • GAX connection to LFMT Collector(s) and LFMT DAP(s) - a GAX application may have multiple connections to more than one LFMT DAP object
	  • LFMT Collector connection to GAX and LFMT DAP - an LFMT Collector application object **must have only one** connection to a LFMT DAP object
	  • LFMT Indexer connection to LFMT DAP - an LFMT Indexer application object **must have only one** connection to a LFMT DAP object
	• **CME Ports** must be open/free on the host(s) for LFMT to function properly
	  • Ports Summary
	  • LFMT Collector Ports = **default** (i.e. **8001**), **ftmessaging** (i.e. **8020**) and **sftmessaging** (i.e. **8030**)
	  • LFMT Indexer Ports = **default** (i.e. **8002**)
	  • GAX / LFMT Client Ports = **default** (i.e. **8080**), **messaging** (i.e. **9001**) and **ftmessaging** (i.e. **9002**)
	  • Workbench Agents 8.5 Port = **default** (i.e. **7999**), **ftmessaging** (i.e. **7101**) and **sftmessaging** (i.e. **7102**)
	  • also ensure Port **2552** is also **open/free** on the Host(s) as this is used for Actor Messaging
	• Two of the LFMT Options/Settings **do not have a default** and their respective configuration is mandatory prior to starting the LFMT Applications in GAX
	  • LFMT Indexer
	  • **`retention_period`**
	  • **`cls_location`** - ensure the user has write permissions to this path

Item #	Description

	• LFMT Collector
	  • **`cls_location`** - ensure the user has write permissions to this path
	  • **`package_location`** - ensure the user has write permissions to this path
	  • Review LFMT Options/Settings for details
	• Database connectivity
	  • Ensure connectivity to the LFMT database is successful
	  • i.e. correct username, password, database name
	  • i.e. the database is configured to accept external connections
	• LFMT DAP
	  • the LFMT DAP object must have a **unique** [lfmt]/site=<site_name_here> **Site** option configured - i.e. "Chicago_1"
	  • an LFMT DAP object is needed for **each and every** LFMT Collector/Indexer pair
	  • each LFMT DAP must connect to a **different** RDBMS database schema
	  • i.e. LFMT DAP "Chicago_1" connects to RDBMS schema "Chicago_1" and LFMT DAP "Chicago_2" connects to RDBMS schema "Chicago_2"

8	The LFMT Workbench Agent 8.5 component has to be deployed on the respective Engage Hosts (i.e. sip, urs, gvp etc) from which log files are to be collected • If the Workbench Agent 8.5 component is not installed on the Engage Hosts (i.e. sip, urs, gvp etc) it will not be possible for LFMT to collect the respective Host Application log files. • Workbench Agent 8.5 is ONLY for LFMT • Workbench Agent 9.x is ONLY for Workbench 9.x • both Workbench Agents 8.5 and 9.x can be deployed on the same Host if/when both LFMT and Workbench tools are to be used
9	Review the LFMT Config Options/Settings section for LFMT configuration setting/option details.

Item #	Description
10	Review the Using LFMT section for details on the usage of LFMT.

Log File Management Tool Deployment Planning

This chapter describes how to properly size storage and system resources for an LFMT deployment.

Sections within this Planning chapter:

- LFMT Client - GAX Dependencies
- LFMT Storage and Resource Sizing
- LFMT Database Sizing

> **Important**
>
> - Please note that the sizing and performance recommendations are based on tests performed in an environment of up to 1000 agents; therefore these should be used as guidelines only.
> - Please monitor your environment and apply your observations and experience to the formulas presented here to extrapolate the actual sizing of your LFMT environment.

LFMT Client - GAX Dependencies

The current supported versions of LFMT client has some GAX version dependencies; please refer to the table below:

LFMT 8.5 and GAX versions compatibility table:

LFMT Client Version	GAX Version Requirement	Notes
8.5.105.07	9.0.104.15+	LFMT Package extension default is ".lfm"
8.5.105.03	9.0.104.07 to 9.0.104.11	Ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true** option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
8.5.104.04	9.0.104.07 to 9.0.104.11	Ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true** option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
8.5.104.03	9.0.104.07 to 9.0.104.11	Ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true** option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
8.5.104.02	9.0.100.52 to 9.0.103	If/when using GAX 9.0.103.08+ and LFMT 8.5.104, ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true**

LFMT Client Version	GAX Version Requirement	Notes
		option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
8.5.104.00	9.0.100.52 to 9.0.103	If/when using GAX 9.0.103.08+ and LFMT 8.5.104, ensure the respective GAX Application with LFMT Client Plug-in object, **[lfmt]/use_lfm_extension=true** option is set, so that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX; per GAX RN's GAX-11260 the GAX app now filters unnecessary .gz, .jar, .zip, and .rar API requests.)
8.5.103.03	9.0.100.52 to 9.0.103	
8.5.102.00	9.0.100.52 to 9.0.103	
8.5.101.06	8.5.290.09 to 9.0.001.37	
8.5.101.05	8.5.280.07 to 8.5.290.08	

LFMT RDBMS Database Sizing

The LFMT Database is largely sized based on two tables.

- The **log_file** table holds the names and locations of the log files stored in CLS.
- The **log_file_indexed_token** table holds any custom index reference defined by the customer for specific application types.

LFMT Database - Detailed Sizing Approach

RDBMS Database sizing can be calculated using the following metrics:

- 0.50kB per log file
- 0.15kB per index

LFMT will write **1 record per log file** to the LFMT database.

Also, LFMT will write **1 record per index found in each log file** to the LFMT database, as per the configured indexes in the environment.

Sample LFMT RDBMS Database Sizing

Assume:

- CLS Total Disk Consumption = 1TB
- CLS Total Files = 1000000
- Indexes per file = 50

> **Important**
> The above values are the equivalent to 10MB log files compressed at a 10-1 ratio.

Sample calculation:

log_file table size = 1000000*.50kB = **500MB**

log_file_indexed_token table size = 1000000 * 50 * 0.15kB = **7324MB**

Total DB size = 500MB + 7324MB = 7824MB = 7.7GB

LFMT RDBMS Database - Simplified Sizing Approach

Use the following table to estimate the DB space requirements for the LFMT Database; Average daily call volume can be used as a reference.

Note that a deployment would typically have a separate LFMT Server host (LFMT Collector/Indexer pair) per Data-Center so the sizing should represent the call volume handled by that Data-Center.

Average Daily Calls	Database Space
Less than 10k	500MB
Between 10k-30k	1GB
Between 30k-120k	30GB
Greater than 120k	**Please consult with Genesys Customer Care. (Detailed Sizing approach recommended)**

Important

- The DB space utilized by LFMT is highly dependent on the number of indexes configured per file type. When using the Simplified LFMT sizing method, we recommend you start by configuring a low log file retention period (e.g.: 3 or 4 days) and then adjust it accordingly after data collection is started and it is clear there is sufficient DB space to handle all the indexes, or adjust the space accordingly.
- The maximum value for the ID is 2,147,483,647 for both the **LOG_FILE** and **LOG_FILE_INDEXED_TOKEN TABLES**. Please periodically monitor the value of the ID in both the tables and if it is approaching the said maximum value, the ID will need to be manually re-seeded (via the sequence for Oracle and PostGres, and via the Identity Column for MSSQL.

LFMT Storage and Resource Sizing

The following section describes how to size hardware for the LFMT Server Host(s).

For information on storage requirements for the LFMT Client Host(s), please refer to the Genesys Administrator Extension (GAX) Deployment Guide.

Sizing Approach

LFMT Sizing can be approached in two ways:

Detailed Sizing

- The **Detailed Sizing** (i.e. production) procedure facilitated by the sizing table below will guide you to collect the information required to produce a strong estimate for your LFMT sizing needs. This will allow you to factor in your expected call volumes including peaks, your preferred log retention period, etc.

Simplified Sizing

- If a more expedient LFMT Sizing is preferred (i.e. a lab/test environment), the **Simplified sizing** can provide a guide to get you started more quickly, however, please note:
  - These are approximate, and you may need to adjust your data LFMT Retention Period so that your log producing rate does not overfill the CLS central file storage.
  - It is recommended that you provision the hardware in a way that is easily extendable in the future so you can adjust it to your preferences.
    - e.g. Perhaps your environment data generation rate only allows for 6 days of logs stored on the default proposed storage but your company prefers a longer period, then additional storage may need to be planned.

LFMT - Detailed Sizing Approach (i.e. Production environment)

The Storage requirements for LFMT consists of two parts:

- The first is the space for the host Operating System and the LFMT applications installation.
- The seconds is the CLS storage – the space used by LFMT as workspace and storage for the Log Files it collects and manages.

For the first part, Genesys recommends that the LFMT Indexer and LFMT Collector be installed on the same drive where the host Operating System resides. Minimum recommended storage for this drive is as follows:

- 100GB for hosts running a Linux Operating System
- 160GB for hosts running a Windows Operating System

A separate/additional drive (local to the Collector Host and not a mapped network drive) is recommended for housing the Central Log Storage (CLS).

> **Important**
>
> - To calculate the LFMT Central Log Storage (CLS) requirements, download and refer to the Genesys Log File Management Tool Sizing Template

- The LFMT Sizing XLS requires details of:
  - Site Tab
    - Provide Customer Name and Site/Data-Center
  - Application Tab
    - Provide Application Name (i.e. EMEA_sip_a, APAC_urs_b, Chicago_stat_1), Hostname, Host IP Address, Local Log Path (i.e. /home/genesys/gcti/_logs/Chicago_sip_a/Chicago_sip_a)
  - Volume of Logs Tab
    - Provide Application Name with Approx. Daily Log Volume
  - Number of calls per week Tab
    - Provide the Number of Calls per Week
  - Calculations Tab
    - Provide Number of Days for which Logs will be stored (Retention Period), Average File Size, Indexes per File
  - Results Tab
    - Shows the recommended number of LFMT Hosts/Nodes along with CPUs, RAM, Storage, IO, Throughput
  - Disk IO notes Tab
    - Explanation of Disk IO
  - Additional Information Tab
    - Provide HDD Capacity (MB), Application Name, Version, Segment (MB), Expire, Log Level (not used for Sizing but useful)

Use the following table to estimate the Memory and CPU requirements for the LFMT Server Host(s).

From the sizing template results, average throughput for log generation, or CLS storage requirements can be used as a reference.

Average Throughput	CPU-Processor (Xeon-class 2.2 GHz or better)	Memory	CLS Storage*
Less than 2MB/s	One quad-core processor	4GB to 8GB	Up to 500GB
Between 2-10MB/s	Two quad-core processors	8GB	Up to 2.5TB
Between 10-25MB/s	Three quad-core processors	16GB	Up to 7.5TB
Between 25-50MB/s	Four quad-core processors	16GB	Up to 15TB
Greater than 50MB/s	**Please consult with Genesys Customer Care.**		

LFMT - Simplified Sizing Approach (i.e. lab/test environment)

The Storage requirements for LFMT consists of two parts:

- The first is the space for the host Operating System and the LFMT applications installation.
- The seconds is the CLS storage – the space used by LFMT as workspace and storage for the Log Files it collects and manages.

For the first part, recommends that the LFMT Indexer and LFMT Collector be installed on the same drive where the host Operating System resides. Minimum recommended storage for this drive is as follows:

- 100GB for hosts running a Linux Operating System
- 160GB for hosts running a Windows Operating System

A separate/additional drive is recommended for housing the Central Log Storage (CLS). To calculate CLS storage requirements, refer to the table below.

Use the following table to estimate the Memory and CPU and storage requirements for the LFMT Server Host(s). Average daily call volume can be used as a reference. Note that a deployment would typically have a separate LFMT Server host per datacenter so the sizing should represent the call volume handled by that datacenter.

Average Daily Calls	CPU-Processor (Xeon-class 2.2 GHz or better)	Memory	CLS Storage*
Less than 10k	One quad-core processor	4GB to 8GB	200GB
Between 10k-30k	Two quad-core processors	8GB	500GB

Average Daily Calls	CPU-Processor (Xeon-class 2.2 GHz or better)	Memory	CLS Storage*
Between 30k-120k	Three quad-core processors	16GB	2TB
Greater than 120k	**Please consult with Genesys Customer Care. (Detailed Sizing approach recommended)**		

Important

Storage is based on calculations for 7 days of log files and includes allowance for the operation of the application. When using the Simplified LFMT sizing method, we recommend you start by configuring a low log file retention period (e.g. 3 or 4 days) and then adjust it accordingly after data collection is started and it is clear there is sufficient space for additional retention.

Log File Management Tool General Deployment

This section contains general information for the deployment, configuration, and installation of the Log File Management Tool (LFMT).

It is recommended that you are familiar with LFMT architecture and nomenclature prior to proceeding with its installation.

Sections within this Deployment chapter:

1. LFMT Prerequisites.
2. Deployment of LFMT Client.
3. Deployment of LFMT Indexer.
4. Deployment of LFMT Collector.
5. Configuration of the LFMT Database.
6. Initializing the DBS Initializing the RDBMS.
7. Deployment of Workbench Agent 8.5 Deployment of Workbench Agent 8.5.
8. Mass/Bulk Deployment of Workbench Agent 8.5 Mass Deployment of Workbench Agent 8.5.
9. summary of LFMT CME Connections LFMT CME Connections.

Prerequisites

Software Requirements

LFMT supports the following Operating Systems:

- Windows **2012** and **2016**
- Red Hat Enterprise Linux (RHEL) and CentOS **7**

LFMT supports the following database management systems:

- PostgreSQL **9.1** or later
- Oracle DBMS **11** to **19c**
- Microsoft SQL Server **2005** or later

The following software must be installed before deploying the Log File Management Tool:

- Genesys Administrator Extension **9.x** and all of its associated components.
- Genesys recommends LFMT is deployed on its own separate GAX instance so that it does not affect any other GAX Plugins that are used to manage/operate the contact center.
- JRE **1.8** (or later) or OpenJDK **8** or OpenJDK **11**

The LFMT Client is web-based, and is compatible with the following web browsers:

- latest Google Chrome
- latest Microsoft Edge
- latest Mozilla Firefox

Genesys Engage Requirements

LFMT integrates to Genesys Engage Configuration Server, Solution Control Server and Message Server 8.5 versions.

> ### Important
>
> - Prior to planning and installing LFMT, please ensure you have sufficient knowledge and

> experience with Genesys Engage architecture, components and functions.

Network and Security Requirements

1. Ensure all hostnames in the environment can be resolved by DNS from the LFMT Server Host(s).
2. Ensure the following access ports are available for LFMT operation.
   a. The DBMS access port (Required if the DBMS is located on a different host than LFMT Indexer):
      - PostgreSQL - default: Port **5432**
      - Oracle - default: Port **1521**
      - MSSQL- default: Port **1433**
   b. The GAX configuration port (default: Port **8080**)
3. (Optional) Open the following external ports for the LFMT (S)FTP/S operation.
   a. Ports **20** and **21**
4. (Optional) Assign dedicated NICs on each Genesys application server for LFMT operation.
5. (Optional) To enable Log File Retrieval services, configure ports **80** & **443** for outbound TCP access.

Deployment of the LFMT Client

This section describes how to deploy and configure the LFMT Client software.

The LFMT Client is a GAX Plug-in that provides the LFMT user interface through which users specify the log files to retrieve, package, and upload to a given location.

> **Important**
>
> - Genesys recommends LFMT is deployed on its own separate GAX instance so that it does not affect any other GAX Plugins that are used to manage/operate the contact center.

Installing the LFMT Client

The following directories in the LFMT Client distributable contain the LFMT installation packages:

- For Linux:
  - **/LFMT_8.5.10x/LFMTClient/8.5.10x.xx (GAX 9.0.100.52+ within GAX 9.0.100.xx family)/linux/ip**.
- For Windows:
  - **\LFMT_8.5.10x\LFMTClient\8.5.10x.xx (GAX 9.0.100.52+ within GAX 9.0.100.xx family)\windows\ip**.

> **Important**
>
> - LFMT Client places GAX Plug-in files in the <GAX Installation Directory>\webapp\gax\WEB-INF\lib folder; this folder is created the first time GAX is started.
>   - Please ensure GAX has been started at least once prior to the installation of the LFMT Client.

Installing the LFMT Client on Linux

1. In the directory to which the LFMT Client installation package was copied, execute the **install.sh** script
2. Enter the location to the **GAX installation directory** (i.e. **/opt/Genesys/gax**)

3. Enter the **Destination Folder** for the **LFMT Client** installation (i.e. **/home/genesys/gcti/LFMT_Client_8510400**)
4. Ensure the .jar files in the **<LFMT Client Install Directory>** have been copied to **<GAX Installation Directory>/webapp/WEB-INF/lib**

Installing the LFMT Client on Windows

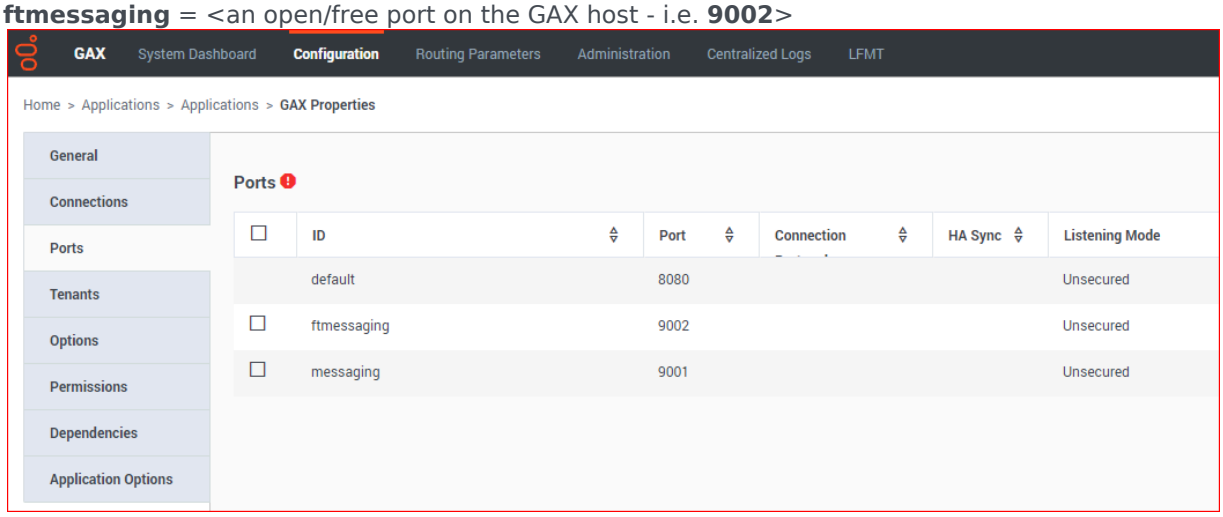
1. In the directory to which the LFMT Client installation package was copied, double-click **setup.exe** to start the installation.
   a. On the **Welcome** screen, click **Next**.
   b. Enter the **Destination Folder** for the LFMT Client installation and click **Next**.
   c. On the **Ready to Install** screen, click **Next**.
   d. On the **Installation Complete** screen, click **Finish**.
5. Ensure the .jar files in the **<LFMT Client Install Directory>** have been copied to **<GAX Installation Directory>\webapp\WEB-INF\lib**.

Configuring GAX for use with the LFMT Client

> **Important**
>
> - If/when using LFMT Client 8.5.104.00 thru LFMT Client 8.5.105.03 and GAX 9.0.103.08+
>   - Please ensure the respective GAX Application, with the LFMT Client Plug-in installed, has the **`[lfmt]/use_lfm_extension`** option set to **`true`**
>   - So that **`.lfm`** files and not .zip (the default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX
>   - This avoids a "Failed Forbidden" error when trying to download LFMT Packages
>   - This change is required because GAX 9.0.103.08+ filters .gz, .jar, .zip, and .rar API requests

- Log into GAX
- Navigate to **Configuration Manager**.
- From the **Environment** section, select **Applications**.
- In the **Applications** section, select the GAX Application (i.e. **GAX_LFMT**) to be configured for use with the LFMT Client.
- In the **Application Properties** pane, select the **Ports** tab.
- In the **Ports** tab, add the following listening ports.

- **messaging** = <an open/free port on the GAX host - i.e. **9001**>
- **ftmessaging** = <an open/free port on the GAX host - i.e. **9002**>



- (Optional)Navigate to the **Application Options** tab.
  - Add and configure the following Section and Options in the GAX configuration object.
    - Add the Section **lfmt**.
    - Within the new **lfmt** Section, add/configure the following LFMT FTP options:
      - **ftp_host**, **ftp_port**, **ftp_user**, **ftp_pwd**.
- Select the **Save** button to save changes to the application.
- **Restart** GAX.

Important

- Ensure GAX is restarted post the LFMT Client installation.

Tip

- For more information on the GAX LFMT configuration options, please refer to the LFMT GAX Configuration Options section.

Deployment of the LFMT Indexer

This section describes how to deploy and configure the LFMT Indexer software.

The LFMT Indexer component which monitors the LFMT CLS repository, indexes the log files as they arrive at the CLS, and compresses the CLS files for storage.

Provisioning the LFMT Indexer(s)

The following directories in the LFMT Indexer distributable contain the LFMT Indexer Templates:

- For Linux:
  - **/LFMT_8.5.10x/LFMTIndexer/8.5.10x.xx/templates**
- For Windows:
  - **\LFMT_8.5.10x\LFMTIndexer\8.5.10x.xx\templates**

Provisioning the LFMT Indexer(s) in GAX

Before installing the LFMT Indexer(s) software you must first create an LFMT Collector Template and Application in CME.

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the *Environment* section, select **Application Templates**.
3. In the *Application Templates* section, select **New**.
4. In the *New Properties* pane, select **Import Application Template**.
5. In the *Import Application Template* dialog, click the **Choose File** file button and navigate to the LFMT Indexer **.apd** template. Select the template, and click the **OK** button to confirm the template import.
6. In the *New Properties* pane, select the **Save** button to save the new application template.
7. Once the Application Template has been imported, navigate to **Configuration Manager**.
8. From the *Environment* section, select **Applications**.
9. In the *Applications* section, select **New**.
10. In the *New Properties* pane, complete the following:
    a. In the *General* tab, enter a name for the LFMT Indexer application in the **Name** field,.
    b. Click on the *Template* field and navigate to the application template created above.
    c. In the *Working Directory* field, enter "**.**" .
    d. In the *Command Line* field, enter "**.**" .

e. Click on the **Host** field and navigate to the host where LFMT Indexer will be installed.

f. In the *Application Options* tab, review and configure the LFMT Indexer options.

g. In the *Ports* tab, add the following listening ports:

   i. **default = <an open/free port on the LFMT Indexer host>**

h. Select the **Save** button to save the new application.

> **Tip**
>
> - For more information on the LFMT Indexer configuration options, please refer to the LFMT Indexer Configuration Options section.

Installing the LFMT Indexer(s)

The following directories in the LFMT Indexer distributable contain the LFMT installation packages:

- For Linux:
  - **/LFMT_8.5.10x/LFMTIndexer/8.5.10x.xx/linux/ip**
- For Windows:
  - **\LFMT_8.5.10x\LFMTIndexer\8.5.10x.xx\windows\ip**

Installing the LFMT Indexer(s) on Linux

1. In the directory to which the LFMT Indexer installation package was copied, execute the **install.sh** script.
2. When prompted, confirm the **hostname** of the computer on which LFMT Indexer is to be installed.
3. When prompted, specify the **host** and **port** to the **Configuration Server** associated with this LFMT Indexer.
4. When prompted, specify the **username** and **password** to access the **Configuration Server**.
5. When prompted, specify the **host** and **port** to the **Backup Configuration Server** associated with this LFMT Indexer.
6. When prompted, select the respective **LFMT Indexer Application** object (i.e. **LFMT_Indexer_Chicago_1**) you configured in “Provisioning the LFMT Indexer” from the list of applications.
7. Enter the **Destination Folder** (i.e. **/home/genesys/gcti/LFMT_Indexer_Chicago_1**) for the LFMT Indexer installation.

Installing the LFMT Indexer(s) on Windows

1. In the directory to which the LFMT Indexer installation package was copied, double-click **setup.exe** to start the installation.
2. On the `Welcome` screen, click `Next`.
3. When prompted, specify the **connection parameters** to the Configuration Server associated with this LFMT Indexer and click **Next**.
4. When prompted, select the **LFMT Indexer Application** object you configured in "Provisioning the LFMT Indexer" from the list of applications and click `Next`.
5. Enter the **Destination Folder** for the LFMT Indexer installation and click `Next`.
6. (Optional) Enter the **Hostname** and **Port** of the **Backup Configuration Server** associated with this LFMT Indexer and click **Next**.
7. On the **Ready to Install** screen, click **Install**.
8. On the **Installation Complete screen, click** Finish**.**

Verifying the LFMT Indexer(s) installation

After completing the installation of the LFMT Indexer, its configuration should be verified through the GAX interface.

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the `Environment` section, select **Applications**.
3. In the **Applications** section, locate and open the LFMT Indexer application.
4. In the **General** tab, verify that the following parameters have been updated by the installation process.

- **Working Directory:** The LFMT Indexer installation path
- **Command Line: indexer_startup.bat** or **./indexer_startup.sh**
- **Command Line Arguments:** -app <LFMT Indexer Application Name> -host <Configuration Server Host> -port <Configuration Server Port> -backuphost <Backup Configuration Server Host> -backupport <Backup Configuration Server Port>

> **Important**
>
> The **backuphost** and **backupport** options are optional. These options are read from the `Command Line Arguments` field of the LFMT Indexer object only.

Post LFMT Indexer Configuration

Ensure you configure, these default blank options below, with valid paths, within the LFMT Indexer application(s), before starting the LFMT Indexer application(s):

- **cls_location** - this value does NOT have a default therefore you need to assign a valid path

Please review here https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/IndexerOptions for further details.

Deployment of the LFMT Collector

This section describes how to deploy and configure the LFMT Collector software.

The LFMT Collector is the component which collects the log files from the Genesys Application Servers (i.e. sip, urs, gvp etc), via the Workbench Agent 8.5 component, for storage in the Central Log Storage (CLS) repository and creates packages for user downloads.

> **Important**
>
> - LFMT Collector applications **must** be installed in pairs (LFMT Collector / LFMT Indexer), on the same host as the associated LFMT Indexer.

Provisioning the LFMT Collector(s)

The following directories in the LFMT Collector distributable contain the LFMT Collector templates:

- For Linux:
  - **/LFMT_8.5.10x/LFMTCollector/8.5.10x.xx/templates**
- For Windows:
  - **\LFMT_8.5.10x\LFMTCollector\8.5.10x.xx\templates**

Provisioning the LFMT Collector(s) in GAX

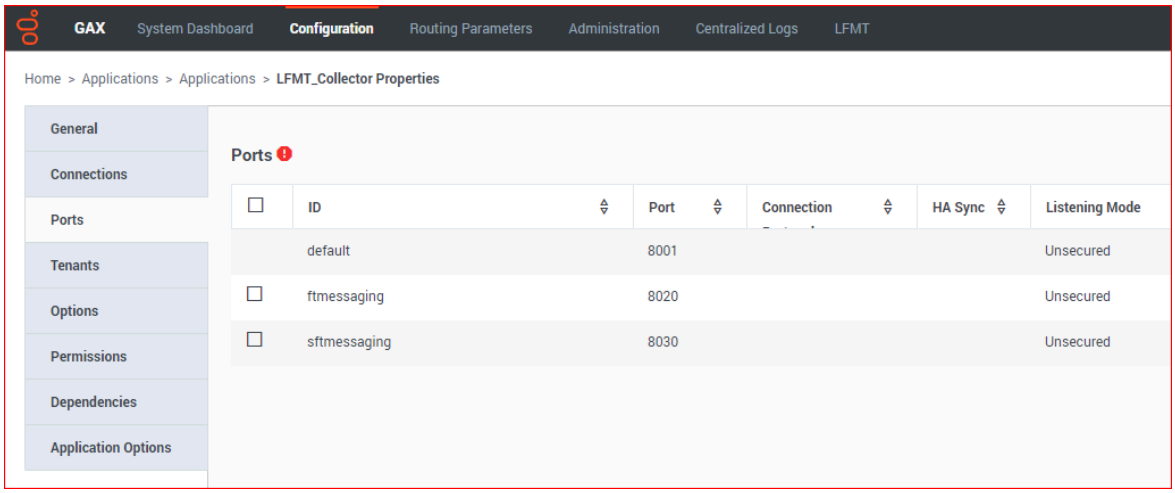
Before installing the LFMT Collector(s) software you must first create an LFMT Collector Template and Application in CME.

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the `Environment` section, select **Application Templates**.
3. In the `Application Templates` section, select **New**.
4. In the `New Properties` pane, select **Import Application Template**.
5. In the `Import Application Template` dialog, click the **Choose File** file button and navigate to the LFMT Collector `.apd` template. Select the template, and click the `OK` button to confirm the template import.
6. In the `New Properties` pane, select the **Save** button to save the new application template.
7. Once the application template has been imported, navigate to **Configuration Manager**.

8. From the Environment section, select **Applications**.
9. In the Applications section, select **New**.
10. In the New Properties pane, complete the following:
    a. In the General tab, enter a name for the LFMT Collector application in the **Name** field,.
    b. Click on the Template field and navigate to the application template created above.
    c. In the Working Directory field, enter "**.**" .
    d. In the Command Line field, enter "**.**" .
    e. Click on the **Host** field and navigate to the host where LFMT Collector will be installed.
    f. In the Application Options tab, review and configure the LFMT Collector options.

> **Tip**
> For more information on the LFMT Collector configuration options, please refer to the LFMT Collector Configuration Options section.

    g. In the Ports tab, add the following listening ports:
        i. **default** = <an open/free port on the LFMT Collector host - i.e. **8001**
        ii. **ftmessaging** = <an open port on the LFMT Collector host - i.e. **8020**
        iii. **sftmessaging** = <an open port on the LFMT Collector host - i.e. **8030**



    h. Select the **Save** button to save the new application.

Installing the LFMT Collector(s)

The following directories in the LFMT Collector distributable contain the LFMT installation packages:

- For Linux:
  - **/LFMT_8.5.10x/LFMTcollector/8.5.10x.xx/linux/ip**
- For Windows:
  - **\LFMT_8.5.10x\LFMTCollector\8.5.10x.xx\windows\ip**

Installing the LFMT Collector(s) on Linux

1. In the directory to which the LFMT Collector installation package was copied, execute the **install.sh** script.
2. When prompted, confirm the **hostname** of the computer on which LFMT Collector is to be installed.
3. When prompted, specify the **host** and **port** to the Configuration Server associated with this LFMT Collector.
4. When prompted, specify the **username** and **password** to access the Configuration Server.
5. When prompted, specify the **host** and **port** to the **Backup Configuration Server** associated with this LFMT Collector.
6. When prompted, select the LFMT Collector Application object (i.e. **LFMT_Collector_Chicago_1**) you configured in “Provisioning the LFMT Collector” from the list of applications.
7. Enter the **Destination Folder (i.e.** /home/genesys/gcti/LFMT_Collector_Chicago_1**) for the LFMT Collector installation.**

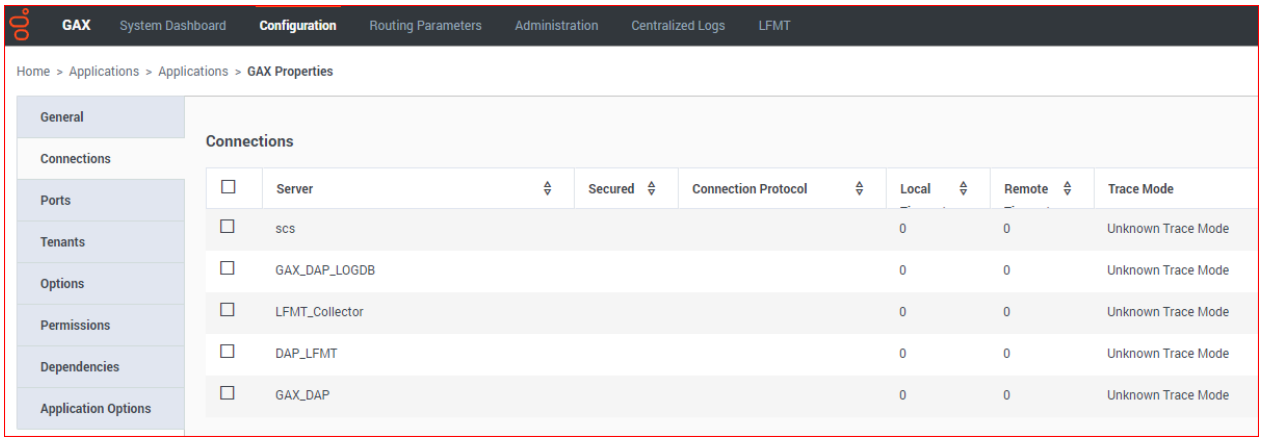
Installing the LFMT Collector(s) on Windows

1. In the directory to which the LFMT Collector installation package was copied, double-click **setup.exe** to start the installation.
2. On the `Welcome` screen, click **Next**.
3. When prompted, specify the connection parameters to the Configuration Server associated with this LFMT Collector and click **Next**.
4. When prompted, select the LFMT Indexer Application object you configured in “Provisioning the LFMT Collector” from the list of applications and click **Next**.
5. Enter the **Destination Folder** for the LFMT Collector installation and click `Next`.
6. (Optional) Enter the **Hostname** and **Port** of the **Backup Configuration Server** associated with this LFMT Collector and click **Next**.
7. On the **Ready to Install** screen, click **Install**.
8. On the **Installation Complete** screen, click **Finish**.

Configuring GAX for use with the LFMT Collector(s)

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the **Environment** section, select **Applications**.

3. In the **Applications** section, select the GAX Application configured for use with the LFMT Client.
4. In the **Application Properties pane, select the `Connections` tab.**
5. In the **Connections** tab, add a connection to the **LFMT Collector Application(s)** object(s) that GAX will control.



> **Important**
>
> A single GAX application may have multiple connections to more than one LFMT Collector applications.

6. Select the **Save** button to save changes to the application.
7. **Restart** GAX.

> **Important**
>
> - Ensure GAX is restarted.

Verifying the LFMT Collector(s) installation

After completing the installation of the LFMT Collector, its configuration should be verified through the GAX interface.

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the **Environment** section, select **Applications**.
3. In the **Applications** section, locate and open the LFMT Collector application.

4. In the **General** tab, verify that the following parameters have been updated by the installation process.

- **Working Directory:** The LFMT Collector installation path
- **Command Line: collector_startup.bat** or **./collector_startup.sh**
- **Command Line Arguments:** -app <LFMT Collector Application Name> -host <Configuration Server Host> -port <Configuration Server Port> -backuphost <Backup Configuration Server Host> -backupport <Backup Configuration Server Port>

> **Important**
>
> The **backuphost** and **backupport** options are optional. These options are read from the Command Line Arguments field of the LFMT Collector object only.

Post LFMT Collector Configuration

Ensure you configure, these default blank options below, with valid paths, within the LFMT Collector application(s), before starting the LFMT Collector application(s):

- **cls_location** - this value does NOT have a default therefore you need to assign a valid path
- **package_location** - this value does NOT have a default therefore you need to assign a valid path

Please review here https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/CollectorOptions for further details.

Configuration of the LFMT Database

For each LFMT Indexer/Collector pair, a separate LFMT database is required. New Comment

This section describes how to initialize a LFMT Database.

The configuration of a Database Access Point (DAP) for a LFMT Database is also detailed.

Important

- The LFMT Database (Oracle, MS-SQL or Postgres) is **NOT** the same as the GAX Database - its a different/separate database solely for LFMT Collector/Indexer pairs
- The GAX database is still required for GAX functionality
- A new Database must be created for LFMT functionality - a new/separate database for each LFMT Collector/Indexer pair (i.e. **LFMT_Chicago_1**)
- LFMT supports TLS database connections as of LFMT package version 8.5.104.10 (LFMT Collector 8.5.104.04+, LFMT Indexer 8.5.104.02+, LFMT Client 8.5.104.02+)

Initializing the LFMT Database

1. Navigate to the **<LFMT Collector Install Directory>\utilities\dbscripts** directory.
2. The table below lists the RDBMS database types and their corresponding LFMT initialization script names contained in the *dbscripts* directory.
3. Determine/locate the LFMT Database initialization script that corresponds to your RDBMS and LFMT deployment type (new install or upgrade).

DBMS	Script	Notes
Microsoft SQL	lfmdb_8.5.101.XX_mssql.sql	Use this for a **new install** of LFMT 8.5.10x.xx
Oracle	lfmdb_8.5.101.XX_ora.sql	Use this for a **new install** of LFMT 8.5.10x.xx
PostgreSQL	lfmdb_8.5.101.XX_postgres.sql	Use this for a **new install** of LFMT 8.5.10x.xx
Microsoft SQL	lfmdb_8.5.000.xx_to_8.5.101.xx_mssql.sql	Use this when **upgrading** from LFMT 8.5.000.xx to LFMT 8.5.101.xx
Oracle	lfmdb_8.5.000.xx_to_8.5.101.xx_ora.sql	Use this when **upgrading** from LFMT 8.5.000.xx to LFMT 8.5.101.xx

DBMS	Script	Notes
PostgreSQL	lfmdb_8.5.000.xx_to_8.5.101.xx_postgres.sql	Use this when **upgrading** from LFMT 8.5.000.xx to LFMT 8.5.101.xx
Microsoft SQL	lfmdb_8.5.100.xx_to_8.5.101.xx_mssql.sql	Use this when **upgrading** from LFMT 8.5.100.xx to LFMT 8.5.101.xx
Oracle	lfmdb_8.5.100.xx_to_8.5.101.xx_ora.sql	Use this when **upgrading** from LFMT 8.5.100.xx to LFMT 8.5.101.xx
PostgreSQL	lfmdb_8.5.100.xx_to_8.5.101.xx_postgres.sql	Use this when **upgrading** from LFMT 8.5.100.xx to LFMT 8.5.101.xx

4. Via your respective RDBMS UI, load and execute the initialization script that corresponds to your RDBMS and LFMT deployment type (new install or upgrade).

> **Important**
>
> - The result of the above is a new RDBMS LFMT database (i.e. **LFMT_Chicago_1**) that a LFMT Collector/Indexer pair can connect to
> - When deploying multiple LFMT Collector/Indexer pairs a new RDBMS database is required for each and every LFMT Collector/Indexer pair

Provisioning a Database Access Point for the LFMT Database

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the `Environment` section, select **Application Templates.**
3. In the `Application Templates` section, enter a name for the DAP Template in the **Name** text field.
4. Choose `Database Access Point` as the template type from the **Type** dropdown.
5. Enter **8.5** for the DAP version in the `Version` text field.
6. Click the **Save** button to save the new application template.
7. Once the Application Template has been created, navigate to **Configuration Manager**.
8. From the `Environment` section, select **Applications**.
9. In the `Applications` section, select **New**.
10. In the `New Properties` pane, select the **General** tab. Complete the following:
    a. In the `General` tab, enter a name (i.e. **DAP_LFMT_Chicago_1**) for the LFMT DAP in the **Name** field.
    b. Click on the **Template** field and navigate to the Application Template created above.
    c. Click on the **Host field and navigate to the host where LFMT Database resides.**

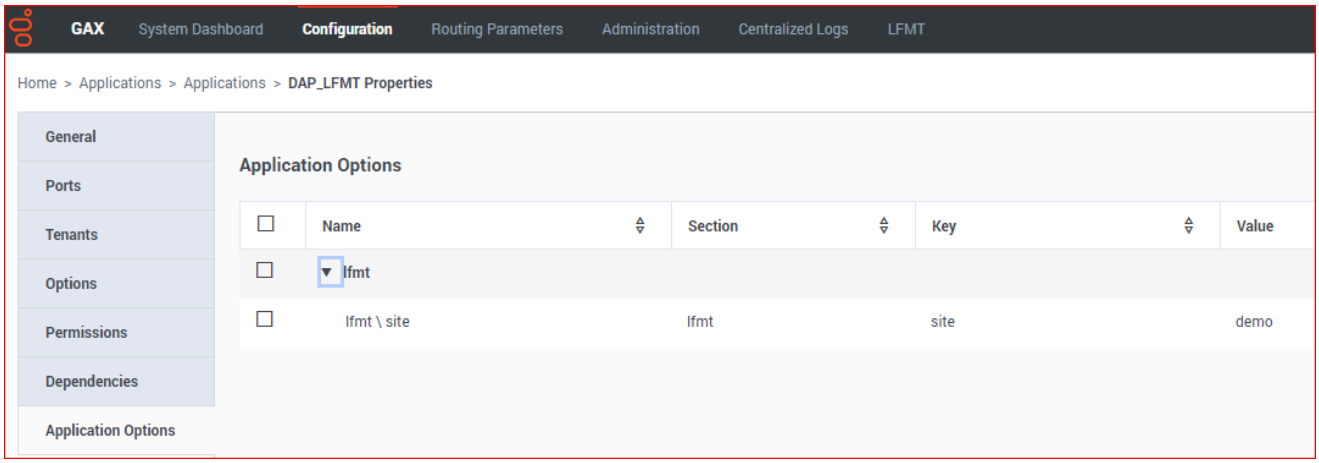
d. Choose **JDBC** as the connection type from the `Connection Type` dropdown.
e. Choose **Any** as the case conversion type from the `Case Conversion` dropdown.
f. Choose **Main** as the role from the `Role` dropdown.
g. Choose **False** as the role from the `Debug` dropdown.
h. Enter **15** for the DB timeout in the `JDBC Query Timeout` text field.
i. Choose your **DBMS type** (i.e. **postgres**) from the `DBMS Type` dropdown.
j. Enter the LFMT **Database Name** (i.e. **LFMT_Chicago_1**) in the `Database Name` text field.
k. Enter the LFMT **Database Username** in the `Username` text field.
l. Enter the LFMT **Database Password** in the `User Password` text field.

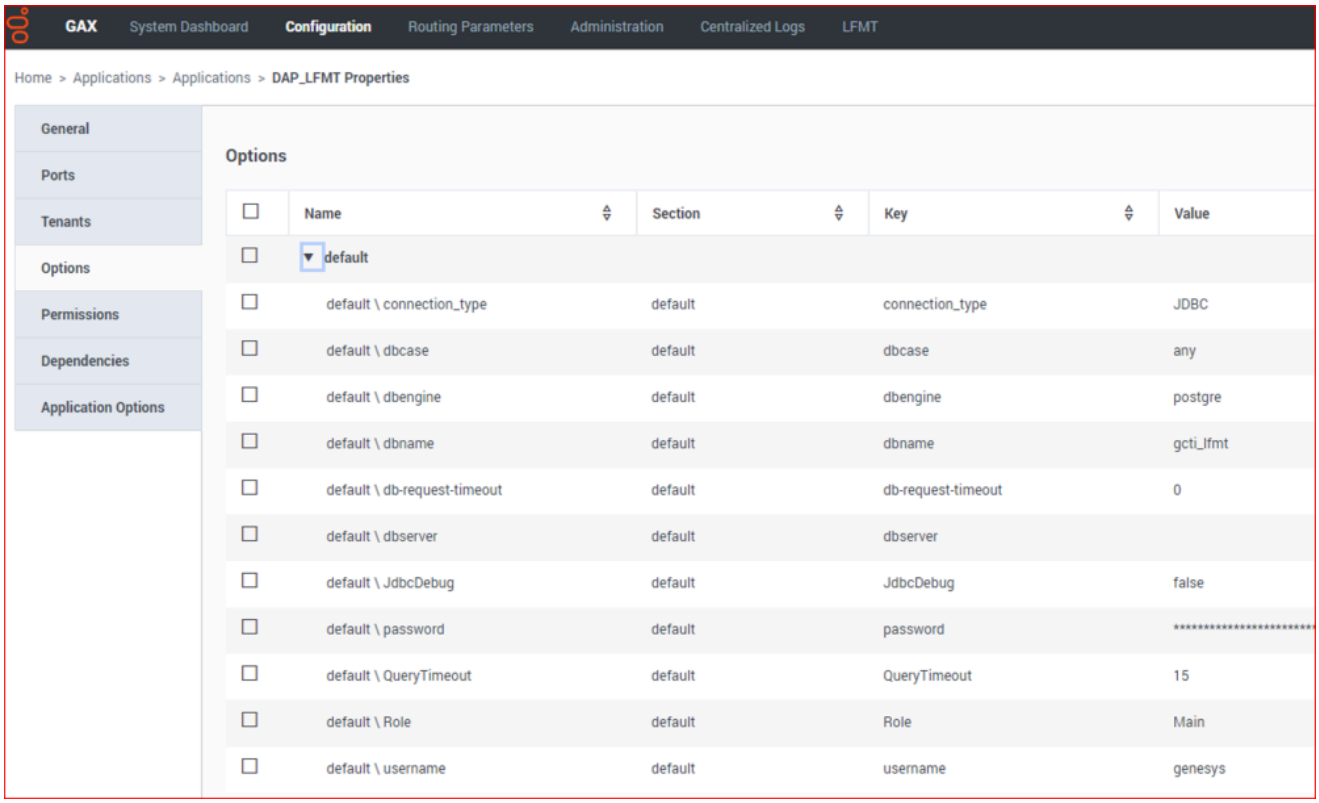
11. Select the `Ports` tab. Complete the following:
    a. Set the value of the `default` communication port to the listening port of your DBMS. Default ports are listed below:
        - For PostgreSQL the default listening port is **5432**.
        - For Oracle the default listening port is **1521**.
        - For MSSQL the default listening port is **1433**.
    b. As of LFMT package version 8.5.104.10, TLS can be enabled for the connection to the LFMT database. To enable TLS, set the listening mode for the defined port to "secure".
12. Select the `Application Options` tab. Review and configure the LFMT DAP options.
    a. Create the section **lfmt**.
    b. Create the option **site**.
    c. Set the value of the **site** option (i.e. **Chicago_1**) to a unique identifier for the LFMT Database.

> **Important**
> Ensure that the **`site`** option for each LFMT DAP in the LFMT solution is different.

> **Tip**
> For more information on the LFMT DAP configuration options, please refer to the LFMT DAP Configuration Options section.

Examples:





Configuring Connections to the LFMT DAP/Database

The LFMT Database stores information accessed by the LFMT Client (GAX), the LFMT Indexer, and the LFMT Collector, therefore each LFMT application requires a connection the respective LFMT DAP.

This section describes how to configure connections to the LFMT database.

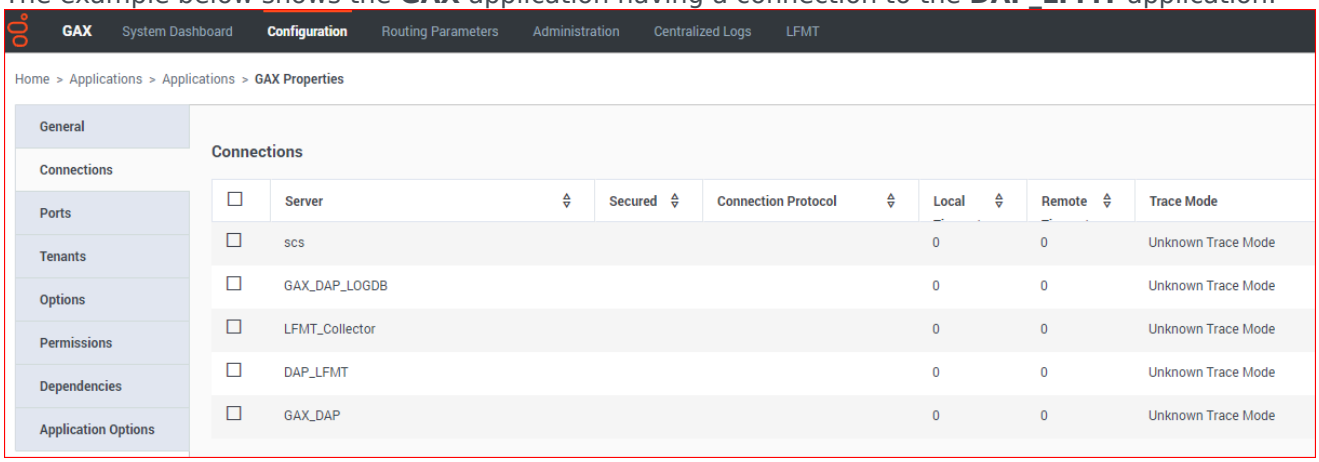
Configuring GAX for use with the LFMT Database

1. Log into GAX, and navigate to `Configuration Manager`.
2. From the `Environment` section, select **Applications**.
3. In the `Applications` section, select the GAX Application configured for use with the LFMT Client.
4. In the `Application Properties` pane, select the **Connections** tab.
5. In the `Connections` tab, add a connection to the **LFMT DAP** (i.e. DAP_LFMT_Chicago_1) to which GAX will connect.

> **Important**
>
> A single GAX application may have multiple connections to more than one LFMT DAP object/instance.

6. Click the **Save** button to save changes to the application.
7. Restart GAX.

The example below shows the **GAX** application having a connection to the **DAP_LFMT** application:



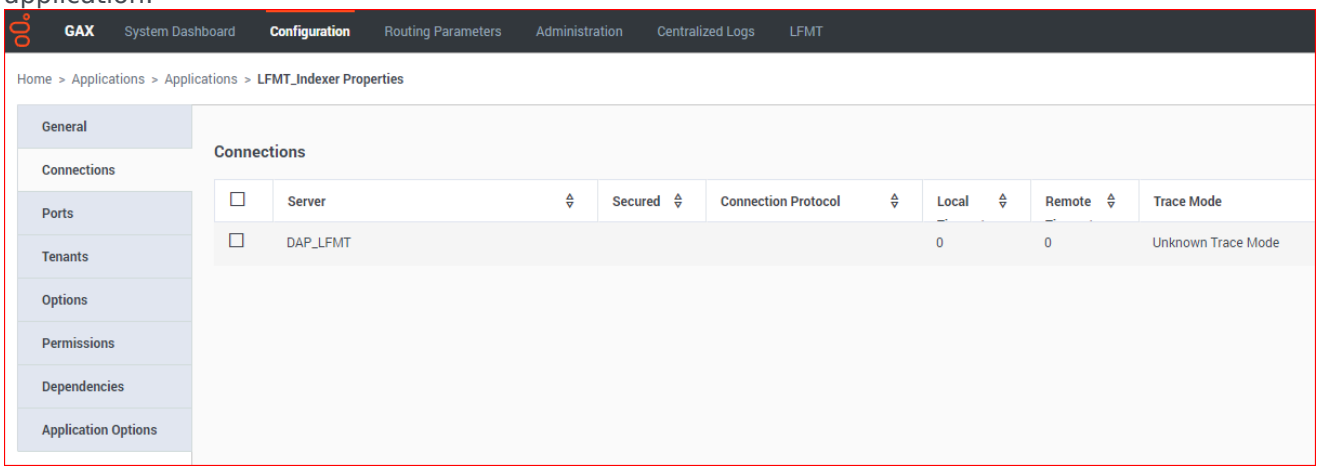
Configuring LFMT Indexer for use with the LFMT Database

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the `Environment` section, select **Applications**.
3. In the `Applications` section, select the **LFMT Indexer application** that will access the LFMT Database.
4. In the `Application Properties` pane, select the **Connections** tab.
5. In the `Connections` tab, add a connection to the **LFMT DAP** to which **LFMT Indexer** will connect.

> **Important**
> A LFMT Indexer may have *only one* connection to a LFMT DAP instance.

6. Click the **Save** button to save changes to the application.
7. **Restart** LFMT Indexer.

The example below shows the **LFMT_Indexer** application having a connection to the **DAP_LFMT** application:



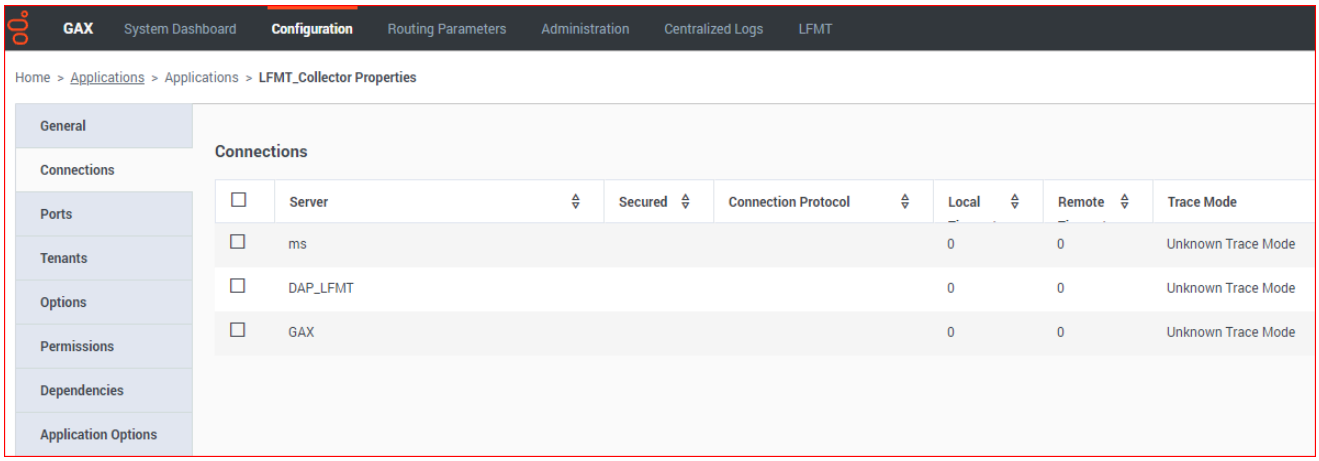
Configuring LFMT Collector for use with the LFMT Database

1. Log into GAX, and navigate to **Configuration Manager**.
2. From the `Environment` section, select **Applications**.
3. In the `Applications` section, select the **LFMT Collector** that will access the LFMT Database.
4. In the `Application Properties` pane, select the **Connections** tab.
5. In the `Connections` tab, add a connection to the **LFMT DAP** to which **LFMT Collector** will connect.

> **Important**
> A LFMT Collector may have *only one* connection to a LFMT DAP instance.

6. Click the **Save** button to save changes to the application.
7. **Restart** LFMT Collector.

The example below shows the **LFMT_Collector** application having a connection to the **DAP_LFMT** application:


GAX
System Dashboard
Configuration
Routing Parameters
Administration
Centralized Logs
LFMT
Home > Applications > Applications > LFMT_Collector Properties
General
Connections
Ports
Tenants
Options
Permissions
Dependencies
Application Options
Connections
Server
Secured
Connection Protocol
Local
Remote
Trace Mode
ms
0
0
Unknown Trace Mode
DAP_LFMT
0
0
Unknown Trace Mode
GAX
0
0
Unknown Trace Mode

Initializing the DBMS

This section describes the how to create and initialize the LFMT database:

- On Linux
- On Windows

On Linux

Setting up the LFMT database

Purpose: To create and initialize the data model (the database structure) for the LFMT Database.

Prerequisites

- The RDBMS (i.e. Oracle, MS-SQL or Postgres) is installed, and the service is running.

PostgreSQL

1. If the `postgres` user is not already created, create it now by entering the following commands at the prompt, and press `Enter` after each command:

   ```
   adduser postgres
   su -postgres
   ```

2. Navigate to the `postgresql` folder.
3. Create the database called `lfm` by entering the following command at the prompt:

   ```
   ./bin/createdb lfm
   ```

   and press `Enter`.

   > **Warning**
   >
   > - The database name of **lfm** is chosen as an example in this procedure for simplicity, and is used throughout these instructions.
   > - You do not have to use `lfm`, but if you choose to use a different name, be careful to use the correct name in subsequent steps.
   > - This database name is case sensitive

4. Locate the PostgreSQL intitialization script `lfmdb_XXXXX_postgres.sql` from <LFMT Collector Install

Directory>\utilities\dbscripts directory.

5. Enter the command `./bin/psql -d lfm`, and press `Enter`. This creates the tables required in the LFMT Database.
6. Initialize the LFMT database, as follows:
   a. For PostgreSQL, enter the command `\i <LFMT Collector Install Directory>/utilities/dbscripts/lfmdb_XXXXX_postgres.sql`.
   b. Confirm that the script has executed without errors or warnings.

Oracle

1. Refer to the Oracle documentation to install the Oracle Database Management System on the host machine that corresponds to the Host that you want to create the Database that will be used by LFMT.
2. Use the following SQL commands to create the users and ensure that they do not have excessive permissions:
   1. create user <username> identified by <password>;
   2. grant connect, resource to <username>;
3. Initialize the database by executing the following script: `lfmdb_XXXXX_ora.sql` , available in the following folder: `<LFMT Server Install Directory>/utilities/dbscripts/`
4. invoke SQLPLUS, and type @<LFMT Collector Install Directory>/utilities/dbscripts/lfmdb_XXXXX_ora.sql.

Microsoft SQL

1. Refer to the MSSQL documentation to install the MSSQL Database Management System on the host machine that corresponds to the Host that you want to create the Database that will be used by LFMT.
2. Initialize the database by executing the following script:

   `lfmdb_XXXXX_mssql.sql` , available in the following folder:

   `<LFMT Collector Install Directory>/utilities/dbscripts/`

On Windows

Setting up the LFMT database

Purpose: To create the data model (the database structure) for the LFMT Database and initialize it with base operational data. Base operational data includes the known log file types that will be retrieved by LFMT, and the associated tokens to be targeted for indexing or scrubbing for each log type.

Prerequisites

- The DBMS is installed, and the service is running.

PostgreSQL

1. Create a new database called `lfm`, as follows:
   a. From the Windows `Start` menu, navigate to `All Programs > PostgreSQL` and select `pgAdmin III`.
   b. In the `Object` browser, navigate to `Server Groups > Servers` and double-click `PostgreSQL v.<version number> <local host>:<default port>`, providing your particular version, host, and port information.
   c. Enter the password for the user `postgres`.
   d. Right-click `Databases` and select `New Database`.
   e. Enter the name `lfm` and leave the other fields blank.
   f. Click `OK`. A new database called `lfm` is created.
7. In a separate text editor, open the `lfmdb_XXXXX_postgres.sql` file found in the `<LFMT Collector Install Directory>\utilities\dbsripts` directory.
8. Right-click `lfm` and select `Create Script`.
9. Initialize the LFMT database as follows:
   a. For PostgreSQL:
      i. Copy the contents of the `lfmdb_XXXXX_postgres.sql` file and paste it into the SQL script editor.
      ii. Select `Query > Execute`.
      iii. Confirm that the script has executed without errors or warnings, and that the database has been successfully initialized with the correct data model.
      iv. When prompted to save the script, click `No`.

Important

- The database name is case-sensitive.
- In the line, change only the IP address, port, and database name information.
- To connect to a remote database, you must modify the `pg_hba.conf` file, located in the data directory of your PostgreSQL installation. Open the file in a text editor, and add the following line at the end of the file: `host all all 0.0.0.0/0 trust`.
- You must also ensure that the value of `listen_addresses` contained in the `postgresql.conf` file contains the IP Address of any host connecting to the LFMT database.
- Ensure that the firewall allows this connection.
- More information can be gathered from http://www.postgresql.org/docs/8.2/static/auth-pg-hba-conf.html.

Oracle

1. Refer to the Oracle documentation to install the Oracle Database Management System on the host machine that corresponds to the Host that you want to create the Database that will be used by LFMT.
2. Use the following SQL commands to create the users and ensure that they do not have excessive permissions:
    1. create user <username> identified by <password>;
    2. grant connect, resource to <username>;
3. Initialize the database by executing the following script: `lfmdb_XXXXX_ora.sql` , available in the following folder: `<LFMT Collector Install Directory>\utilities\dbscripts\`
4. invoke SQLPLUS, and type @<LFMT Server Install Directory>\utilities\dbscripts\lfmdb_XXXXX_ora.sql.

Microsoft SQL

1. Refer to the MSSQL documentation to install the MSSQL Database Management System on the host machine that corresponds to the Host that you want to create the Database that will be used by LFMT.
2. Initialize the database by executing the following script:

   `lfmdb_XXXXX_mssql.sql` , available in the following folder:

   ```
   <LFMT Collector Install Directory>/utilities/dbscripts/
   ```

Deployment of Workbench Agent for LFMT 8.5.1

Tip

- Before working with Workbench Agent 8.5, please refer to the Software Requirements section.

Important

- Workbench Agent 8.5 must be installed on all the hosts running Genesys Platform applications from which you want to collect log files.
- Workbench Agent 8.5 is ONLY for LFMT
- Workbench Agent 9.x is ONLY for Workbench 9.x Hosts
- If/when Workbench and LFMT is deployed, both Workbench Agents 8.5 and 9.x would be needed on each remote host
  - The Workbench Agent 8.5 would be required for LFMT to collect log files from the remote hosts (i.e. sip, urs, gvp etc)
  - The Workbench Agent 9.x would be required for Workbench ingestion of data from the remote hosts (i.e. sip, urs, gvp etc)
- When a new Workbench Agent 8.5 is deployed or when any configuration changes are made to a Workbench Agent 8.5 application, the LFMT Collector must be restarted, for the changes to be accepted/propogated by LFMT.

The following directories in the Workbench installation package contain the Workbench Agent templates:

- For Linux:
  - **/LFMT_8.5.10x/WBAgent/8.5.10x.xx/templates**
- For Windows:
  - **\LFMT_8.5.10x\WBAgent\8.5.10x.xx\templates**

Important

- The Workbench Agent 8.5 can be deployed manually or by using the Agent Mass Deployer.
- The Mass Deployer is included within the utilities directory found inside the LFMT Collector working directory.
- If you use the Mass Deployer, you do not need to provision the Workbench Agent application in GAX, as this will be done automatically during the deployment process. Please see the https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/DepMassDeployWorkbenchAgent section for further details.

Provisioning the Workbench Agent

1. Log into GAX, and navigate to **Configuration Manager**.
2. In the Environment section, select **Application Templates**.
3. In the Application Templates section, select **New**.
4. In the New Properties pane, select **Import Application Template**.
5. In the **Import Application Template** dialog, click the **Choose File** button and navigate to the **CC_Agent.apd** template.
   Select the Template and keep the Template name as **CC_Agent**.
   *For pre 8.5.103, if the Template name is not **CC_Agent**, please change the name to **CC_Agent**; this is important for the LFMT Collector application to identify the Workbench Agents 8.5 within the environment.
   Click the **OK** button to confirm the Template import.

Important

*For pre 8.5.103, the Workbench Agent 8.5 Template must be named "CC_Agent"
-- Workbench Agent 8.5.103+ does not rely on the Template name

6. In the New Properties pane, click **Save** to save the new Application Template.
7. Once the Application Template has been imported, navigate to Configuration Manager.
8. In the **Environment** section, select **Applications**.
9. In the **Applications** section, select **New**.
10. In the **New Properties** pane, complete the following (some of these are temporary values and will be updated once the actual Workbench Agent software has been installed on the desired host)::
    a. In the General tab, enter a name (i.e. "LFMT_WBA_CHICAGO_SIP_A") for the Workbench Agent

application in the Name field.

b. Click on the Template field and navigate to the application template created above.

c. In the **Working Directory** field, enter "**.**"

d. In the **Command Line** field, enter "**.**"

e. Click on the **Host** field and navigate to the host where Workbench Agent will be installed.

f. In the **Application Options** tab, review and configure the Workbench Agent options.

> **Tip**
>
> - For more information on the Workbench Agent configuration options, please refer to the Workbench Agent Configuration Options section

g. In the **Ports** tab, add the following listening ports: **default = <an open port on the Workbench Agent host> (select whether this should be a Secured port or an Unsecured port)**

h. In the **Permissions** tab, grant the SYSTEM account (or the defined “Login As” account) **Full Control**

i. Select the **Save** button to save the new application

> **Important**
>
> - If the “default” port identified above is selected to be Secured, the LFMT Collector(s) will communicate with this Agent using TLS, otherwise, the communication will be Non-TLS.

Installing the Workbench Agent

The following directories in the Workbench Agent component contain the installation packages:

- For Linux:
  - **/LFMT_8.5.10x/WBAgent/8.5.10x.xx/linux**
- For Windows:
  - **\LFMT_8.5.10x\WBAgent\8.5.10x.xx\windows**

Installing the Workbench Agent on Linux

1. In the directory to which the LFMT Agent installation package was copied, execute the **install.sh** script.
2. On the Welcome screen, press **Enter** to continue.

3. Read the Genesys Terms and Conditions, and enter **Y** to accept.
4. Enter the Workbench Server application name (i.e. "WB") and click Next.

> **Important**
>
> - this Workbench Server application name parameter is now obsolete; please enter "WB" to progress to the next step

5. Enter the **Hostname** and **Port** of the Primary Configuration Server.
6. Enter the **Destination Folder** where the Workbench Agent 8.5.x application will be installed, and click Next.
7. After the installation completes, go to the Workbench Agent installation directory and start the Workbench Agent by running the command wbagent_startup.sh -host <cfghost> -port <cfgport> -app <wbAgentapp> where:
   a. <cfghost> is the IP address of the Configuration Server
   b. <cfgport> is the port used to connect to the Configuration Server
   c. <wbAgentapp> is the name of the Workbench Agent application you created

Installing the Workbench Agent on Windows

1. In the directory to which the Workbench Agent installation package was copied, double-click **setup.exe** to start the installation.
2. On the Welcome screen, press **Enter** to continue.
3. Read the Genesys Terms and Conditions, and enter **Y** to accept.
4. Enter the Workbench Server application name (i.e. "WB") and click Next.

> **Important**
>
> - this Workbench Server application name parameter is now obsolete; please enter "WB" to progress to the next step

5. Enter the **Hostname** and **Port** of the Primary Configuration Server.
6. Enter the **Destination Folder** where the Workbench Agent 8.5.x application will be installed, and click Next.
7. After the installation completes, go to the Workbench Agent installation directory and start the Workbench Agent by running the command **startServer.bat**

> **Important**
>
> - You can also use GAX to Start and Stop the Workbench Agent 8.5.x application.

Configuring LFMT Collector for use with the Workbench Agent 8.5

1. LFMT Collector(s) automatically identify any Workbench Agents configured in your environment, but port information requires to be updated based on the type of communication between the LFMT Collector and the associated Workbench Agent
2. Log into GAX, and navigate to **Configuration Manager**
3. From the **Environment** section, select **Applications**
4. In the **Applications** section, select the **LFMT Collector** application
5. In the **Ports** tab, add if not already present

```
 ftmessaging = <an open port on the LFMT Collector host> (this port will be used by
agents that will transfer the file in plain text)
 sftmessaging = <an open port on the LFMT Collector host> (this port will be used by
agents that will encrypt the file before transfer)
```

6. Click the **Save** button to save changes to the application

> **Important**
>
> - Ensure that the **ftmessaging** port is identified as an “Unsecured” port in its properties
> - Ensure that the **sftmessaging** port is identified as a “Secured” port in its properties

7. **Repeat** the above steps for all LFMT Collector applications in your environment.

Verifying the Workbench Agent 8.5 installation

After completing the installation of the Workbench Agent, its configuration should be verified through the GAX interface.

1. Log into "GAX"
2. Navigate to "Configuration Manager"
3. From the "Environment" section, select "Applications"

4. In the "Applications" section, locate and open the respective Workbench Agent 8.5 application(s)
5. In the "General" tab, verify that the following parameters have been updated by the installation process

- **Working Directory** : The Workbench Agent installation path
- **Command Line** : agent_startup.bat or ./agent_startup.sh
- **Command Line Arguments** : -app <Workbench Agent Application Name> -host <Configuration Server Host> -port <Configuration Server Port> -backuphost <Backup Configuration Server Host> -backupport <Backup Configuration Server Port>

Important

- The **backuphost** and **backupport** options are optional; these options are read from the Command Line Arguments field of the Workbench Agent object only.

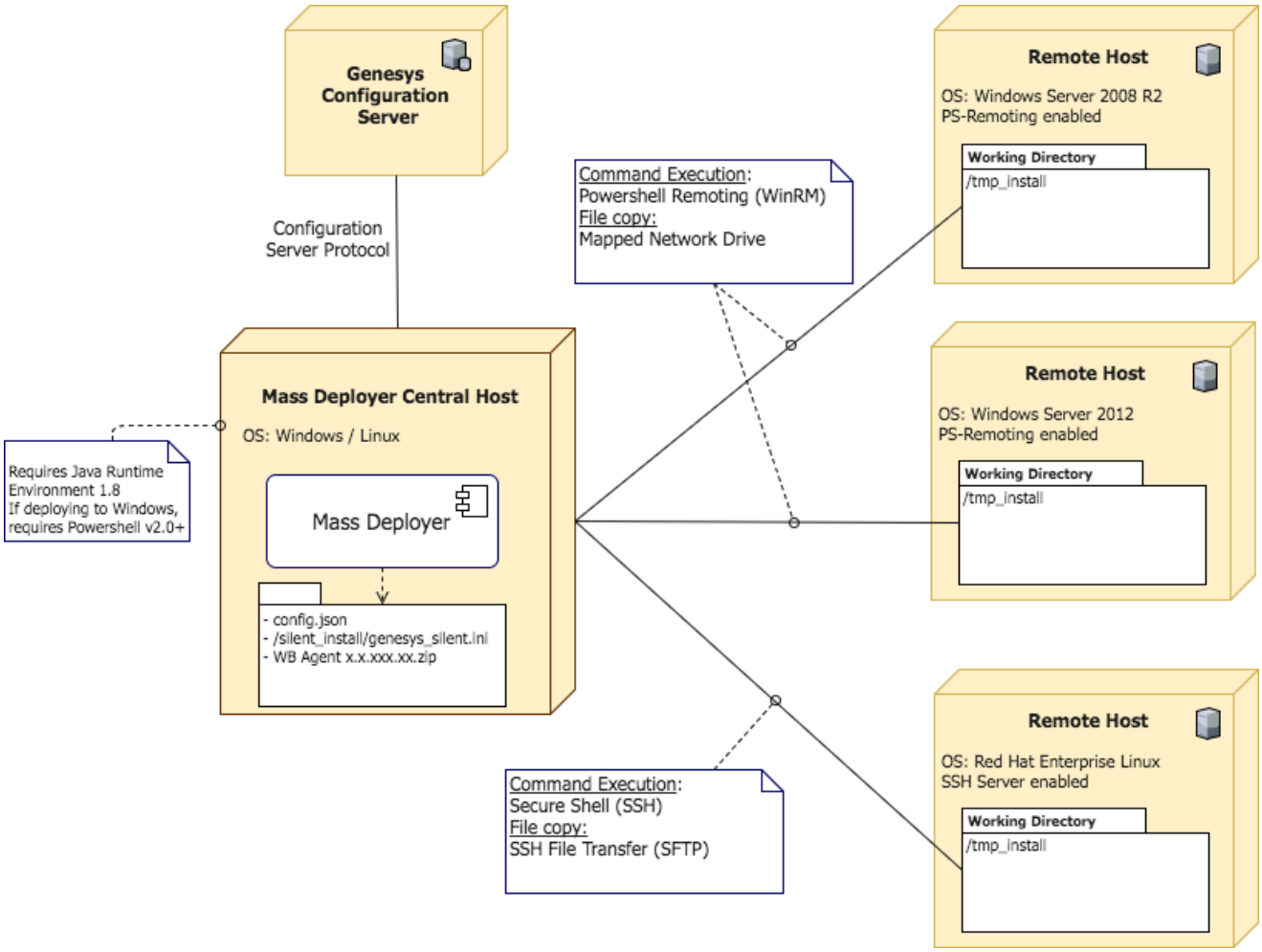
Installing Workbench Agent (Mass Deployment) for LFMT 8.5.1

The Mass Deployer allows the installation of the Workbench Agent to multiple hosts. It includes the following elements:

Mass Deployer Central Host The server where the mass deployer will be executed. It connects to the Remote hosts via different protocols depending on the Remote Host operating system. It requires a configuration file that provides credentials and connection details about the remote hosts.

Remote Hosts The hosts where the Workbench agent will be deployed. The agent will be extracted in the working directory specified in the Mass Deployer configuration file.

Configuration Server The properties of Remote hosts are retrieved from this server, including their IP address in order to connect to them. Every Workbench Agent deployed in Remote Hosts is provisioned in this Configuration Server.



Prerequisites

Software Requirements The Central and Remote hosts should have one of the following operating systems:

Windows

- Windows Server 2008 R2
- Windows Server 2012

Linux

- Red Hat Enterprise Linux (RHEL) 7 or later

> **Important**
>
> - If the central host is a Linux host it will only be able to mass deploy the agent to Linux Remote hosts.
> - If the central host is a Windows host, it can mass deploy to other Windows and Linux Remote hosts.
> - If a Workbench Agent is already deployed to a remote host, the agent must be uninstalled prior to running the Mass Deployer. This is a limitation that will be addressed in a future release.

Before using the Mass Deployer, the following software must be installed in the central and remote hosts:

- Java™ Platform Standard Edition Runtime Environment 8, 64-bit (JRE™ 8)
- If using a Windows Server, make sure that Powershell is enabled. The Mass Deployer requires Powershell v2.0 or a later version.

Communication Requirements

Linux Mass Deployer Central Host:

- The central host should be able to reach the Linux remote hosts using SSH.

Linux Remote hosts:

- The remote hosts where the agent will be deployed should be able to receive SSH connections from the Mass Deployer Host. An SSH Server (e.g. OpenSSH) should be enabled. Commands and files will be sent using SSH and SFTP respectively.

Windows Mass Deployer Central Host:

- Powershell should be enabled. The Mass Deployer requires v2.0 or a later version.
- The remote hosts should be included in the Trusted Hosts List of the central host in order to correctly connect to them using Powershell Remoting (Windows Remote Management – WinRM).
  - The Mass Deployer will try to temporarily modify the trusted host list in order to connect to the remote hosts. To do this, the Mass Deployer should be executed from a command prompt with administrative privileges. Otherwise, the Mass Deployer will continue to execute, but the trusted host list should be modified by the user before starting the Mass Deployer.
  - You can use the following command replacing the “*” with the list of remote host IP addresses. The “*” would indicate that all hosts are trusted.

Set-Item WSMan:\localhost\Client\TrustedHosts -Value "*" *–Force*

Windows Remote Hosts:

- Powershell should be enabled, v2.0 or later is required.

- The remote hosts should be able to receive remote Powershell commands. The WinRM service should be enabled to allow this remote access. A way of enabling it is running the following command from Powershell with administrative privileges:
  - Enable-PSRemoting –Force
  - This will start or restart the WinRM service and create the listener to accept requests from any IP address.
- The Mass Deployer will copy the Installation Package and extract it in a folder called “tmp_install” inside the provided working directory. If it doesn’t exist, the Mass Deployer will try to create it.

Execute the following command in Powershell on the central host to ensure that WinRM remoting is properly configured in a remote host and is accepting requests:

Test-WSMan -ComputerName <Remote Host IP address>

It should print an output similar to:

- wsmid: http://schemas.dmtf.org/wbem/wsman/identity/1/wsmanidentity.xsd
- ProtocolVersion: http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd
- ProductVendor: Microsoft Corporation
- ProductVersion: OS: 0.0.0 SP: 0.0 Stack: 3.0

The “Stack” version will change depending on the remote host WinRM service.

Installing the Mass Deployer

The Mass Deployment software is available in the **Utilities** folder of the **Collector** installation directory, post installation of the Collector.

For Example: C:\Program Files\GCTI\collector\LFMT_Collector_8.5.100.05_Alt\utilities\agent_mass_deployer

The working directory of the Mass Deployer in the central host should have the following structure:

```
/<Mass Deployer working directory>
     Mass Deployer-x.x.xxx.xx.jar
       /deployments  Stores the silent install configuration files for each remote host where
the agent is deployed
      /silent install
             genesys silent.ini  A template for the silent install configuration file.
             config.json The Mass Deployer configuration file. See “Configuring the Mass
Deployer” for details about this file.
             WB Agentg x.x.xxxx.xx.zip The agent ZIP distribution
       /lib Directory with the Mass Deployer runtime dependencies
```

Configuring the Mass Deployer

The configuration of the Mass Deployer is stored in a JSON file used by the tool at runtime.

The configuration file has the following sections:

{ “config_server” : CfgServer,

“app_template_name” : <string>,

“app_name_prefix” : <string>,

“app_parent_folder” : <string>,

“deployments”:Deployments,

“agent” : <string>,

“linux_ip_path” : <string>,

“windows_ip_path” : <string>,

“wb_server_app” : <string>,

“global_listening_ports” : GlobalListeningPorts,

“global_options” : GlobalOptions,

“windows_global_options” : WindowsGlobalOptions,

“linux_global_options” : LinuxGlobalOptions }

CfgServer section:

Includes the connection parameters required to interact with the Configuration Server.

Required: Yes

{ "ip_addr": <string>

"port" : <number>,

"username" : <string>,

"password" : <string>,

"app_client_name" : <string> }

- ip_addr - The IP address of the Configuration Server
- port - The port where the Configuration Server is listening
- username -The username used to connect to Configuration Server
- password -The password of the associated username
- app_client_name - The Application object used to connect to Configuration Server

app_template_name The name of the Workbench Agent Application Template. This template will be used to provision all agents. Required: If provisioning to Configuration Server.

app_name_prefix The prefix that will be used to name the new Workbench Agent Applications that will be provisioned. The name of the Application will be <app_name_prefix><Remote Host name> Required: If provisioning to Configuration Server.

app_parent_folder The folder where the application object will be stored in Configuration Server. If this folder doesn't exist, the Mass Deployer will try to create it. If not provided the application will be created in the root of the Applications section. Required: No

Deployments section:

Includes the properties of the hosts where the Agent will be deployed. It is a list with one object per deployment.

Required: Yes

[{ "cfg_server_host_name": <string>

"username" : <string>,

"password" : <string>,

" working_dir" : <string>

}, . . .]

- **cfg_server_host_name** - The name of the remote host as it appears in Configuration Server
- **username** - The username used to connect to the remote host using SSH or a Powershell Remote session.
- **password** - The password of the username
- **working_dir** - The directory where the agent will be extracted and from where it will be executed

> **Important**
>
> - Please ensure that each CME Host in Configuration Server has an Operating System in the "OS Version" property; this is used by the Mass Deployer to decide how to connect to the remote host.

agent

Path to the Workbench Agent distribution. If deploying from Windows, the path should have double backslashes (\\). For example: /home/genesys/WBAgent_8.5.000.31.zip.

Required: If deploying to remote hosts.

linux_ip_path

Relative path to the Linux installation package directory inside the agent package. For example: /IPs/WBAgent_UNIX_8.5.000.31/linux/b1/ip.

Required: If deploying to remote hosts.

windows_ip_path

Relative path to the Windows installation package directory inside the agent package. It requires double blackslashes. For example: \\IPs\\WBAgent_Windows_8.5.000.31\\windows\\b1\\ip.

Required: If deploying to remote hosts.

wb_server_app

Name of the Workbench Server application that will interact with the Agent being deployed/provisioned, as it appears in Configuration Server. This is used during the installation of the Workbench Agent.

Required: If deploying to remote hosts.

GlobalListeningPorts section:

The list of listening ports that will be used when provisioning the Workbench Agents in Configuration Server. Each port is a JSON Object with an ID and a value.

Required: If provisioning to Configuration Server.

[{ "ID": <string>

"value" : <number>

}]

- ID - A unique identification for each port
- value - The listening port number

GlobalOptions section:

A JSON object with the options that will be assigned to the Workbench Agents being provisioned. Options are grouped by sections and all values should be strings.

Required: If provisioning to Configuration Server.

{ <section_name_1> :

{ <option_name_1>: <option_value_1>,

<option_name_2>: <option_value_2>,

... <option_name_n>: <option_value_n>

}, <section_name_2> :

{ <option_name_1>: <option_value_1>,

... <option_name_n>: <option_value_n>

}, ..., <section_name_n> :

{ <option_name_1>: <option_value_1>,

... <option_name_n>: <option_value_n>

} }

For example, these options:

- Option: **log/all** – Value: C:\logs\workbench_logs
- Option: **log/expire** – Value: 20
- Option: **general/customer_name** – Value: default

Would be configured as follows:

{ “log” :

{ “all”: “C:\\logs\\workbench_logs”,

“expire”: “20” }, “general” : { “customer_name”: “default” } }

WindowsGlobalOptions section:

A JSON object with the options that will be assigned to the Workbench Agents if being provisioned to a Windows host. The structure of this JSON object is the same as the one described in the GlobalOptions section. If the same property is set in both the GlobalOptions and the WindowsGlobalOptions section, the latter will be used.

Required: No.

LinuxGlobalOptions section:

A JSON object with the options that will be assigned to the Workbench Agents if being provisioned to a Linux host. The structure of this JSON object is the same as the one described in the GlobalOptions section. If the same property is set in both the GlobalOptions and the LinuxGlobalOptions section, the latter will be used.

Required: No.

Executing the Mass Deployer

Run the Mass Deployer by executing the following command from the directory where the executable was placed:

java -jar <MassDeployer-x.x.xxx.xx.jar> , followed by these arguments:

Short argument: -c

Long argument: --cfgFile

Mandatory: Yes

Valid Values: A path to a valid configuration JSON file

Description: Path to the Mass Deployment Configuration file

Short argument: -m

Long argument: --mode

Mandatory: Yes

Valid Values: provision, deploy, provision_deploy

Description: Mass Deployment mode.

*provision: Connects to configuration server and provisions the Agent apps in the configuration file.

*deploy: Copies the agent to the remote hosts and installs it.

*provision_deploy: Provisions the agent apps in Configuration server and then installs the agents on the remote hosts.

Short argument: -e

Long argument: --failOnError

Mandatory: No

Description: Cancels the execution if one of the deployments fail. If not included, the mass deployer will continue deploying to other hosts even if one of the previous deployments failed.

Short argument: -o

Long argument: --overwriteApps

Mandatory: No

Description: Overwrites the Config Server Apps if they are already provisioned. If not included, the mass deployer will fail if an application previously existed.

Examples:
java –jar MassDeployer-x.x.xxx.xx.jar –c /home/genesys/MD/config.json –m provision_deploy
java –jar MassDeployer-x.x.xxx.xx.jar –c C:\Users\genesys\MD\config.json –m provision –e –o
java –jar MassDeployer-x.x.xxx.xx.jar –-cfgFile /home/genesys/MD/config.json –m provision_deploy --failOnError

Important

- The Mass Deployer executes the installer of the Workbench Agent in **silent mode**.
- This version of the Mass Deployer will not monitor the outcome of the silent installation; this is accomplished by checking the **genesys_install_result.log** file that is generated in the working directory of the Agent Application.

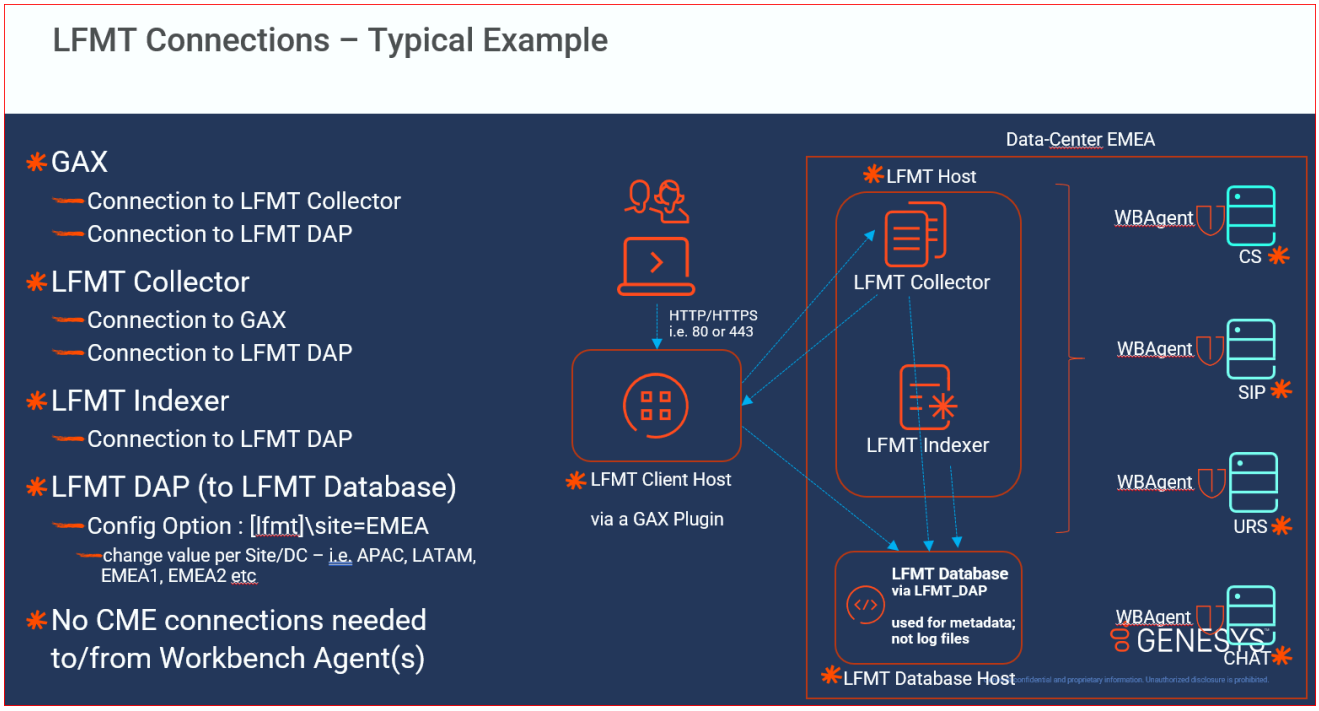
Important

- As a known issue, the Mass Deployer might not work properly if there are disconnected Network drives in the central host.
  - Try removing these network drives before running the Mass Deployer.
  - If you see an error message similar to: “Attempting to perform the InitializeDefaultDrives operation on the 'FileSystem' provider failed” when opening a new Powershell terminal, then the Mass Deployer will not function appropriately.

- It has also been observed in some occasions that Powershell processes will remain active after the Mass Deployer has finished executing.
  - Please check the running applications after finishing deployment and manually clean-up any open Powershell processes

LFMT Application Connections

This section provides a diagram of LFMT Application connections - please ensure the respective LFMT Application connections are configured as below.



Log File Management Tool Configuration Options

This section describes the configuration options used to configure the Log File Management Tool (LFMT).

Sections within this Configuration Options chapter:

1. LFMT Host Object Configuration Options.
2. LFMT GAX Configuration Options.
3. LFMT Indexer Configuration Options.
4. LFMT Collector Configuration Options.
5. LFMT DAP Configuration Options.

LFMT Host Object Configuration Options

This section contains options used to configure the hosts to which LFMT Collector will connect. Unless otherwise stated, all configuration options are set using GAX in the **Options** tab of the **Host** object.

lfmt Section

The options in this section correspond to the Host object to which LFMT Collector will connect; this section must be called **lfmt**.

nic

Default Value: No default value
Valid Values: A valid host name
Changes Take Effect: At the next execution LFMT Collector.
Description: Specifies the hostname/IP of the Network Interface Card (NIC). Use this option if you are using a dedicated network interface for file transfer from this host.

LFMT GAX Configuration Options

This section contains options used to configure the GAX for use with LFMT. Unless otherwise stated, all configuration options are set using GAX in the **`Application Options`** tab of the **GAX** object.

lfmt Section

This section contains options for general configuration of the application.

This section must be called `lfmt`.

http_request_timeout

Default Value: 60000 (60 seconds)
Valid Values: a millisecond integer value (i.e. **120000** for 120 seconds)
Changes Take Effect: After restart of GAX.
Description: Increases the client timeout value when performing a Force Collection; if/when a Force Collection timeout error is presented, add this option to increase the timeout. Note when a timeout message appears in the Client, the collection still continues to run on the server/Collector. The timeout simply indicates that the server-side collection has not finished before the client timeout has elapsed.

collection_timeout

Default Value: 3600000 (1 hour)
Valid Values: a millisecond integer value (i.e. **3600000** for 1 hour)
Changes Take Effect: After restart of GAX.
Description: This is specifically for the Force Collection API, which will keep the connection open for <x> milliseconds.

use_lfm_extension

> **Important**
>
> - Only relevant for LFMT Client 8.5.104.00 thru LFMT Client 8.5.105.03 - option removed in LFMT Client 8.5.105.07 given ".lfm" is now the default/only extension used

Default Value: false
Valid Values: true or false
Changes Take Effect: After restart of GAX.
Description: If set to true, the created log file package(s) will use the **.lfm** extension else the default

.zip extension is used.

ftp_host

Default Value: No default value
Valid Values: Valid (S)FTP/S IP/hostname address
Changes Take Effect: After restart of GAX.
Description: Specifies the IP/hostname of the default (S)FTP/S server.

ftp_port

Default Value: No default value
Valid Values: Valid (S)FTP/S port number, must be an integer
Changes Take Effect: After restart of GAX.
Description: Specifies the default port of the (S)FTP/S server.

ftp_pwd

Default Value: No default value
Valid Values: Valid (S)FTP/S password
Changes Take Effect: After restart of GAX.
Description: Specifies the password of the (S)FTP/S server.

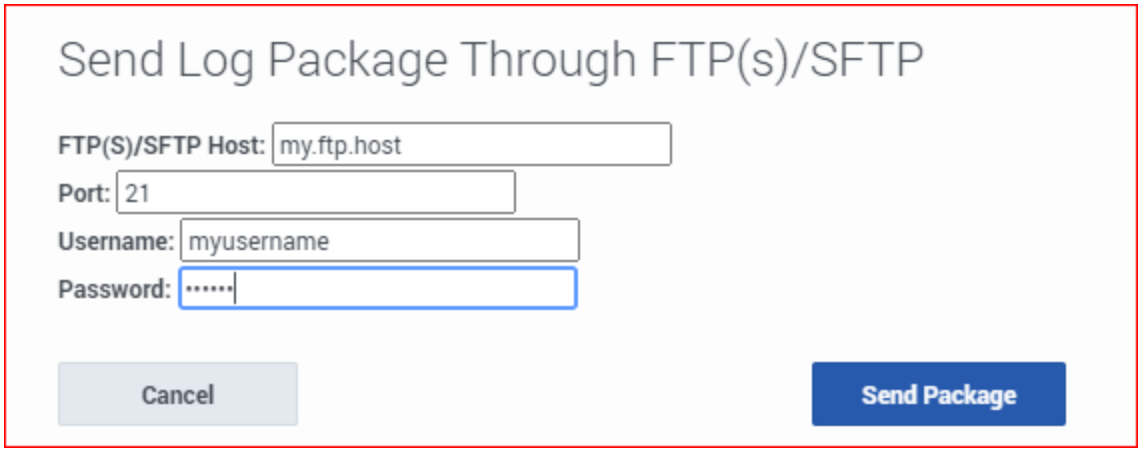
ftp_user

Default Value: No default value
Valid Values: Valid (S)FTP/S username
Changes Take Effect: After restart of GAX.
Description: Specifies the username of the (S)FTP/S server.

Note

Important

- The "ftp_host", "ftp_port", "ftp_user" and "ftp_pwd" options relate to LFMT sending log packages to an FTP Server - review this section for further details https://docs.genesys.com/Documentation/ST/current/DeploymentGuide/AvailablePackages#Sending_an_LFMT_package_via_FTP(S)/SFTP



security Section

This section contains all options relating to securing communication between the Client and the Collector as well as securing connections to the LFMT database (as of version 8.5.104.01). The section is optional and is required only if the communication between the LFMT Client and the LFMT Collector or connections to the LFMT database has to be secured; this section must be called **security**.

enable_tls

Default value: None
Valid Values: true,false
Changes Take Effect: After restart of GAX.
Description: Indicates whether TLS is enabled for messaging and file transfer. Note, the "messaging" and "ftmessaging" ports should also have their listening modes set to secure.

mutual_tls

Default value: None
Valid Values: true,false
Changes Take Effect: After restart of GAX.
Description: Indicates whether mutual TLS is enabled for messaging and file transfer between the Client/GAX and the LFMT Collector.

protocol

Default value: None
Valid Values: TLSv1.2
Changes Take Effect: After restart of GAX.
Description: Identifies the protocol to be used for the SSL communication between the LFMT Client and the LFMT Collector.

enabled_ciphers

Default value: None
Valid Values: Any valid Java cipher suite. i.e "TLS_RSA_WITH_AES_256_CBC_SHA256" (see Java documentation for valid list)
Changes Take Effect: After restart of GAX.
Description: Identifies the cipher suite to be used for TLS communication between the LFMT Client and LFMT Collector.

Note: Ensure any configured cipher suite is enabled to be used by the Java instance on the host. See Java documentation for enabling/disabling cipher suites. The Collector that the Client is connecting to will need to be configured with the same cipher suite.

security.keystore Section

The security.keystore section of the LFMT Client application options is used to identify the keystore properties through which LFMT Collector will load the necessary keys for secure communications; this section must be called **security.keystore**.

> **Important**
>
> - If GAX has https enabled for client connections, ensure that the same Java keystore/truststore is used for configuring LFMT TLS. If a different keystore/trustore is used for LFMT TLS configuration, then these values will override the keystore/truststore paths specified for GAX https config.

path

Default value: No default value
Valid Values: A file path to the keystore located on the host. **Note:** The security certificates must be generated using the SHA-2 secure hash algorithm.
Changes Take Effect: After restart of GAX.
Description: Identifies the path to the local keystore to be used by the LFMT Client to load the necessary keys.

password

Default value: No default value
Valid Values: A valid password associated with the keystore defined in the path option of the security.keystore section
Changes Take Effect: After restart of GAX.
Description: The password to be used by the LFMT Client to access the keystore.

security.truststore Section

The security.truststore section of the LFMT Client application options is used to identify the truststore properties through which LFMT Collector will load the necessary certificates for secure communications; this section must be called **security.truststore**.

> **Important**
>
> - If GAX has https enabled for client connections, ensure that the same Java keystore/truststore is used for configuring LFMT TLS. If a different keystore/trustore is used for LFMT TLS configuration, then these values will override the keystore/truststore paths specified for GAX https config.

path

Default value: No default value
Valid Values: A file path to the truststore located on the host. **Note:** The security certificates must be generated using the SHA-2 secure hash algorithm.
Changes Take Effect: After restart of GAX.
Description: Identifies the path to the truststore to be used by the LFMT Client to load the necessary certificates.

password

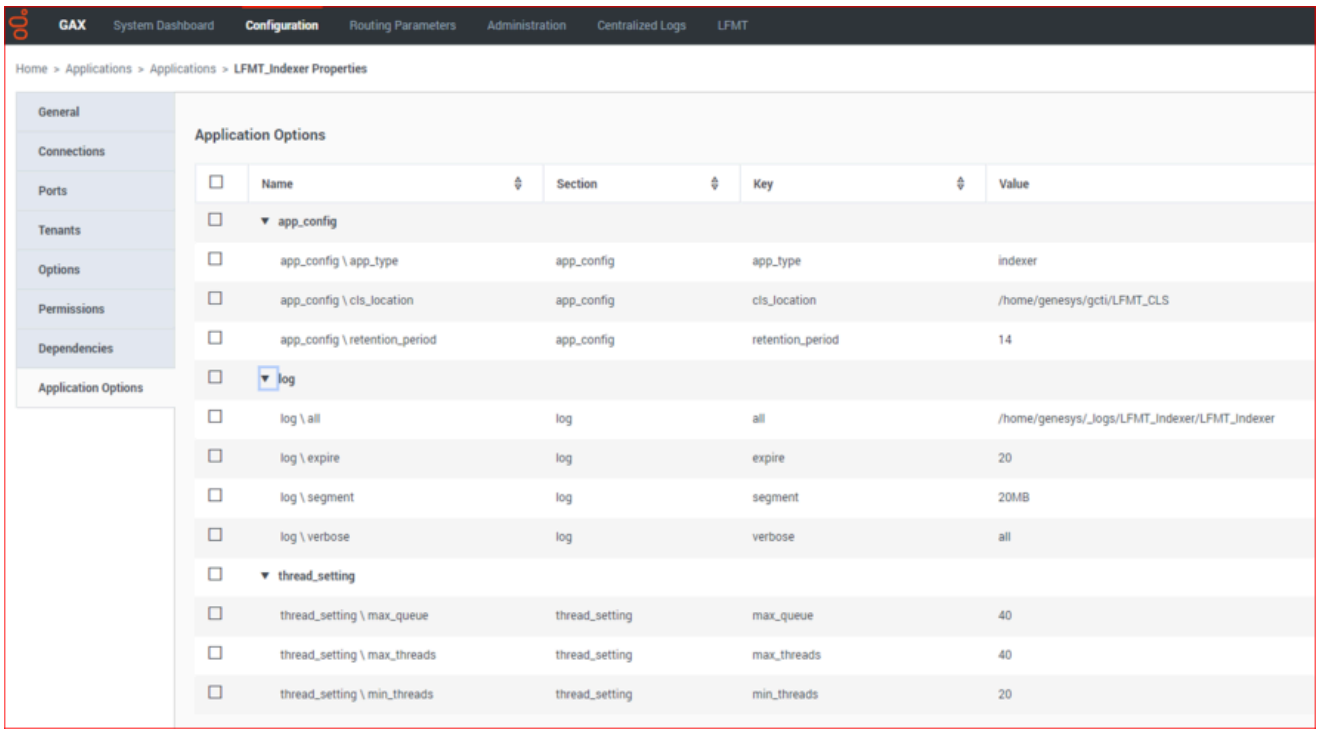
Default value: No default value
Valid Values: A valid password associated with the truststore identified in the path option of the security.truststore section
Changes Take Effect: After restart of GAX.
Description: The password to be used by the LFMT Client to access the truststore.

LFMT Indexer Configuration Options

This section contains options used to configure the LFMT Indexer.

Unless otherwise stated, all configuration options are set using GAX in the **`Application Options`** tab of the **LFMT Indexer** object.

Examples:



app_config Section

This section contains options for general configuration of the LFMT Indexer application; this section must be called **app_config**.

app_type

Default Value: indexer
Valid Values: indexer
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the type of Generic Genesys Server this application represents.

cls_location

Default Value: **No default value - please enter a value here**
Valid Values: Valid path through the system (i.e. **C:\CLS** or **/home/genesys/gcti/LFMT_CLS**)
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the path (local to Collector Host and **not** a mapped network drive) through the system to the folder or directory where the CLS is located; for example, `C:/GCTI/CLS`.

> **Important**
>
> - Please ensure this option is set with a valid path, and the user has write permissions to the path, before starting the LFMT Indexer(s) application

retention_period

Default Value: **3**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the number of days that the unmodified files are stored in CLS before they are deleted permanently; this value **should be greater than or equal** to the value of the **LFMT Collector** application **`collection_period`** option.

log Section

This section contains all options relating to creating, viewing, and otherwise using the Centralized Log facility in Genesys software; this section must be called **log**.

all

Default value: No default value
Valid Values: **[path/filename]** (i.e. **/home/genesys/gcti/_logs/LFMT_Indexer/LFMT_Indexer**)
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the file location to which the application sends all log events.

expire

Default value: **10**
Valid Values: `[number]` Specify a number from 1–1000.
Changes Take Effect: After restart of LFMT Indexer.
Description: Determines how many log files are kept before they are deleted.

segment

Default value: **5000**

Valid Values: `[number]` - Specify a value in kilobytes.
Changes Take Effect: After restart of LFMT Indexer.
Description: Determines the rollover size of the log files.

verbose

Default value: **all**
Valid Values:

- `all` - All log events are printed.
- `trace` - All log events are printed.
- `debug` - DEBUG, INFO, WARN, FATAL, and ERROR log events are printed.
- `info` - INFO, WARN, FATAL, and ERROR log events are printed.
- `warn` - WARN, FATAL, and ERROR log events are printed.
- `error` - FATAL and ERROR log events are printed.
- `fatal` - Only FATAL log events are printed.
- `off` - No log events are printed.

Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the log level.

thread_setting Section

This section defines the number of threads required for the indexed to process files in parallel; this section must be called **thread_setting**.

max_queue

Default value: **40**
Valid Values: Any integer
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the number of files to keep in the queue when all the threads are busy before the indexer starts generating exceptions.

max_threads

Default value: **40**
Valid Values: Any integer
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the maximum number of threads required to process the files in parallel.

min_threads

Default value: **20**
Valid Values: Any integer

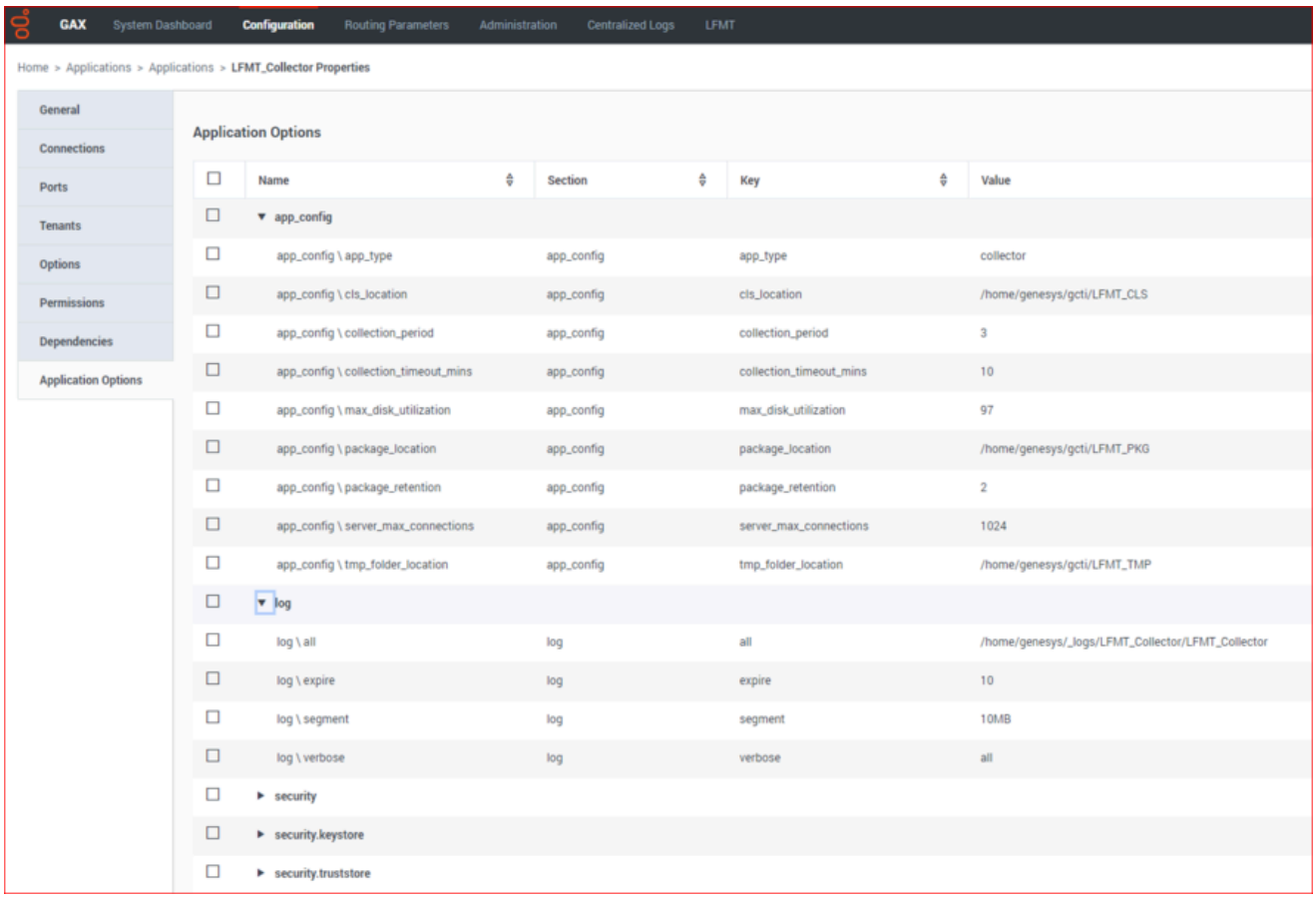
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the minimum number of threads required to process files in parallel.

LFMT Collector Configuration Options

This section contains options used to configure the LFMT Collector.

Unless otherwise stated, all configuration options are set with GAX in the **`Application Options`** tab of the **LFMT Collector** object.

Examples:



app_config Section

This section contains options for general configuration of the application; this section must be called **app_config**.

app_type

Default Value: collector
Valid Values: collector
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the type of Generic Genesys Server this application represents.

cls_location

Default Value: **No default value - please enter a value here**
Valid Values: Valid path through the system (i.e. **C:\CLS** or **/home/genesys/gcti/LFMT_CLS**)
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the path (**local** to the Collector Host and **not** a mapped network drive) through the system to the folder or directory where the CLS is located, the Workbench Agent 8.5 will transfer files to this location. For example, `C:/GCTI/CLS`.

> **Important**
>
> - Please ensure this option is set with a valid path, and the user has write permissions to the path, before starting the LFMT Collector(s) application

collection_period

Default Value: **3**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the maximum number of historical days that LFMT Collector will attempt to collect log files; this value **should less than or equal** to the value of the **LFMT Indexer** application **`retention_period`** option.

collection_timeout_mins

Default Value: **2**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Collector.
Description: This option controls the length of time in minutes for which a transfer should be cancelled if the global collection request has not fully completed. For example, if 5 applications are selected in a collection request (scheduled or manual), the logs from all 5 of these applications must be fully transferred to the LFMT host before this time-out period elapses.

file_transfer_timeout

Default Value: **5**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Collector.
Description: This option controls when the connection between the collector and the workbench agent is terminated because of timeout conditions. If terminated prematurely, the transfer of files

from agent(s) will be terminated and not all files may be transferred.

max_disk_utilization

Default Value: **85**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the maximum percentage of HDD space that will be utilized for storing log files in the CLS. The default value 85 indicates that, up to 85% of the HDD space will be used. After reaching this threshold, further transfers will not be executed.

package_location

Default Value: **No default value - please enter a value here** (i.e. **/home/genesys/gcti/LFMT_PKG**)
Valid Values: Valid path through the system (network)
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the path through the system to the folder or directory where the LFMT Collector packages will be created.

> **Important**
>
> - Please ensure this option is set with a valid path, and the user has write permissions to the path, before starting the LFMT Collector(s) application

package_retention

Default Value: **2**
Valid Values: Any positive integer
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the number days that LFMT Collector will keeps log file packages created from the LFMT Client before deletion.

server_max_connections

Default Value: **1024**
Valid Values: Any positive integer greater than 0.
Changes Take Effect: After restart of LFMT Collector.
Description: Identifies the total number of connections allowed from all LFMT agents to transfer files.

tmp_folder_location

Default Value: OS Temp folder (if no option configured) - (i.e. **/home/genesys/gcti/LFMT_TMP**)
Valid Values: Valid path through the system (network)
Changes Take Effect: After restart of LFMT Collector.
Description: Specifies the path through the system to the folder or directory where the temporary

files for LFMT are to be located. For example, /home/genesys/gcti/LFMT_TMP.

> **Important**
>
> - If set, please ensure this is different/separate to the "cls_location" option else LFMT Collector(s) will incorrectly process .tmp files
>   - also ensure this option is set with a valid path, and the user has write permissions to the path

log Section

This section contains all options relating to creating, viewing, and otherwise using the Centralized Log facility in Genesys software; this section must be called **log**.

all

Default value: No default value
Valid Values: **[path/filename]** (i.e. **/home/genesys/gcti/_logs/LFMT_Collector/LFMT_Collector**)
Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the file location to which the application sends all log events.

expire

Default value: **10**
Valid Values: `[number]` Specify a number from 1–1000.
Changes Take Effect: After restart of LFMT Indexer.
Description: Determines how many log files are kept before they are deleted.

segment

Default value: **5000**
Valid Values: `[number]` - Specify a value in kilobytes.
Changes Take Effect: After restart of LFMT Indexer.
Description: Determines the rollover size of the log files.

verbose

Default value: **all**
Valid Values:

- `all` - All log events are printed.
- `trace` - All log events are printed.
- `debug` - DEBUG, INFO, WARN, FATAL, and ERROR log events are printed.

- `info` - INFO, WARN, FATAL, and ERROR log events are printed.
- `warn` - WARN, FATAL, and ERROR log events are printed.
- `error` - FATAL and ERROR log events are printed.
- `fatal` - Only FATAL log events are printed.
- `off` - No log events are printed.

Changes Take Effect: After restart of LFMT Indexer.
Description: Specifies the log level.

security Section

This section contains all options relating to securing communication between the LFMT Collector and the Workbench Agent. The section is optional and is required only if the communication between the Workbench and the LFMT Collector has to be secured; this section must be called **security**.

mutual_tls

Default value: None
Valid Values: true,false
Changes Take Effect: After restart of LFMT Collector.
Description: Indicates whether mutual TLS is enabled for messaging and file transfer.

provider

Default value: None
Valid Values: JKS,
Changes Take Effect: After restart of LFMT Collector.
Description: The key provider.

protocol

Default value: None
Valid Values: TLSv1.2
Changes Take Effect: After restart of LFMT Collector.
Description: Identifies the protocol to be used for the SSL communication between the LFMT Collector and the LFMT Agent.

enabled_ciphers

Default value: None
Valid Values: Any valid Java cipher suite. i.e "TLS_RSA_WITH_AES_256_CBC_SHA256" (see Java documentation for valid list)
Changes Take Effect: After restart of LFMT Collector.
Description: Identifies the cipher suite to be used for TLS communication between the LFMT Collector/LFMT Client and LFMT Collector/Workbench Agent.

Note: Ensure any configured cipher suite is enabled to be used by the Java instance on the host. See Java documentation for enabling/disabling cipher suites. The Client and Agent(s) that the Collector is connecting to will need to be configured with the same cipher suite.

security.keystore Section

The security.keystore section of the LFMT Collector application options is used to identify the keystore properties through which LFMT Collector will load the necessary keys for secure communications; this section must be called **security.keystore**.

path

Default value: No default value
Valid Values: A file path to the keystore located on the host. **Note:** The security certificates must be generated using the SHA-2 secure hash algorithm.
Changes Take Effect: After restart of LFMT Collector.
Description: Identifies the path to the local keystore to be used by LFMT Agent to load the necessary keys.

password

Default value: No default value
Valid Values: A valid password associated with the keystore defined in the path option of the security.keystore section
Changes Take Effect: After restart of LFMT Collector.
Description: The password to be used by LFMT Agent to access the keystore.

security.truststore Section

The security.truststore section of the LFMT Collector application options is used to identify the truststore properties through which LFMT Collector will load the necessary certificates for secure communications; this section must be called **security.truststore**.

path

Default value: No default value
Valid Values: A file path to the truststore located on the host. **Note:** The security certificates must be generated using the SHA-2 secure hash algorithm.
Changes Take Effect: After restart of LFMT Collector.
Description: Identifies the path to the truststore to be used by LFMT Collector to load the necessary certificates.

password

Default value: No default value
Valid Values: A valid password associated with the truststore identified in the path option of the

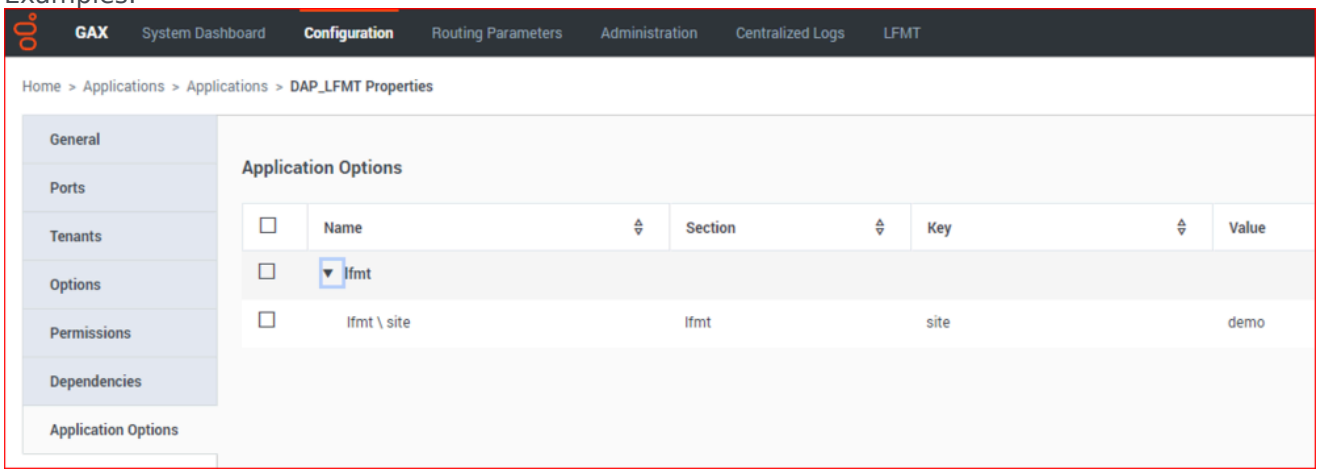
security.truststore section
Changes Take Effect: After restart of LFMT Collector.
Description: The password to be used by LFMT Collector to access the truststore.

LFMT DAP Object Configuration Options

This section contains options used to configure the DAP to which LFMT Client/Indexer/Collector will use to connect to an LFMT Database.

Unless otherwise stated, all configuration options are set with GAX in the **`Application Options`** tab of the **LFMT DAP** object.

Examples:



lfmt Section

The options in this section correspond to the DAP to which LFMT Client/Indexer/Collector applications will use to connect to an LFMT Database; this section must be called **lfmt**.

site

Default Value: **No default value - please enter a value here**
Valid Values: A unique identifier for the Site (i.e. **lab** or **EMEA** or **Chicago_1**) where an LFMT Indexer/Collector pair resides.
Changes Take Effect: After a restart of the LFMT Client (GAX), LFMT Indexer, and LFMT Collector (all must be restarted).
Description: Names the Site where an LFMT Indexer/Collector pair resides; used during configuration of LFMT in the Site Configuration Tab of the GAX LFMT UI/Client.

> **Important**
>
> - Please ensure this option is set with a valid Site (i.e. **EMEA** or **Chicago_1** or **lab**) before

starting the LFMT Collector(s)/Indexer(s) applications

use_oracle_service (optional)

Default Value: False
Valid Values: True, False.
Changes Take Effect: After a restart of the LFMT Client (GAX), LFMT Indexer, and LFMT Collector (all must be restarted).
Description: Indicates that an Oracle database connection is to be made using a Service Name rather than an SID; the name of the Service is indicated by the “Database Name” property of the Database Access Point.

Note

Important

- Ensure that the **site** option for each LFMT DAP object within the LFMT deployment is different
  - i.e. do not have `site` set to `EMEA` in more than 1 DAP Object
- Please ensure the LFMT Collector/Indexer pair and the GAX application has a connection to this DAP before starting the respective LFMT Collector/Indexer applications
- An LFMT Collector application object must have only one connection to a LFMT DAP object
- An LFMT Indexer application object must have only one connection to a LFMT DAP object.
- A single GAX application may have multiple connections to more than one LFMT DAP object - so that GAX and the LFMT UI can control/manage multiple LFMT Collector/Indexer pairs, essentially an holistic view

Workbench Agent Configuration Options (for LFMT 8.5.1)

This section contains options used to configure the Workbench Agent. Unless otherwise stated, all configuration options are set using GAX in the Application Options tab of the LFMT Agent object.

app_config Section

This section contains options for general configuration of the application. This section must be called `app_config`.

agent_max_open_requests

Default Value: 4096
Valid Values: Any positive integer greater than 0 and a power of 2. (i.e 1024, 2048, 4096 etc.)
Changes Take Effect: After restart of Workbench Agent.
Identifies the maximum number of open requests accepted into the connection pool of the workbench agent.

agent_max_outgoing_connections

Default Value: 1
Valid Values: Any positive integer greater than 0
Changes Take Effect: After restart of Workbench Agent.
Identifies the maximum number of concurrent outgoing connections from the workbench agent.

agent_max_pipelining_limit

Default Value: 1
Valid Values: Any positive integer greater than 0
Changes Take Effect: After restart of Workbench Agent.
Identifies the maximum number of requests that are accepted (and dispatched to the collector) on one single connection before the first request is completed.

security Section

This section contains all options relating to securing communication between the LFMT Collector and the Workbench Agent. The section is optional and is required only if the communication between the LFMT Collector and the Workbench Agent has to be secured. This section must be called `security`.

mutual_tls

Default value: None
Valid Values: true,false
Changes Take Effect: After restart of Workbench Agent.
Indicates whether mutual TLS is enabled for messaging and file transfer.

provider

Default value: None
Valid Values: JKS
Changes Take Effect: After restart of Workbench Agent.
The key provider.

protocol

Default value: None
Valid Values: TLSv1.2
Changes Take Effect: After restart of Workbench Agent.
Identifies the protocol to be used for the SSL communication between the LFMT Collector and the Workbench Agent.

enabled_ciphers

Default value: None
Valid Values: Any valid Java cipher suite. i.e "TLS_RSA_WITH_AES_256_CBC_SHA256" (see Java documentation for valid list)
Changes Take Effect: After restart of Workbench Agent.
Description: Identifies the cipher to be used for TLS communication between the LFMT Collector and Workbench Agent.

Note: Ensure any configured cipher suite is enabled to be used by the Java instance on the host. See Java documentation for enabling/disabling cipher suites. The LFMT Collector that the Workbench Agent is connecting to will need to be configured with the same cipher suite.

security.keystore Section

The security.keystore section of the Workbench Agent application options is used to identify the keystore properties through which Workbench Agent will load the necessary keys for secure communications. This section must be called `security.keystore`.

path

Default value: No default value
Valid Values: A file path to the keystore located on the host
Changes Take Effect: After restart of Workbench Agent.

Identifies the path to the local keystore to be used by Workbench Agent to load the necessary keys.

password

Default value: No default value
Valid Values: A valid password associated with the keystore defined in the path option of the security.keystore section
Changes Take Effect: After restart of Workbench Agent.
The password to be used by Workbench Agent to access the keystore.

security.truststore Section

The security.truststore section of the Workbench Agent application options is used to identify the truststore properties through which Workbench Agent will load the necessary certificates for secure communications. This section must be called `security.truststore`.

path

Default value: No default value
Valid Values: A file path to the truststore located on the host
Changes Take Effect: After restart of Workbench Agent.
Identifies the path to the truststore to be used by Workbench Agent to load the necessary certificates.

password

Default value: No default value
Valid Values: A valid password associated with the truststore identified in the path option of the security.truststore section
Changes Take Effect: After restart of Workbench Agent.
The password to be used by Workbench Agent to access the truststore.

log Section

This section contains all options relating to creating, viewing, and otherwise using the Centralized Log facility in Genesys software. This section must be called `log`.

all

Default value: No default value
Valid Values: [filename]
Changes Take Effect: After restart of Workbench Agent.
Specifies the file location to which the application sends all log events.

expire

Default value: 10
Valid Values: [number] Specify a number from 1–1000.
Changes Take Effect: After restart of Workbench Agent.
Determines how many log files are kept before they are deleted.

segment

Default value: 5000
Valid Values: [number] - Specify a value in kilobytes.
Changes Take Effect: After restart of Workbench Agent.
Determines the rollover size of the log files.

verbose

Default value: all
Valid Values:

- all - All log events are printed.
- trace - All log events are printed.
- debug - DEBUG, INFO, WARN, FATAL, and ERROR log events are printed.
- info - INFO, WARN, FATAL, and ERROR log events are printed.
- warn - WARN, FATAL, and ERROR log events are printed.
- error - FATAL and ERROR log events are printed.
- fatal - Only FATAL log events are printed.
- off - No log events are printed.

Changes Take Effect: After restart of Workbench Agent.
Specifies the host IP address of the configuration server.

Workbench Agent Host Object Configuration Options (for LFMT 8.5.102+)

This page contains options used to configure the host objects to which LFMT Collector will connect. This assumes that the Workbench Agent is running on `this` host. Unless otherwise stated, all configuration options are set using GAX in the `Options` tab of the Host object.

lfmt Section

This section must be called `lfmt`.

nic (optional)

Default Value: No default value
Valid Values: A valid network address (IP or Host) for a specific Network Interface
Changes Take Effect: After restart of the Collector and the Workbench Agent that is located on `this` host.

This option is configured on the Host object where the Workbench Agent is located. If the Host has a secondary NIC dedicated for transfer of log files from the Host (using the Workbench Agent), the user can specify the same here through this value.

Log File Management Tool User's Guide

Once the all LFMT components have been successfully deployed, users can utilize the sections provided by the LFMT Client to configure and control the solution.

To access the LFMT Client, in a web browser, navigate to the GAX application enabled with the LFMT Client plugin.

```
http://<GAX Host IP>:<GAX Port>/gax
```

> **Important**
>
> - Genesys recommends LFMT is deployed on its own separate GAX instance so that it does not affect any other GAX Plugins that are used to manage/operate the contact center.

Sections within this User Guide chapter:

1. Site Configuration - To associate hosts/applications to specific LFMT Indexer and LFMT Collector pairs.
2. Collection Schedules - To configure and control scheduled log file collections by LFMT Collectors.
3. Force Collection - To run real-time log file collections by LFMT Collectors.
4. Indexing and Scrubbing - To configure and control indexing by LFMT Indexer and scrubbing by LFMT Collector.
5. Log File Packaging - To search, select, and build log files packages from files collected by LFMT Collector.
6. Available Packages - To download, or FTP file packages built using in the Log File Packaging section.

Access to the LFMT Client will be available on both the main page and in the upper toolbar.

The feature access will be dictated by the role defined for the user of LFMT.

To set the role of a given user, please see the Configuration of Access Control for LFMT Users section.

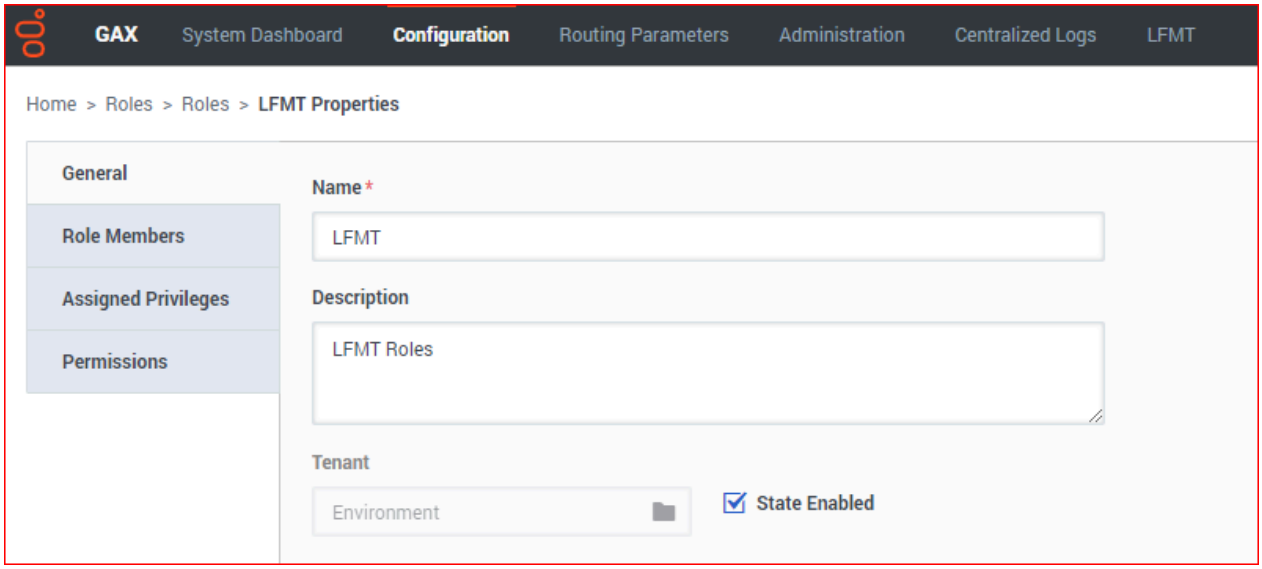
Configuration of Access Control for LFMT Users

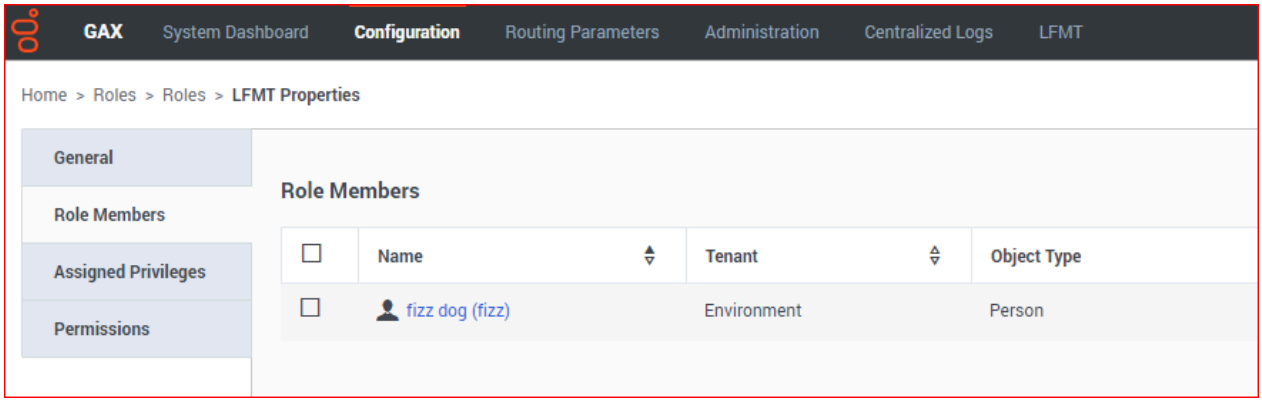
This section describes where and how to configure GAX Role privileges to restrict/grant access to LFMT functionalities.

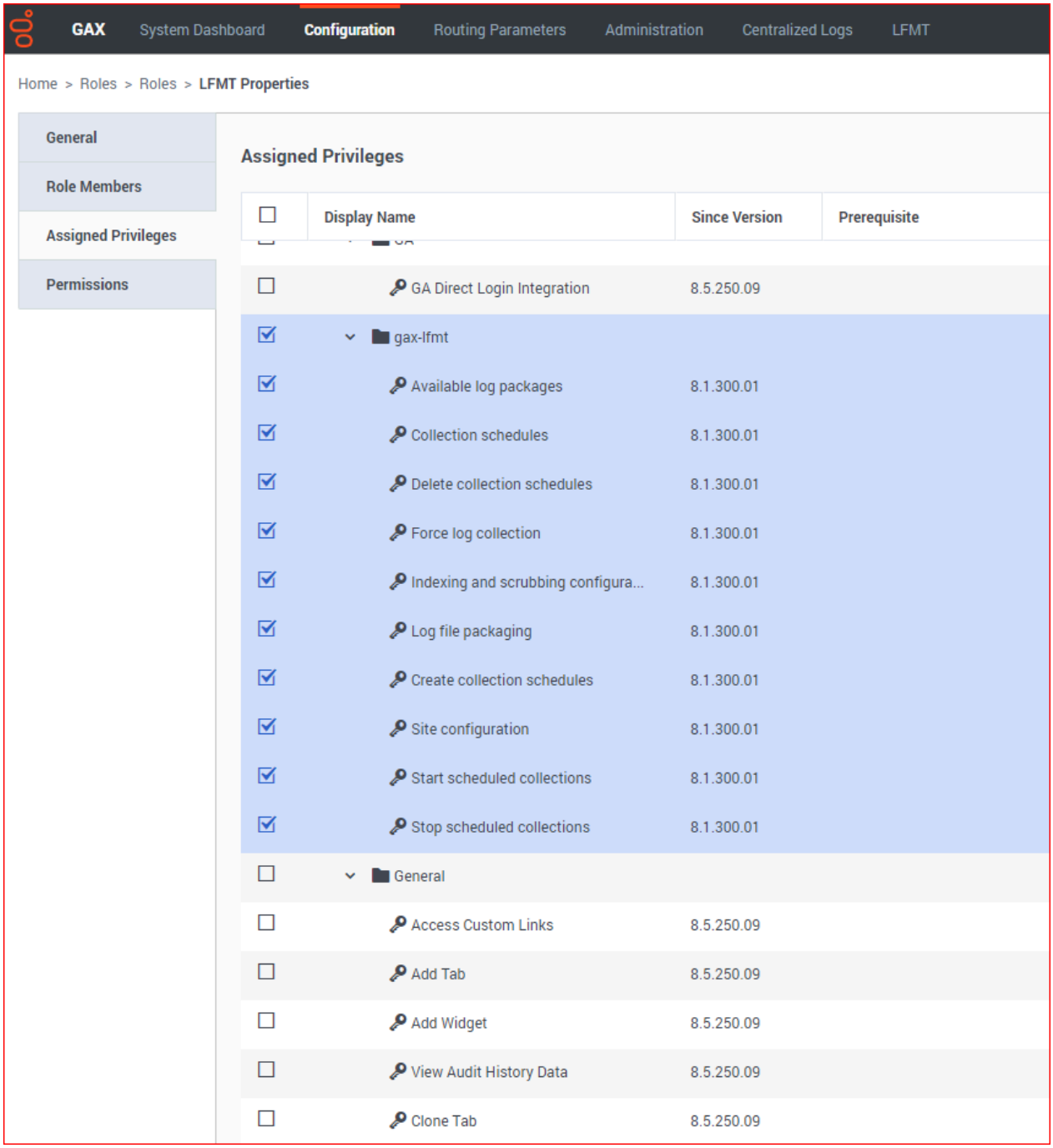
Role-based access control using Genesys Administration Extension (GAX)

1. Log into GAX, and navigate to **Configuration**
2. From the **Environment** section, select **Application Templates**
3. Find and click the GAX Template associated with the particular GAX instance that is being used for LFMT - i.e. "Genesys_Administrator_Extension_900"
4. Click **Import Metadata** and import the **lfmt-gax-template-metadata.xml** file
5. Click **Save**
6. From **Configuration** / **Accounts** / **Roles** - add a new LFMT Role - i.e **LFMT**
7. From the **Role Members** tab - add the relevant Users/Groups to the new **LFMT** Role
8. From the **Assigned Privileges** tab - locate the **gax-lfmt** section and check the relevant privileges (i.e. only "Available log packages") for this new **LFMT** Role
9. Click **Save**
10. On GAX re-login, the respective Users/Groups will be assigned the functionality based on the **LFMT** Role privileges

Example


GAX
System Dashboard
Configuration
Routing Parameters
Administration
Centralized Logs
LFMT
Home > Roles > Roles > LFMT Properties
General
Role Members
Assigned Privileges
Permissions
Name *
LFMT
Description
LFMT Roles
Tenant
Environment
State Enabled


GAX
System Dashboard
Configuration
Routing Parameters
Administration
Centralized Logs
LFMT
Home > Roles > Roles > LFMT Properties
General
Role Members
Assigned Privileges
Permissions
Role Members
Name
Tenant
Object Type
fizz dog (fizz)
Environment
Person



List of Available Privileges

The following role privileges can be allowed/denied for the role configuration:

* Available log packages
* Collection schedules
* Create Collection Schedules
* Delete Collection Schedules
* Force log collection
* Indexing and scrubbing configurations
* Log file packaging
* Site configuration
* Start scheduled collections
*Stop scheduled collections

Role-based access control using Genesys Administration (GA)

Use these steps to enable Role-based access control in Genesys Administrator.

1. Login to GA, and select the Provisioning tab.
2. Select Environment > Application Templates in the left navigation menu.
3. Select the Genesys Administration Extension template and click Edit.
4. Click Import Metadata to import the metadata for the LFMT client application template.
5. Click Add on the “choose metadata XML file to import” dialog.
6. Select the lfmt-gax-template-metadata.xml file and click Open. The file is uploaded.
7. Click Save in the top menu to save the metadata.
8. Select Roles in the left navigation menu.
9. Click New and add a name for this role, such as LFMTTest.
10. Select the Role Privileges tab. In the Add/Remove Product section, scroll to the entry for the current Genesys Administrator Extension – LFMT Plug-in release (such as Genesys Administrator Extension – LFMT Plug-in 8.1.3000.00) and select it. A new section called “Genensys Administrator Extension – LFMT Plug-in ” is added.

The following role privileges can be allowed/denied for the role configuration:

* Available log packages

* Collection schedules
* Create Collection Schedules
* Delete Collection Schedules
* Force log collection
* Indexing and scrubbing configurations
* Log file packaging
* Site configuration
* Start scheduled collections
* Stop scheduled collections

1. Click Save in the top menu.
2. In the Roles tab, select the LFMTTest role and click Edit.
3. In the Configuration tab, expand the Members section and click Add, to add this LFMTTest role to the desired user profiles.
4. In the list of user names, select one or more users and click Ok.
5. The selected users will be displayed in the Members list as enabled for this LFMTTest role.
6. Click Save in the top menu to save the member assignments to this role.

Site Configuration

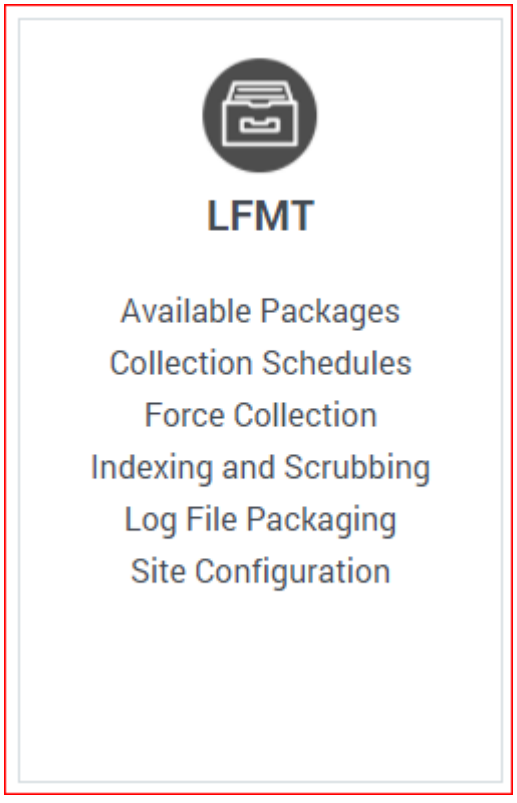
This section describes how to associate a specific group of CME Hosts/Applications to an LFMT **Site**.

For each LFMT **Site**, a separate LFMT Collector/Indexer pair of LFMT Applications must exist.

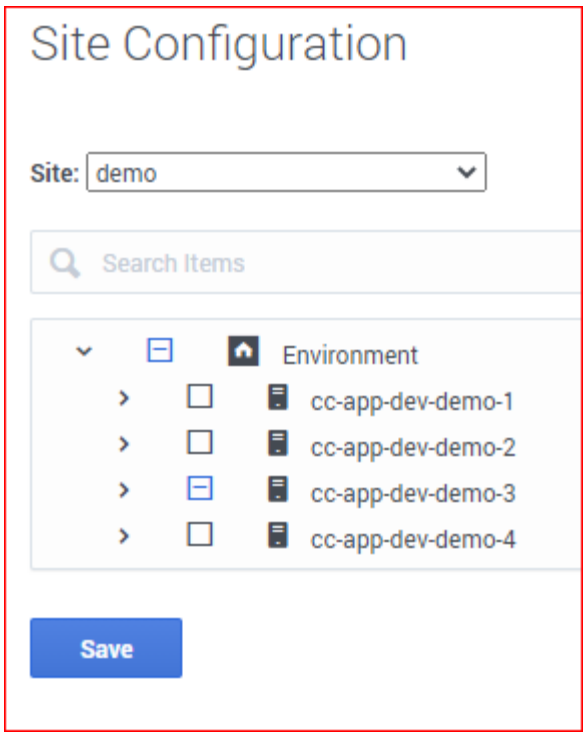
It is recommended that each set of LFMT **Site** Hosts/Applications reside in the same geographical location; i.e. do not add the APAC Hosts/Applications to the EMEA Site.

Associating CME Hosts/Applications to an LFMT Site

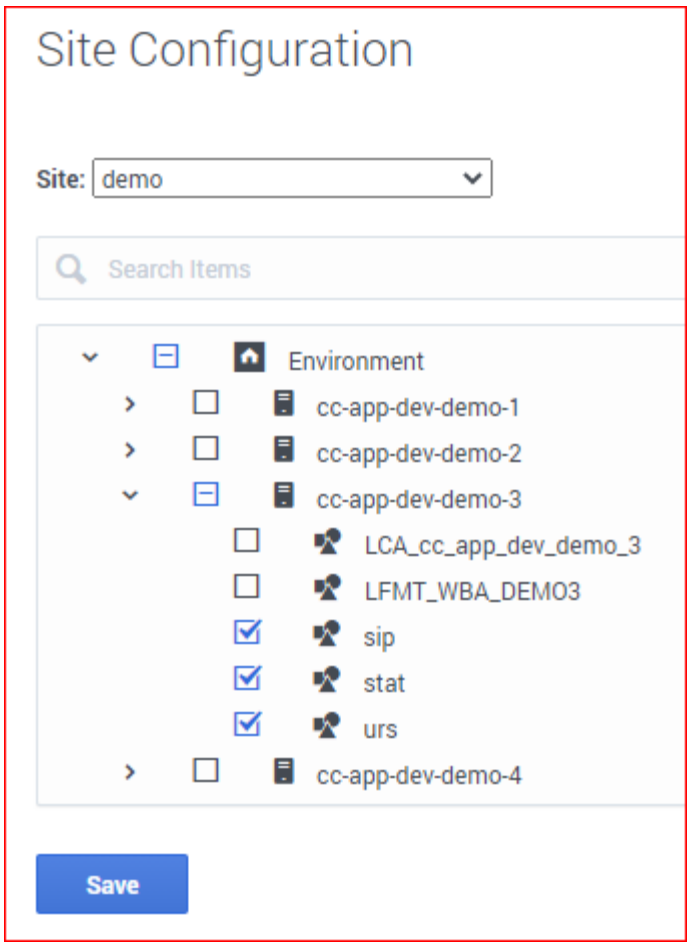
1. In Genesys Administrator Extension, from the **LFMT** tile/panel, select **Site Configuration**



2. Choose a **Site** (i.e. "APAC" or "EMEA") from the drop-down list.



3. **Select** the checkboxes beside the CME Hosts/Applications that you would like to assign to the Site.



4. Click the **Save** button.

Important

- If a CME Host or Application does not appear in the `Site Configuration` list, ensure the following:
  - The expected missing Application has the **[log]** section configured with the option **all** in its configuration
  - The user logged into GAX has **READ** permissions for the missing CME Host/ Application Objects.

Important

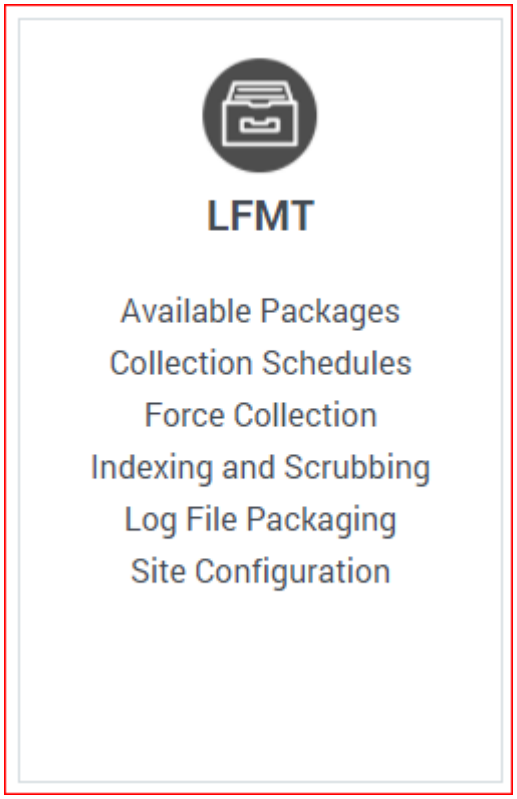
- Only Hosts/Applications assigned to an LFMT Site appear for lists in other LFMT Client sections.

Collection Schedules

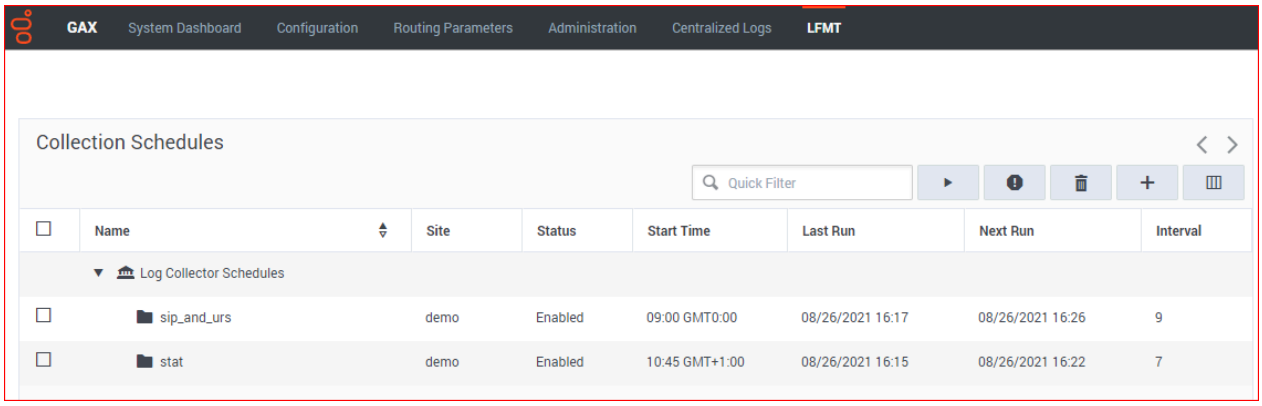
This section describes to configure log file collection schedules for LFMT Collector.

Adding a LFMT Collection Schedule

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Collection Schedules**.

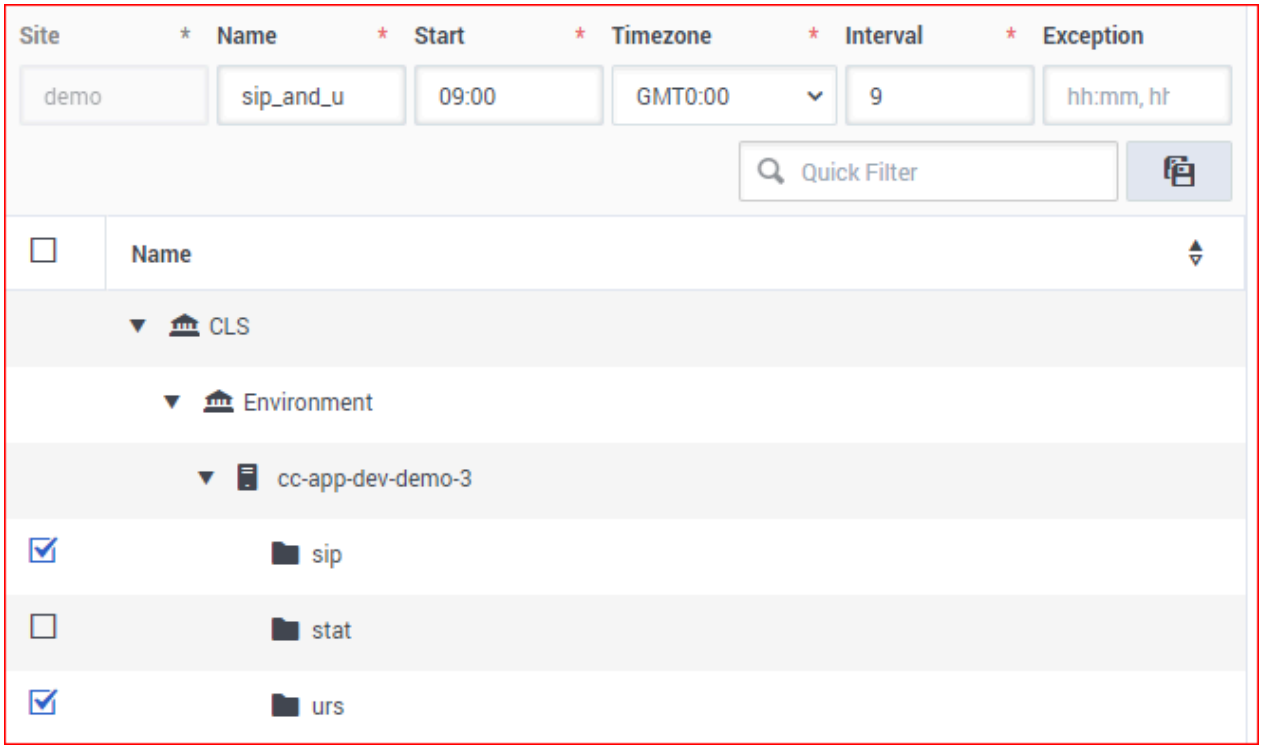


2. Click the  button in the **Collection Schedules** pane. The **New Collection Schedule** pane will appear.



3. Provide the **Name** (i.e. "sip_and_urs"), **Start** (i.e. 09:00), **Timezone**, **Interval** (i.e. "9" [minutes]), and **Exception** (i.e. 02:15,02:45) for the new LFMT Collector Schedule.

4. Select the appropriate CME Applications for the new LFMT Collector Schedule.
   *the example below has the "sip" and "urs" CME applications selected
   **these application log files will therefore be collected every 9 minutes from the "cc-app-dev-demo-3" Host via the Workbench Agent 8.5 component running on the Host



5. Click the  button to save the new LFMT Collector Schedule.

Important

- Genesys recommends staggering each Collection Schedule so that LFMT Collections do not start/run at the same time.
- The maximum number of simultaneous connections from all Agents should not exceed more than 10-12 during a single Schedule Collection.
- Each Agent on a host will create the number of connections as defined by the agent's [app_config]/agent_max_outgoing_connections] configuration option.
- For example, if this value is set to 1 for each Agent, then a Collection of up to 10-12 hosts can be completed at once. If this option is set to 4, then 3 hosts should only be collected from at once. Ensure Collection Schedules are configured to not exceed this connection maximum at any given time.

Editing a LFMT Collection Schedule

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Collection Schedules**.
2. Click on the row text of the LFMT Collector Schedule in the **Collection Schedules** pane that you wish to edit; the **Edit Collection Schedule** pane will appear.
3. As required, edit the **Name**, **Start**, **Timezone**, **Interval** or **Exception** fields for this LFMT Collector Schedule.
4. Add/Remove the appropriate CME Applications from the LFMT Collector Schedule as required.
5. Select the  button to save any changes to the LFMT Collector Schedule.

Important

- Once saved, the edited Collection Schedule will be Stopped/Disabled and will need to be manually Enabled/Started.

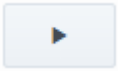
Deleting a LFMT Collection Schedule

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Collection Schedules**.
2. Select the appropriate checkbox associated with the LFMT Collector Schedule in the **Collection Schedules** pane that you wish to delete.

3. Click the  button to Delete the Collection Schedule.

> **Important**
>
> - The Collection Schedule will be permanently deleted.
> - There is no undo delete Collection Schedule capability.

Enabling and disabling a LFMT Collection Schedule

- To **enable** an LFMT Collector Schedule, select the checkbox associated with Collection Schedule, and click the  button.
- To **disable** an LFMT Collector Schedule, select the checkbox associated with Collection Schedule, and click the  button.

Force Collection

This section describes how to initiate a real-time log file collection by LFMT Collector.

Important

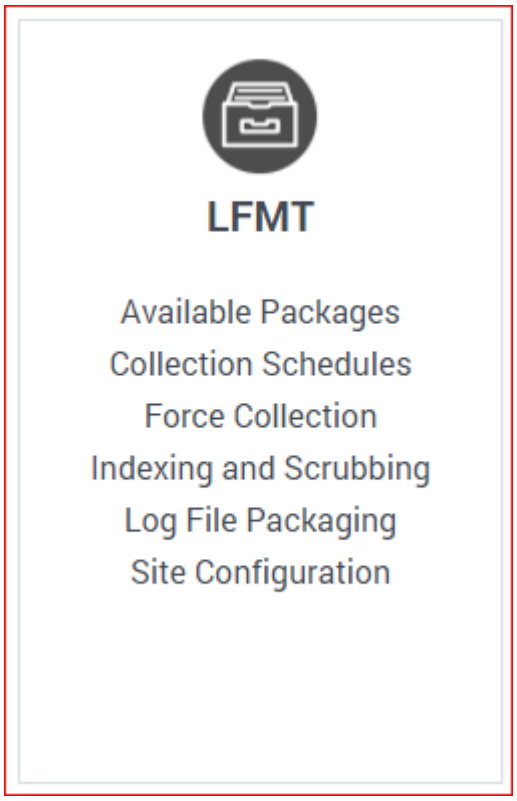
- This is useful if/when troubleshooting critical issues and expediting (not awaiting) the next Collection Schedule interval
- This feature was designed for ad-hoc usage as opposed to regular usage, as Force Collecting logs files could result in significant retrieval time if Collection Schedules are not frequently collecting the respective log files

Warning

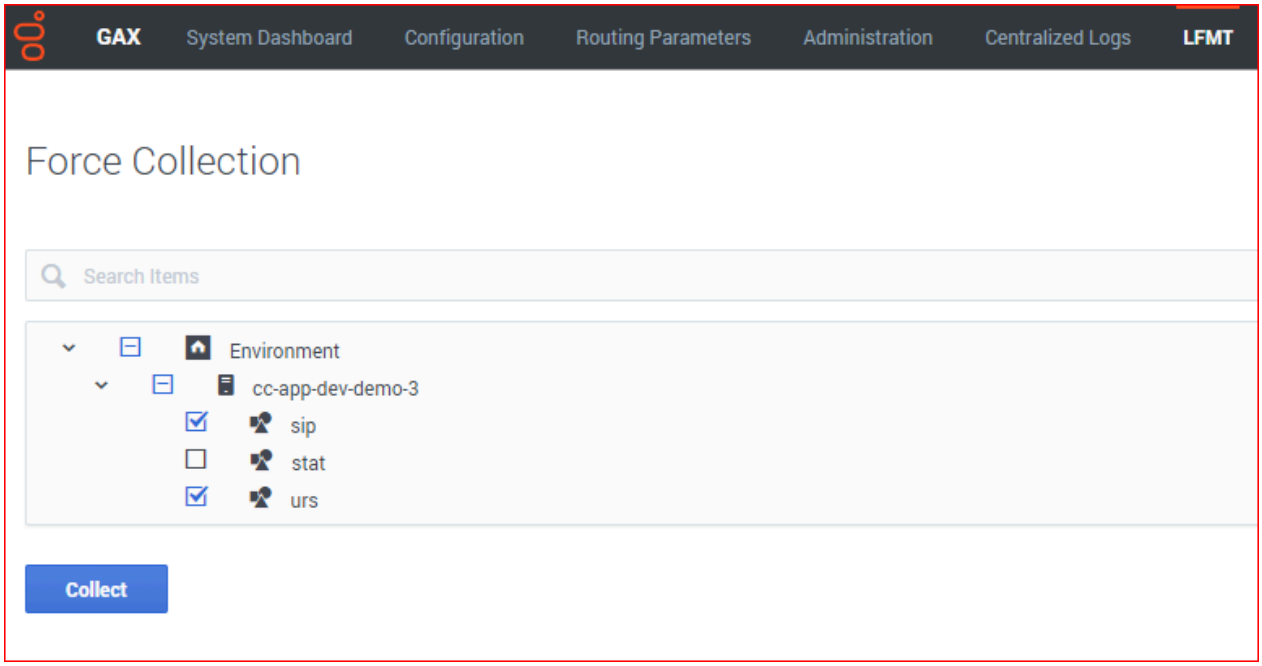
- When using the LFMT Force Collection feature, Genesys recommends to consider:
- The LFMT Collector(s) application **[app_config]/collection_period]** option is set to a sensible/minimal number of historical days
  - i.e. if Application log files are not being frequently collected by LFMT Collection Schedules, and a Force Collection is initiated, with a LFMT Collector(s) **[app_config]/collection_period]** value of for example 30 days, the LFMT Collector(s) will obviously collect the last 30 days of the logs, for ALL Applications selected in the Force Collection dialog, which will likely result in a very large number of log files being collected/transmitted, which could, in turn, result in a considerable amount of time before the Force Collection process is completed
    - This is why LFMT was designed with a recommended Collection Schedules approach, the log files are being regularly collected, and therefore seldom ad-hoc Force Collection request collections/transmissions are minimized, in terms of amount and time to complete
- The possible increase in network bandwidth consumption when using the LFMT Force Collection method of updating the LFMT CLS.
- The maximum number of simultaneous connections from all agents should not exceed more than 10-12 during a single collection. Each agent on a host will create the number of connections as defined by the agent's **[app_config]/agent_max_outgoing_connections]** configuration option. For example, if this value is set to 1 for each agent, then a collection of up to 10-12 hosts can be completed at once. If this option is set to 4, then 3 hosts should only be collected from at once.

Forcing a collection of log files for specific applications

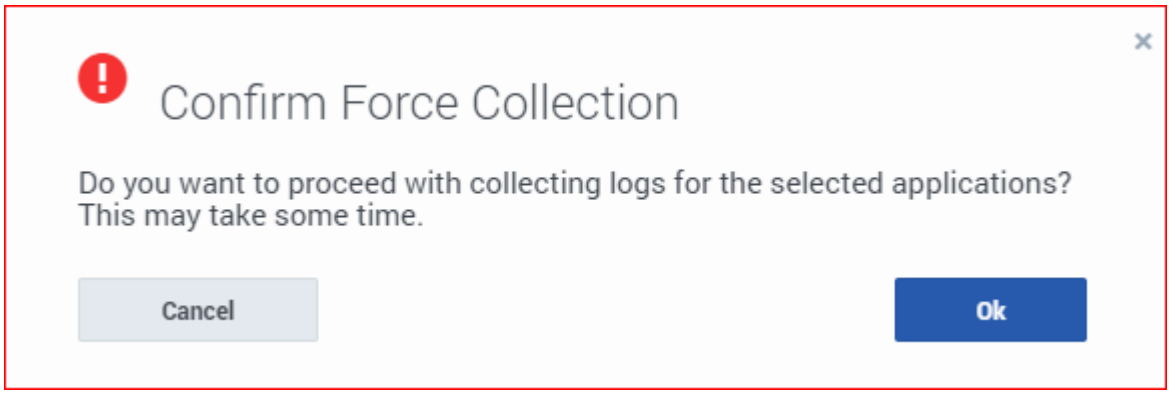
1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Force Collection**.



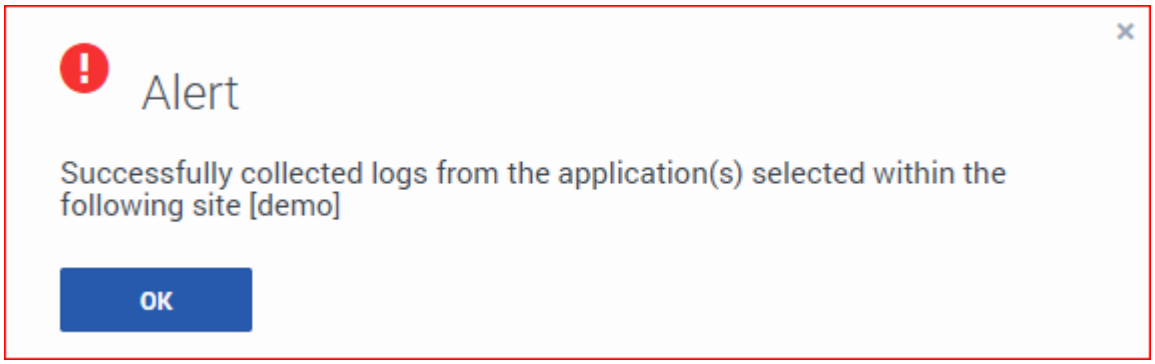
2. Select the Hosts/Applications for which the log files are to be **Force/Immediately** collected.



3. Click the **Collect** button to start the log file collection.
4. Click **Confirm** to proceed with log file collection



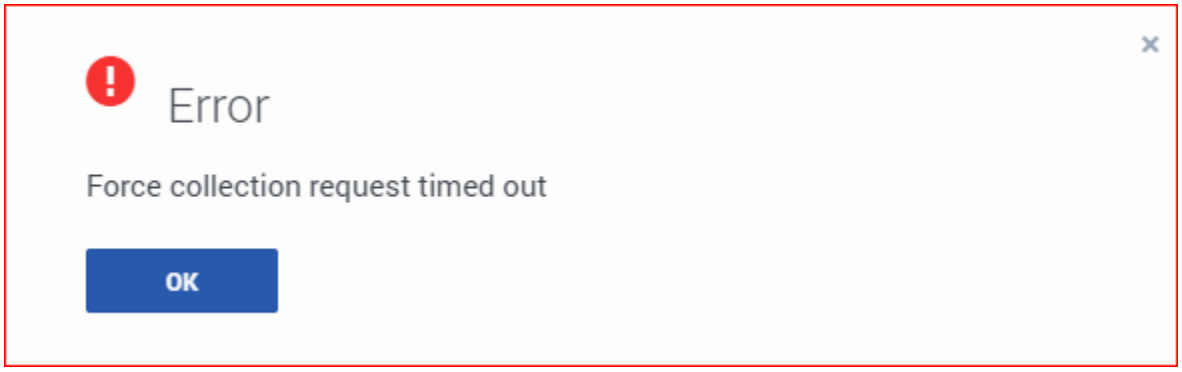
5. Click **OK** to continue



> **Important**
>
> - The Force Collection logs will now be available for filtering/packaging thus alleviating the need to await the next Collection Schedule interval

Force Collection Timeouts

If/when Force Collection timeouts are encountered and the dialog below is presented, consider increasing the respective GAX application **[lfmt]/http_request_timeout** option (detailed in LFMT GAX Options) to allow increased time to collect to log files requested.



Indexing and Scrubbing

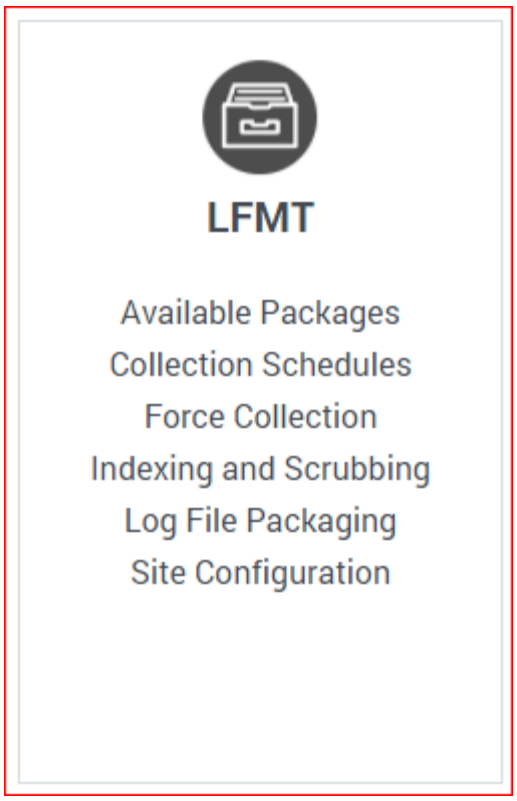
LFMT uses user-defined regular expressions for both log file indexing and log file scrubbing. This section describes how to manage these regular expressions.

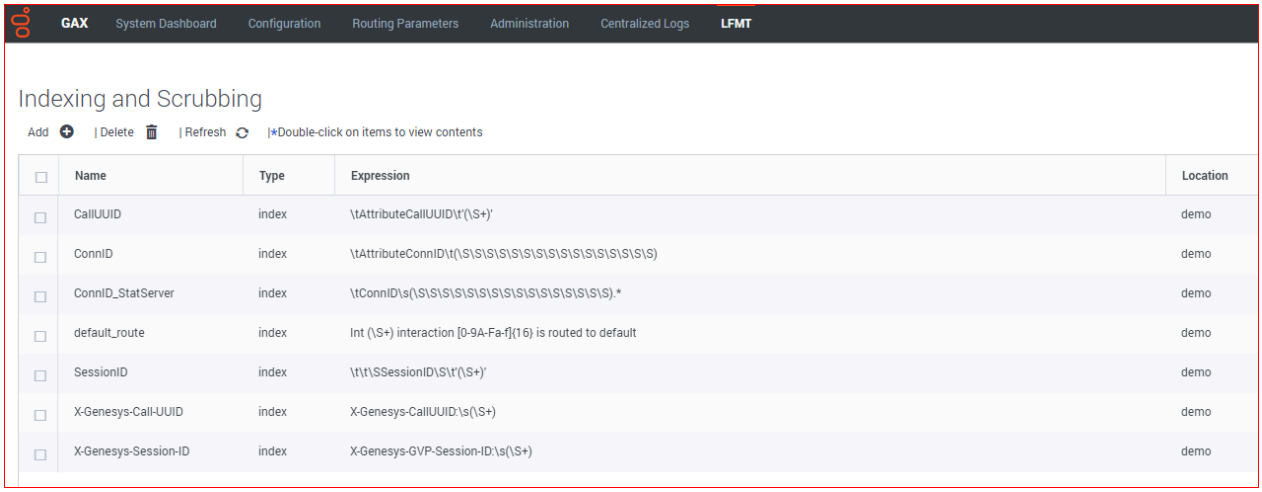
Important

- Genesys does not create, validate or support customer regular expressions required within LFMT
- Genesys regex guidance made be provided, but the customer is responsible for creation, validation, testing and support of user defined LFMT regexes
- Genesys strongly recommends the customer comprehensively tests the regular expressions that you want to use for LFMT Indexing and Scrubbing before you define them in the LFMT Client
- A good resource to test LFMT Regexes would be the Genesys Log File Masking Utility (LFMU) as it uses the same Regex Engine approach for masking log files

Adding a new Regular Expression for Indexing and Scrubbing

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Indexing and Scrubbing**.



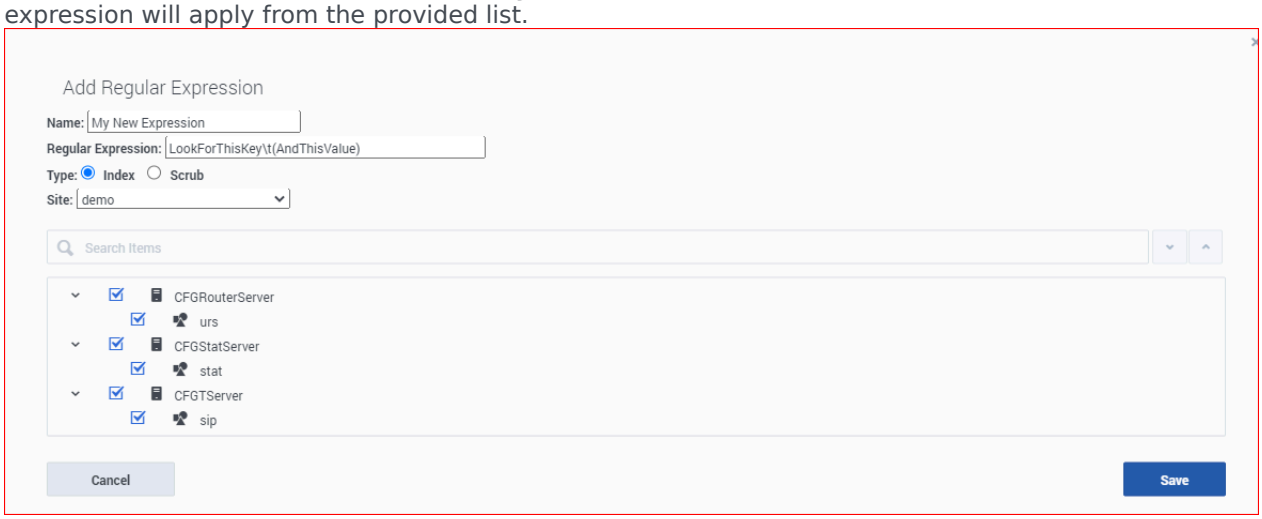


Important

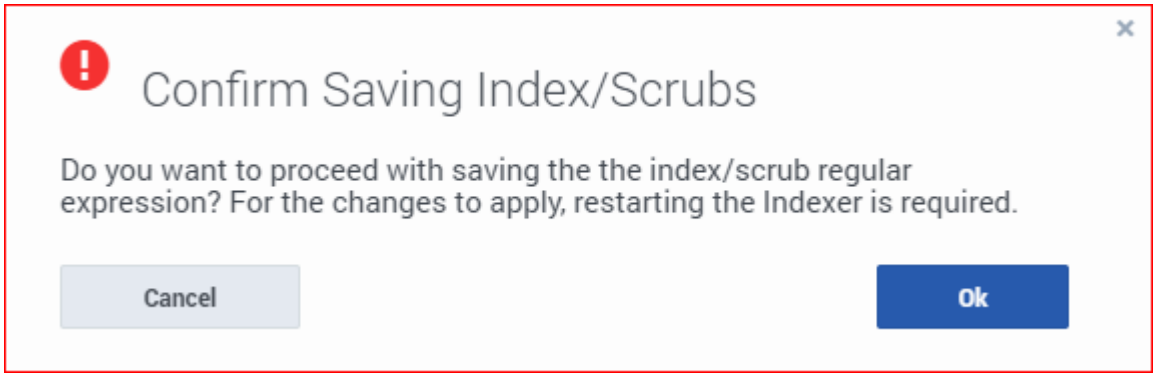
If a regular expression exists for multiple Sites with the same Name, Type, and Expression, it will appear as one entry in the `Indexing and Scrubbing` table.

2. Select the **Add** button to create a new regular expression.

3. The **Add Regular Expression** panel will appear.
4. Provide the **Name** and **Regular Expression** in the provided text fields.
5. Choose whether the new regular expression will by used for **Indexing** or **Scrubbing** using the *Type* radio buttons.
6. Choose the **Site** for which the new regular expression will apply from the **Site** drop-down box.
7. Check the appropriate **CME Application Type(s)** and/or **CME Application(s)** to which the new regular expression will apply from the provided list.



8. Select the **Save** button to save the new regular expression.
9. Click **OK** to Confirm saving the new Index/Scrub

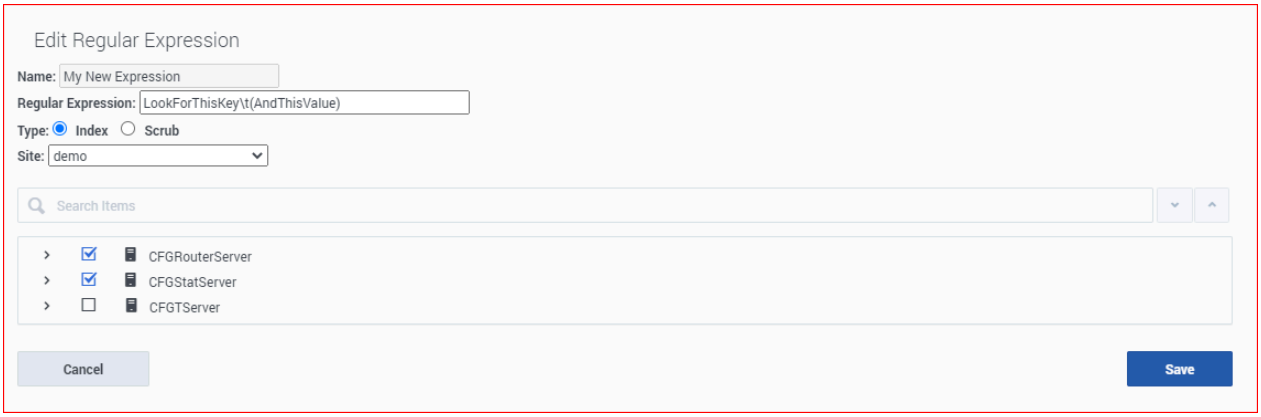


Important

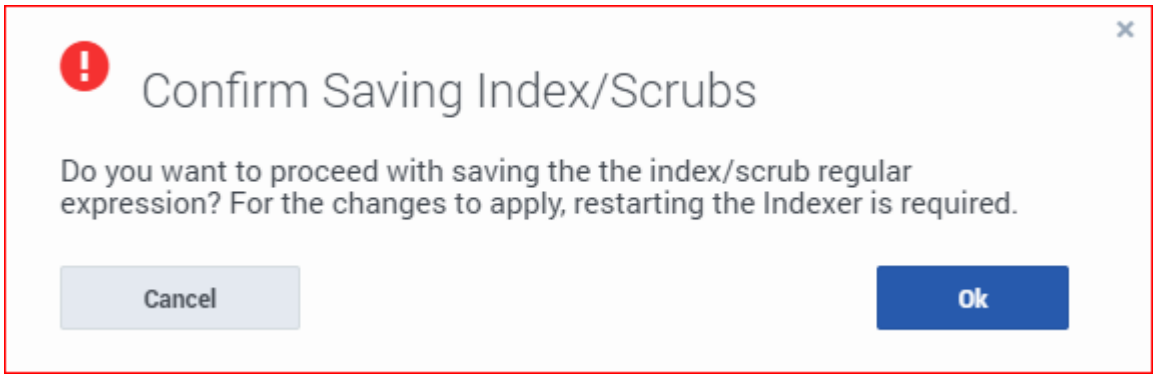
- As indicated in the Confirm dialog above, the LFMT Indexer application(s) will now need to be restarted for the new Indexing/Scrubbing regular expression to take affect.

Editing a Regular Expression

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Indexing and Scrubbing**.
2. Double-click on the regular expression **Name** in the **Indexing and Scrubbing** table.
3. The **Edit Regular Expression** panel will appear.



4. In the **Edit Regular Expression** panel, change the **Regular Expression**, **Type**, and **Site** fields as required.
5. If required, change the **CME Application Type(s)** and/or **CME Application(s)** to which the regular expression will apply from the provided list.
6. Select the **Save** button to save changes to the regular expression.
7. Click **OK** to Confirm saving the new Index/Scrub

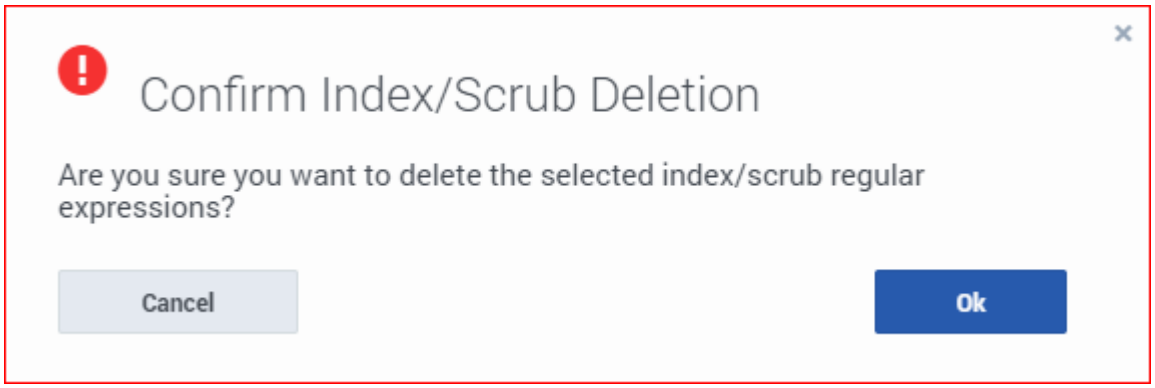


Important

- As indicated in the Confirm dialog above, the LFMT Indexer application(s) will now need to be restarted for the new Indexing/Scrubbing regular expression to take affect.

Deleting a Regular Expression

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Indexing and Scrubbing**.
2. Select the checkbox beside the regular expression in the **Indexing and Scrubbing** table.
3. Select the **Delete** button to permanently Delete the selected regular expression(s).
4. Click **OK** to Confirm saving the new Index/Scrub



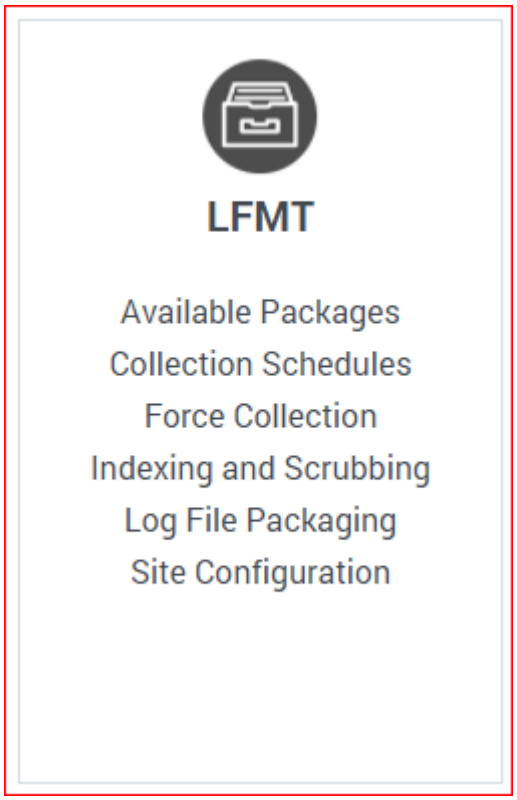
Log File Packaging

This section describes how to search, select, and build log file packages from files in Central Log Storage - this is the core feature of LFMT whereby Genesys Application log files can be:

- Packaged into a .zip **LFMT package** file based on DateTime search and other Regex criteria
- The .zip LFMT package file can be downloaded locally to your laptop for extraction/analysis/ troubleshooting
- The .zip LFMT package file can be shared within your organization for extraction/analysis/ troubleshooting
- The .zip LFMT package file can be uploaded to Genesys Customer Care for for extraction/analysis/ troubleshooting

Creating Log Packages

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Log File Packaging**.

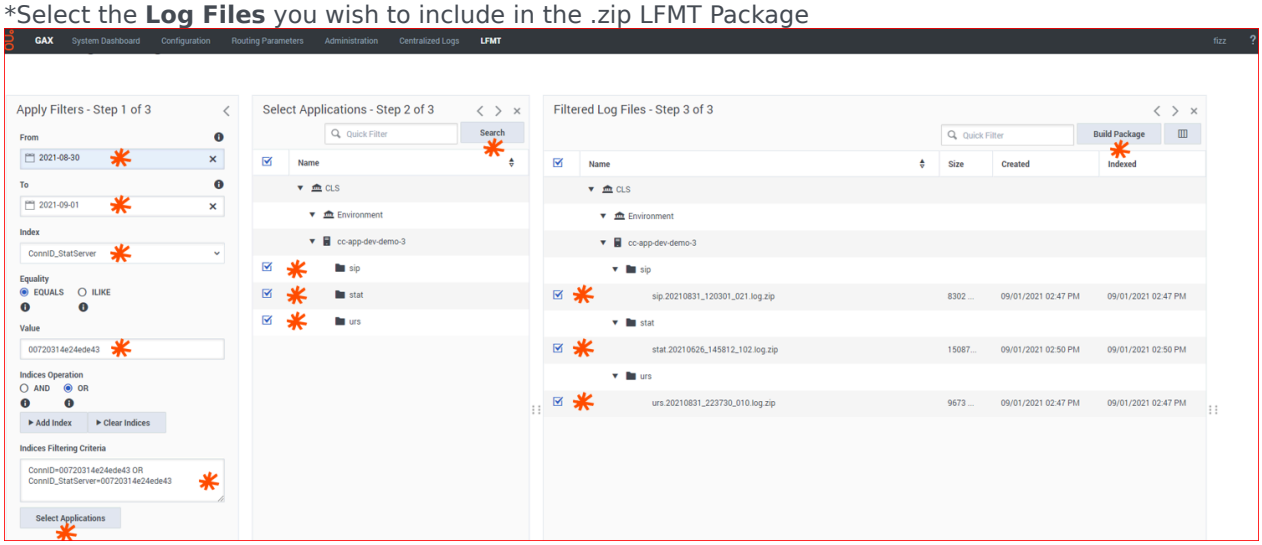


2. Use the 3 Step process to **Filter**, **Select Applications**, **Select Log Files** and then **Build** an LFMT Package using dates and/or custom-defined Indexes.

3. Step **1**
   *Choose your Log file(s) **From** Date (i.e. Aug 30 2021 [modified])
   *Choose your Log file(s)**To** Date (i.e. Aug 31 2021 [modified])
   *If needed add your appropriate filter **Indexes**
   **optional - you may just want to filter on Date
   **or, as per the example screenshot below, you may want to add Indexes to filter for log files that only contain for example a specific ConnID (i.e. 00720314e24ede43)
   *Click **Search Applications**

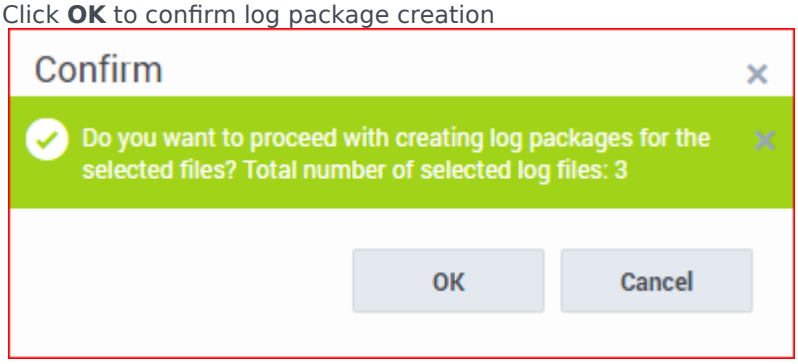
4. Step **2**
   *Select the required **CME Applications** (i.e. "sip", "urs" and "stat") to apply the filter
   Click **Search**

5. Step **3**
   *Select the **Log Files** you wish to include in the .zip LFMT Package

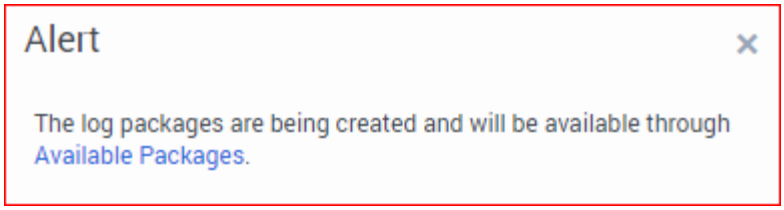


6. Click the **Build Package** button to generate the LFMT Package build request.
   *Based on the above screenshot, an LFMT Package will be created, containing the "sip", "urs" and "stat" log files that contain ConnID 00720314e24ede43

7. Click **OK** to confirm log package creation



8. After the LFMT Package has been built, a dialog will appear with a quick-link to the **Available Packages** section.



9. Review the Log Packages section for details on downloading the LFMT Package to your local machine and FTP(S)/SFTP capability.

Important

It is possible to search using multiple custom-defined Indexes by selecting the **AND** or **OR** radio button options.

Tip

The **ILIKE** option allows users to search with SQL type wildcards.

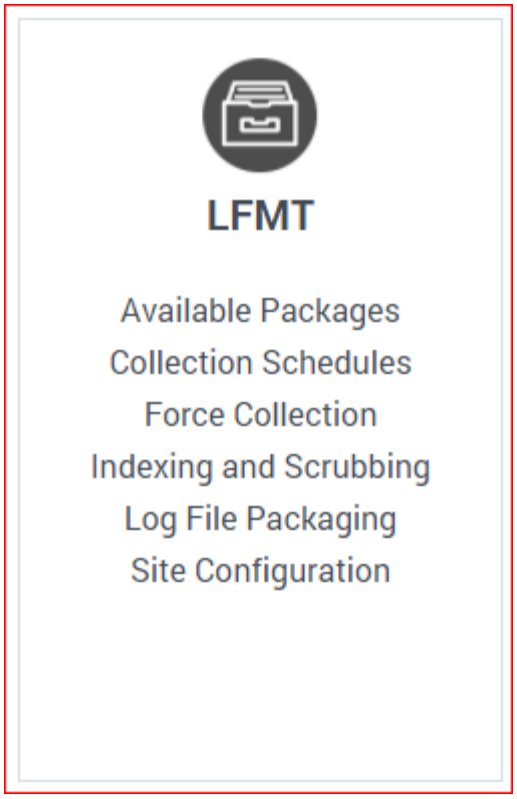
Available Packages

This section describes how to download and send LFMT packages built in the **Log File Packaging** section.

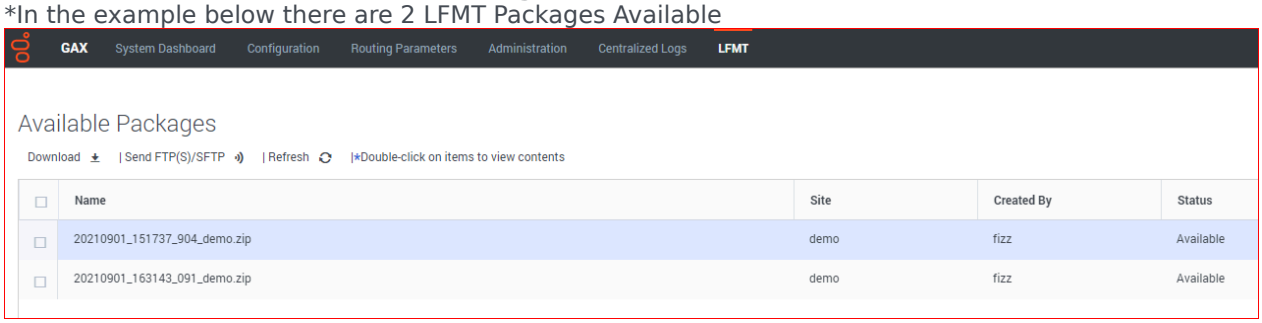
> ### Important
>
> - If/when using LFMT Client 8.5.104.00 thru LFMT Client 8.5.105.03 and GAX 9.0.103.08+
>   - Please ensure the respective GAX Application, with the LFMT Client Plug-in installed, has the **`[lfmt]/use_lfm_extension`** option set to **`true`**
>   - So that **`.lfm`** files and not .zip (the default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX
>   - This avoids a "Failed Forbidden" error when trying to download LFMT Packages
>   - This change is required because GAX 9.0.103.08+ filters .gz, .jar, .zip, and .rar API requests

Downloading an LFMT package

1. In Genesys Administrator Extension, from the **LFMT** tile menu, select **Available Packages**



2. Review the entries in the **Available Packages** table.
*In the example below there are 2 LFMT Packages Available



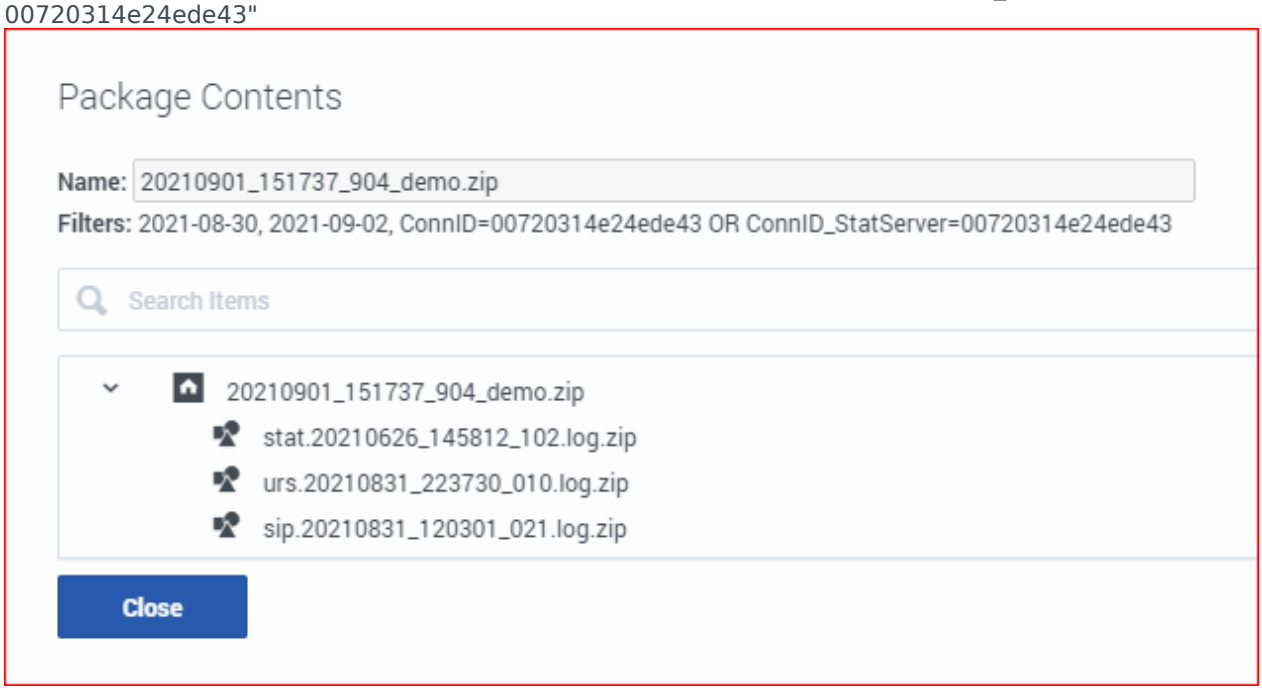
> **Important**
> The **Available Packages** window is scrollable should the package not be initially visible

*Packages marked as **Pending** are still being built by LFMT Collector.
*Packages marked as **Available** can be downloaded by the user.

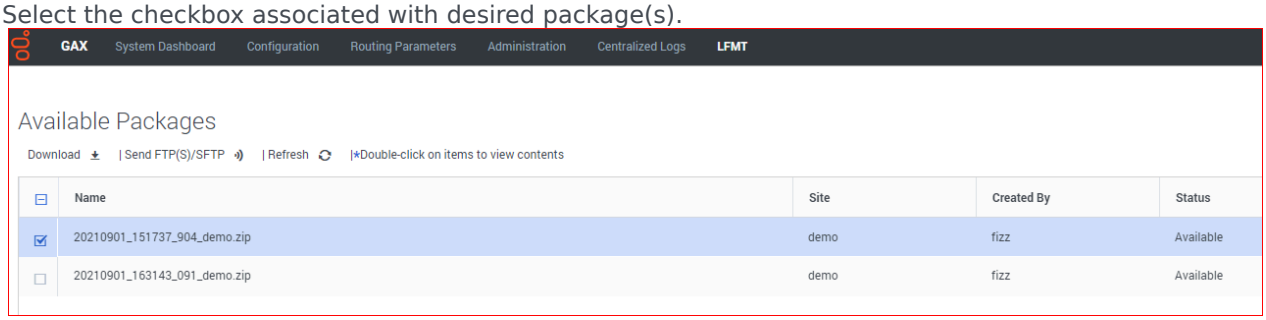
*To view an updated status of a package, click the **Refresh** button.

3. To view the contents of a LFMT Package, double-click on the LFMT Package name

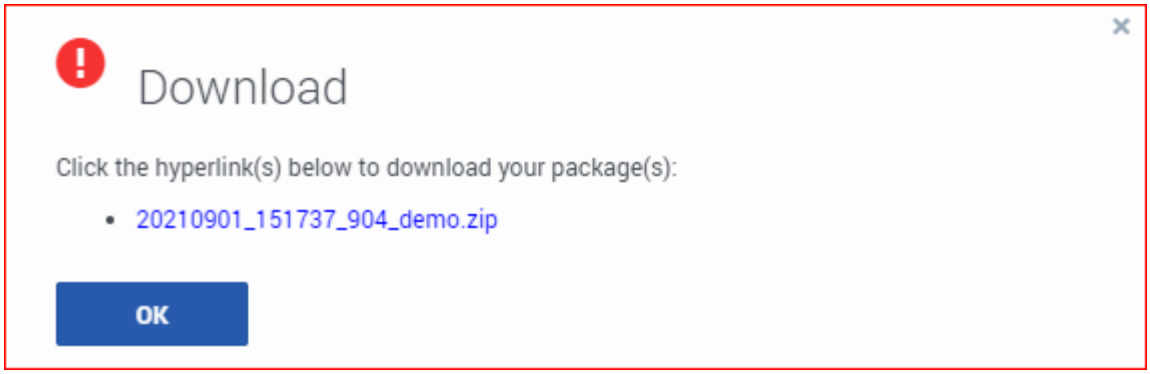
*The **Package Contents** dialog box will appear including the **filename** for the package and the **filter criteria** used to generate the LFMT Package.
*filename=20210901_151737_904_demo.zip
*filter criteria="2021-08-30, 2021-09-02, ConnID=00720314e24ede43 OR ConnID_StatServer=00720314e24ede43"



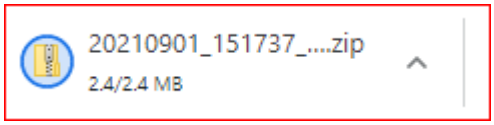
4. Select the checkbox associated with desired package(s).



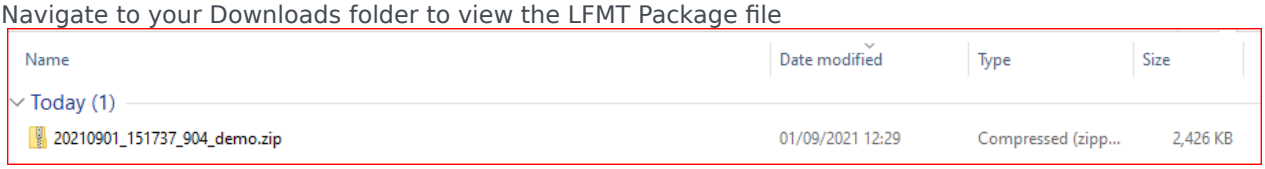
5. Click the **Download** icon/button.
6. The **Download** dialog will appear.
7. Click the **hyperlink** associated with the LFMT Package(s) to start the download.



8. Your Internet Browser will show status of the LFMT Package Download

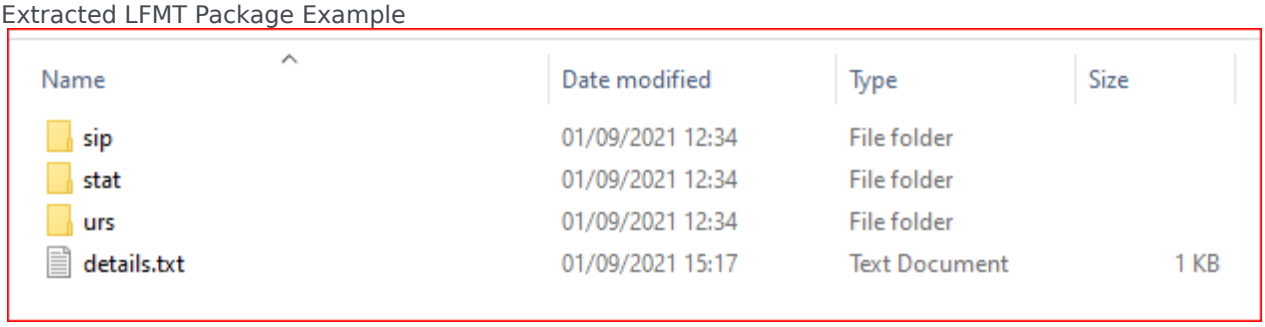


9. Navigate to your Downloads folder to view the LFMT Package file



10. The LFMT Package file can now be extracted for analysis/troubleshooting

- Extracted LFMT Package Example

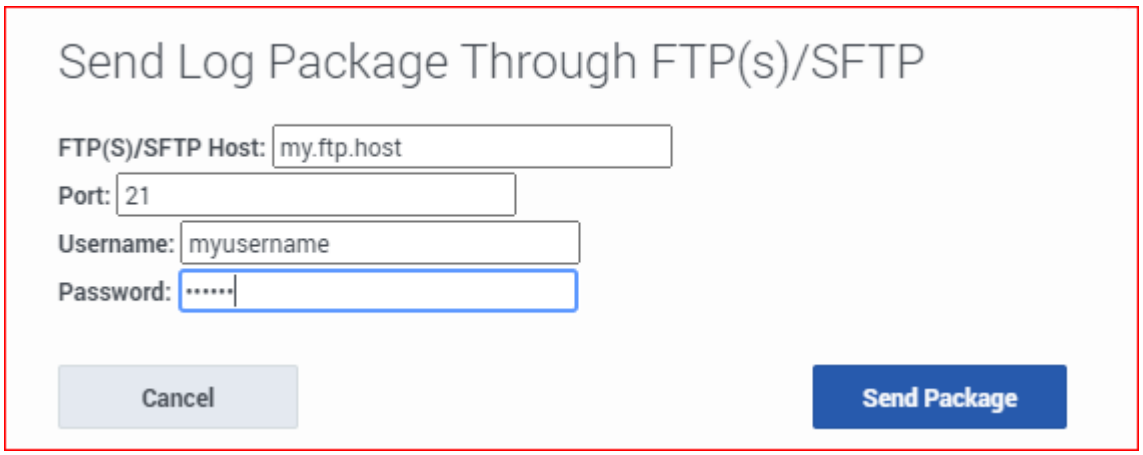


- Example **details.txt** content

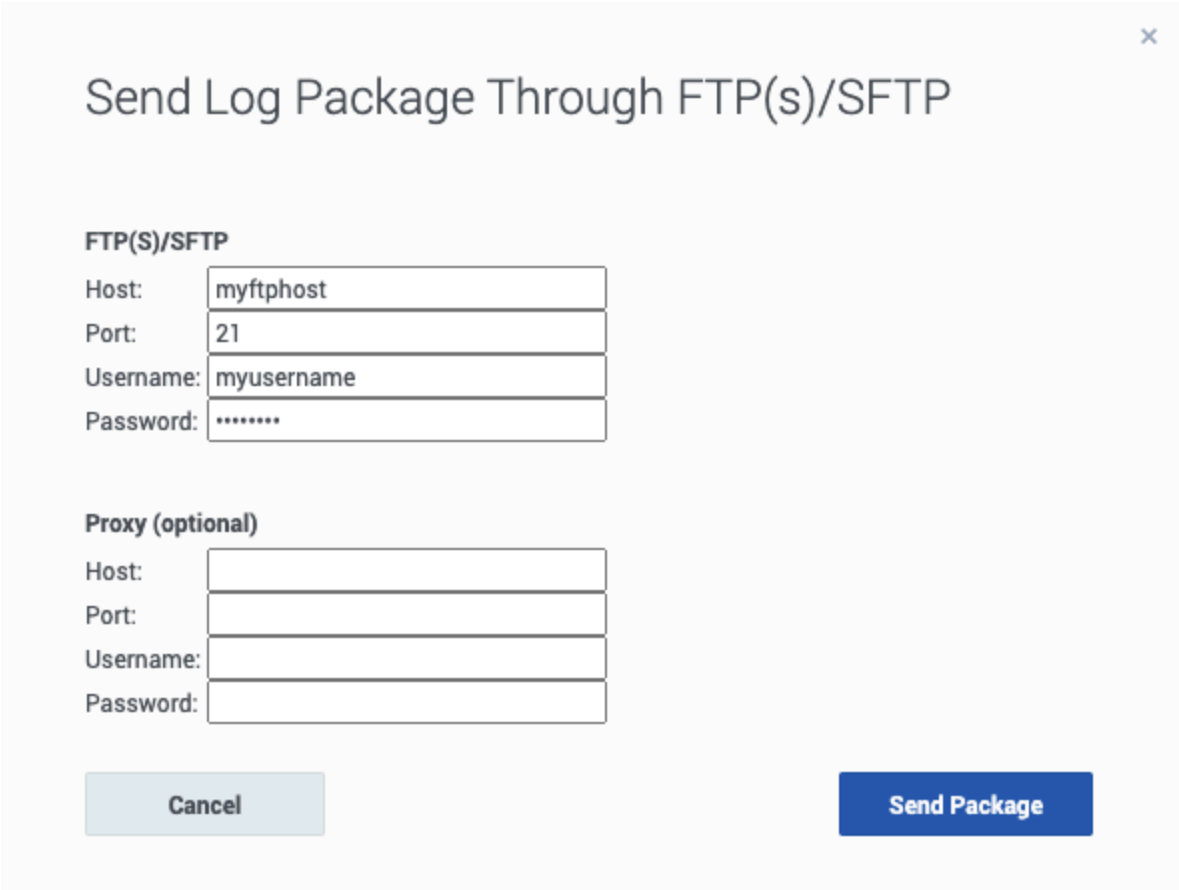
```
Created with LFMT version: 8.5.103.03
    Package created on: Wed Sep 01 15:17:38 IST 2021
    Name: 20210901_151737_904_demo.zip
    Filter Criteria: 2021-08-30, 2021-09-02, ConnID=00720314e24ede43 OR ConnID_StatServer=00720314e24ede43
    Included Files:
    App:stat - File:stat.20210626_145812_102.log.zip
    App:sip - File:sip.20210831_120301_021.log.zip
    App:urs - File:urs.20210831_223730_010.log.zip

```

Sending an LFMT package via FTP(S)/SFTP

- In Genesys Administrator Extension, from the "LFMT" tile menu, select "Available Packages"
- Review the entries in the "Available Packages" table
- Select the checkbox associated with relevant LFMT Package(s) that you wish to send to the FTP Server
- Click the "Send FTP(S)/SFTP" icon/button
- The "FTP(S)/SFTP" dialog will appear
- Enter the remote FTP Server "Hostname/IP", "Port", "Username", and "Password"
  - the FTP Server can be internal or external
  - details of the Genesys FTP process and regional FTP servers can be found here:
    - https://support.genesys.com/Case-Management/2469880421/How-can-I-transfer-files-to-or-from-a-case.htm
- Click the "Send Package" button to send the package to the respective FTP/SFTP server



- LFMT 8.5.105 added the capability of providing an optional FTP Proxy; please complete those fields if/ when required:


Send Log Package Through FTP(s)/SFTP
FTP(S)/SFTP
Host:
myftphost
Port:
21
Username:
myusername
Password:
Proxy (optional)
Host:
Port:
Username:
Password:
Cancel
Send Package

Custom Log Collection using the [log]/lfmt_X option

This article details how LFMT can be used to collect *custom* log files.

Based on the LFMT Site Configuration UI, LFMT collects log files based on Engage Applications and their respective **[log]/all** option.

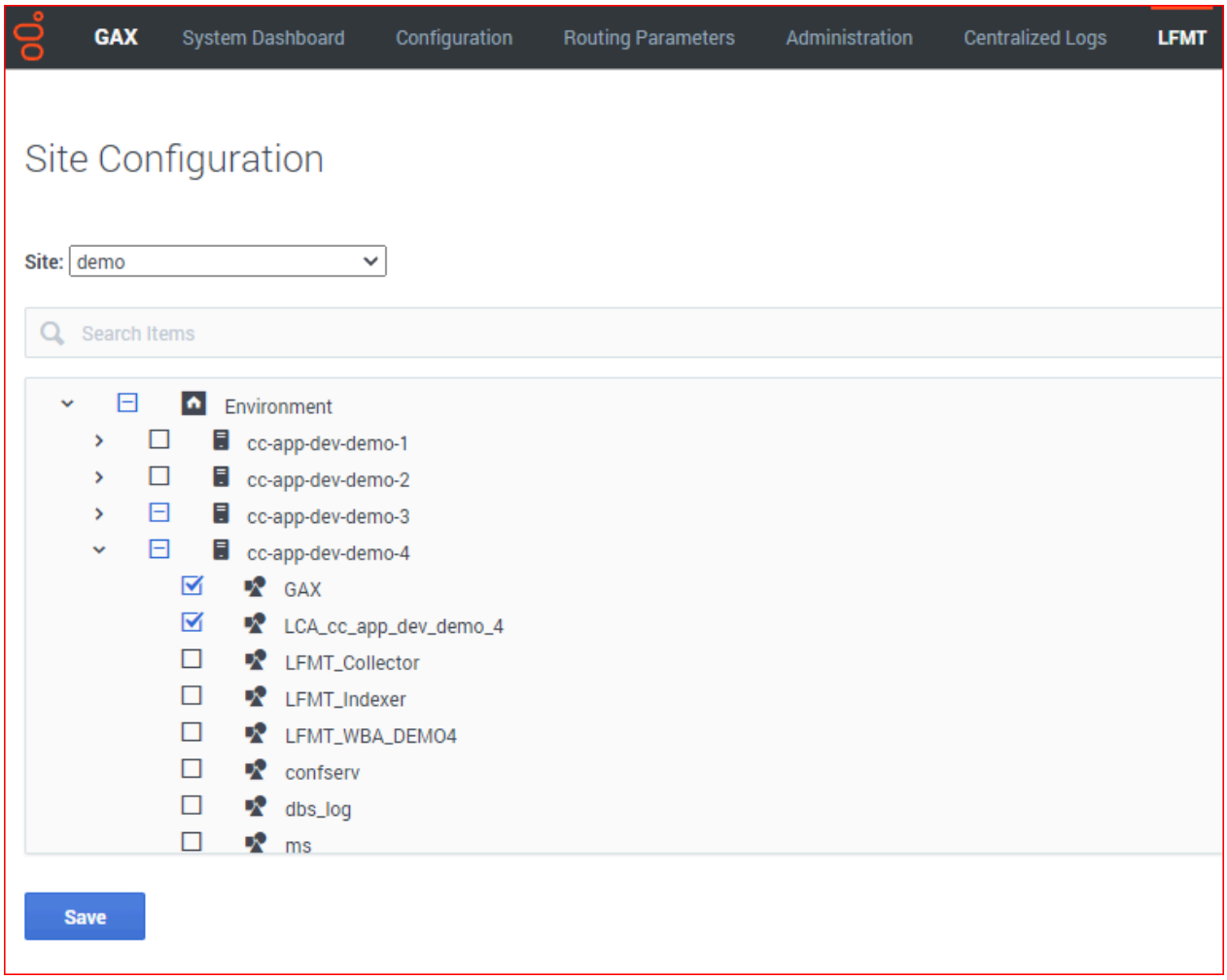
If an Application is not present in the Site Configuration page, ensure the particular Application has a *[log]/all* section accurately configured.

In addition to LFMT collecting the standard *[log]/all* option log file(s), LFMT can collect **custom log files** by adding a new **[log]/lfmt_X=<log path>** option to a corresponding CME Application, such as GAX or LCA or any other CME Application object.

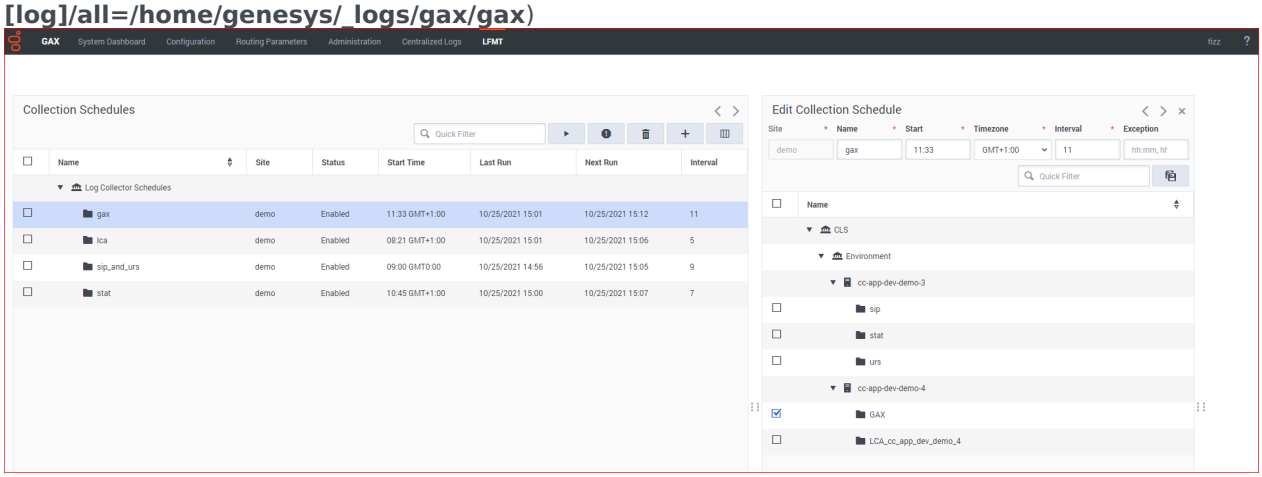
Standard Log Collection

For example, the screens below detail the *standard* configuration to collect the GAX Application log files:

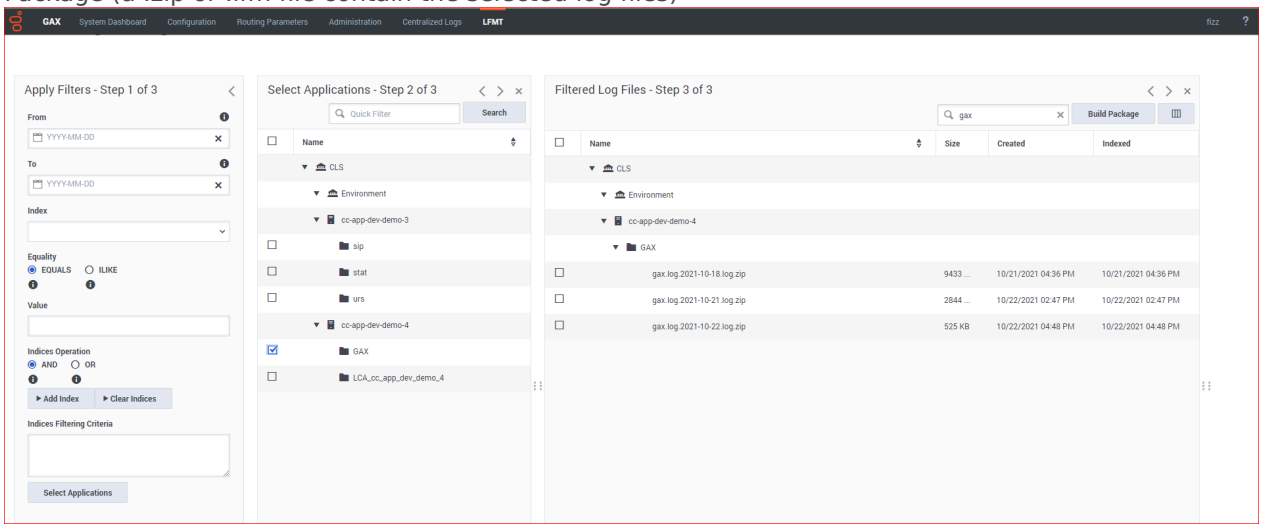
1. The LFMT Site Configuration page has the GAX Application selected



2. The "gax" LFMT Collection Schedule is configured to collect the GAX application log files every 11 minutes
   *these GAX Application log files are being collected based on the Engage CME [log]/all option (i.e. **[log]/all=/home/genesys/_logs/gax/gax**)



3. Via the LFMT Log Packaging UI the GAX Application logs are therefore available to build into an LFMT Package (a .zip or .lfm file contain the selected log files)



Custom Log Collection

Now consider if the related GAX HTTP log files located in */home/genesys/gcti/gax9010308/logs* folder were also required for collection.

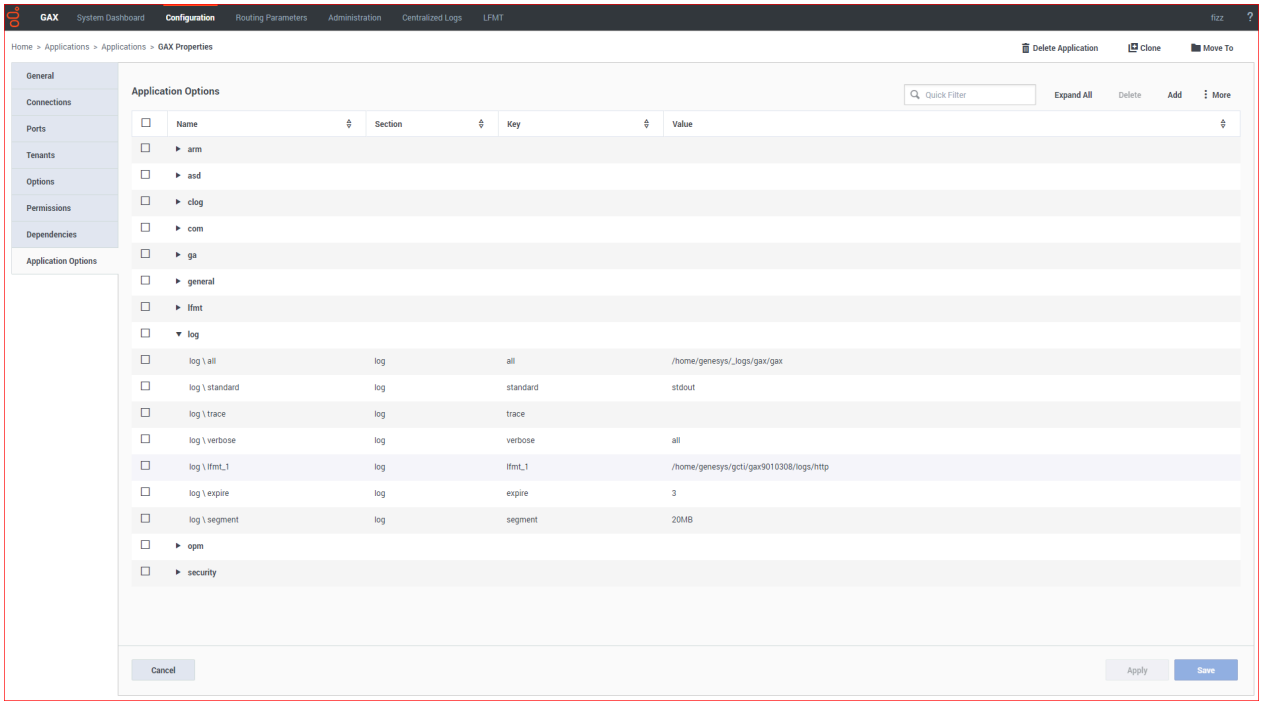
Because there is no associated [log]/all option, these GAX HTTP log files do not appear under Site Configuration and are not collectable by *standard* configuration methods.

The solution is to add a [log]/lfmt_X=<log path> option, to a corresponding CME Application, in this case the example is using the GAX Application, thereby enabling that whenever the GAX Application *core* log files are collected via the standard *[log]/all* option, so will the *custom* GAX HTTP log files, via this new [log]/lfmt_X=<log path> option.

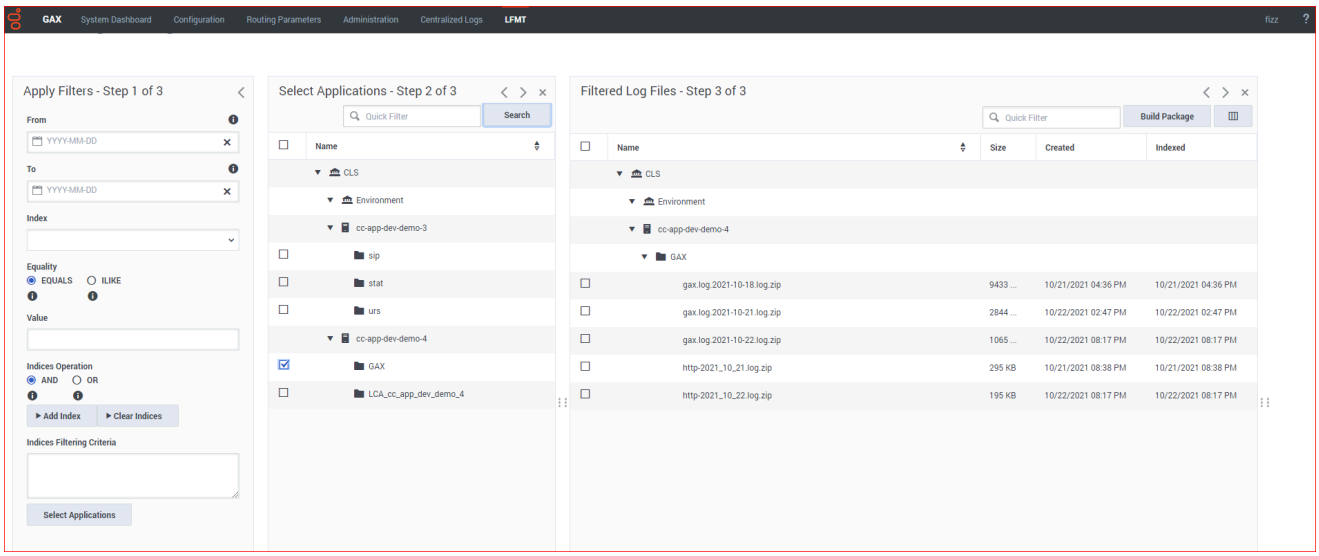
The example screens below detail how to collect the GAX **HTTP log files** located in */home/genesys/gcti/gax9010308/logs* folder.

1. For the GAX Application object
2. Add a new [log]/lfmt_1=<log/path/here> (i.e. **/home/genesys/gcti/gax9010308/logs/http**) option - this is to enable the collection of the http*.log files

> **Important**
>
> You can add *[log]/lfmt_2* and *[log]/lfmt_3* and *[log]/lfmt_X* based on other custom logs you wish to collect



3. Restart the respective *Workbench Agent 8.5* (i.e. **LFMT_WBA_8.5_DEMO4**) Application
4. Restart the respective *LFMT Collector* (i.e. **LFMT_Collector**) Application that has a Collection Schedule related to the GAX Application
5. Now the *Workbench Agent 8.5* (i.e. **LFMT_WBA_8.5_DEMO4**) Application will send/transmit both GAX logs
   *via the standard **[log]/all** option (the core gax.log) and the new custom **[log]/lfmt_1=/home/genesys/gcti/gax9010308/logs/http** option (the HTTP logs)
6. The result is that via the LFMT Log Packaging UI both standard GAX and *custom* HTTP log files are available



LFMT Audit Information

LFMT Audit Capability

LFMT supports an audit capability, that will write auditing details (LOGIN, LOGOUT, ADD, DELETE, CHANGE) to log files. This information will be made available in the GAX application logs where the LFMT Plug-in is installed.

The LFMT Audit logging can be turned on by setting a new key-value-pair in the "log" options section for the GAX application:

Key Name: **auditing** ; Value = **true**

The above setting will cause new auditing entries to be written to the GAX logs. These new entries will be written during the add, change or delete operation on the tables of the database used by LFMT. When needed, extract these lines from the GAX log(s) that have **LFMT_Audit**, **Log in user** or **logged out** in it.

Important

- Please note that the records for addition, deletion and change are JSON records and can be processed using any standard JSON parser.
- Each of these JSON records also contains the key **complete_record** that represents the record from the Database.

Example

Utilizing the **grep** command (on *nix or UnxUtils on Windows) to extract those entries from the log file *gax20180914_153236_788.log* into an output text file *lfmt_audit_log.txt*.

```
egrep "LFMT_Audit|Log in user|logged out" gax20180914_153236_788.log > lfmt_audit_log.txt
```

This file may contain five different types of audit logs as follows:

Type - 1

Log in: This line is written to the logs when a user logs in.

```
2018-09-14 15:32:46,710 DEBUG: com.genesyslab.gax.core.user.LoginServiceImpl
[qtp142257191-14] - [48] Log in user default
```

This line shows that the user **default** logged in at 2018-09-14 15:32:46,710.

```
2018-09-14 15:47:03,524 DEBUG: com.genesyslab.gax.core.user.LoginServiceImpl
[qtp142257191-12] - [48] Log in user ndatar
```

This line shows that the user **ndatar** logged in at 2018-09-14 15:32:46,710.

Type - 2:

Log out: This line is written to the logs when a user logs out.

```
2018-09-14 15:40:48,617 INFO : com.genesyslab.gax.webservice.UserController [qtp142257191-74]
- [273] User default logged out
```

This line shows that the user **default** logged out at 2018-09-14 15:40:48,617.

```
2018-09-14 15:48:07,165 INFO : com.genesyslab.gax.webservice.UserController
[qtp142257191-128] - [273] User ndatar logged out
```

This line shows that the user **ndatar** logged out at 2018-09-14 15:48:07,165.

Type - 3:

Added Record: This line is written to the logs when a new record is added.

```
2018-09-14 15:33:28,538 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-73] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1066,
index:null, indexName:test, indexType:index, regularExpression:dds-asdas,
applicationTypes:,258,147,567,994,259,956,989,1004,1003,403,351,997,]}","timestamp":"Fri Sep
14 15:33:28 ADT 2018","mode":"Added","username":"default"}
```

This line shows that a new record was added (**mode : Added**) to the table IndexToRegex at **Fri Sep 14 15:33:28 ADT 2018** by the user **default**.

```
2018-09-14 15:47:39,071 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-128] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1068,
index:null, indexName:for_testing, indexType:scrub, regularExpression:a=kjkj,
applicationTypes:,1013,916,]}","timestamp":"Fri Sep 14 15:47:39 ADT
2018","mode":"Added","username":"ndatar"}
```

This line shows that a new record was added (**mode : Added**) to the table IndexToRegex at **Fri Sep 14 15:47:39 ADT 2018** by the user **ndatar**.

Type - 4:

Changed Record: This line is written to the logs when the contents of an existing record is changed.

```
2018-09-14 15:36:39,319 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-17] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1059,
index:null, indexName:sdsd, indexType:index, regularExpression:as=df,
applicationTypes:,258,147,567,1013,916,994,259,956,989,1004,1003,403,351,997,]}","change_details":[{"old_value"
"column_name":"applicationTypes"}],"timestamp":"Fri Sep 14 15:36:39 ADT
2018","mode":"Changed","username":"default"}
```

This line shows that the entry with name **asd** was changed (**mode : Changed**) in the table IndexToRegex at **Fri Sep 14 15:36:39 ADT 2018** by the user **default**.

The changes were:

- Column **regularExpression** was changed from **asd** to **as=df**.
- Column **applicationTypes** was changed from **,258,147,567,994,259,956,989,1004,1003,403,351,997,** to **,258,147,567,1013,916,994,259,956,989,1004,1003,403,351,997,**.


```
2018-09-14 15:47:51,243 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-127] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1068,
index:null, indexName:for_testing, indexType:scrub, regularExpression:a=kjkj 123,
applicationTypes:,258,147,567,994,259,956,989,1004,1003,403,351,997,]}","change_details":[{"old_value":"a=kjkj"
123","column_name":"regularExpression"},{"old_value":",1013,916,","new_value":",258,147,567,994,259,956,989,100
Sep 14 15:47:51 ADT 2018","mode":"Changed","username":"ndatar"}
```


This line shows that the entry with name **asd** was changed (**mode : Changed**) in the table IndexToRegex at **Fri Sep 14 15:47:51 ADT 2018** by the user **ndatar**.

The changes were:

- Column **regularExpression** was changed from **a=kjkj** to **a=kjkj 123**.
- Column **applicationTypes** was changed from **,1013,916,** to **,258,147,567,994,259,956,989,1004,1003,403,351,997,**.

Type - 5:

Deleted Record: This line is written to the logs when an existing record content is deleted.


```
2018-09-14 15:46:30,618 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-117] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1067,
index:null, indexName:ggh, indexType:index, regularExpression:ghgh-jkjk001,
applicationTypes:,258,147,567,994,259,956,989,1004,1003,403,351,997,]}","timestamp":"Fri Sep
14 15:46:30 ADT 2018","mode":"Deleted","username":"default"}
```


This line shows that the entry with name **ggh** from the table IndexToRegex was deleted (**mode : Deleted**) at **Fri Sep 14 15:46:30 ADT 2018** by the user **default**.


```
2018-09-14 15:48:01,180 INFO : com.genesyslab.gax.lfmt.audit_log_util.AuditLogUtil
[qtp142257191-117] - [34] {"type":"LFMT_Audit_Log","complete_record":"IndexToRegex {[id:1068,
index:null, indexName:for_testing, indexType:scrub, regularExpression:a=kjkj 123,
applicationTypes:,258,147,567,994,259,956,989,1004,1003,403,351,997,]}","timestamp":"Fri Sep
14 15:48:01 ADT 2018","mode":"Deleted","username":"ndatar"}
```


This line shows that the entry with name **for_testing** from the table IndexToRegex was deleted (**mode : Deleted**) at **Fri Sep 14 15:48:01 ADT 2018** by the user **ndatar**.

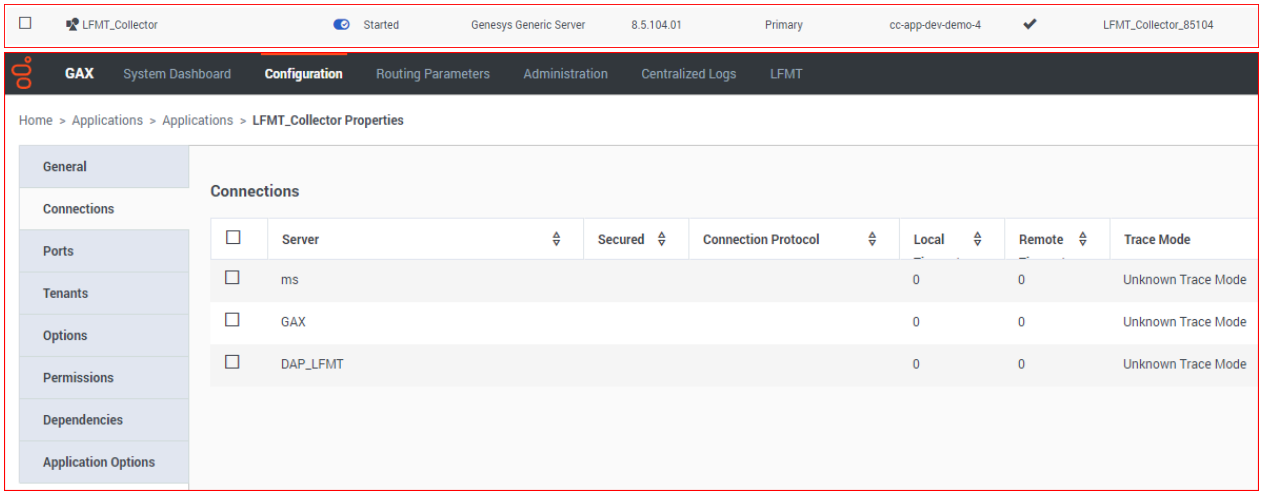
LFMT Alarms

This article details the LFMT Collector Alarms that are generated if/when an LFMT Collection Schedule fails.

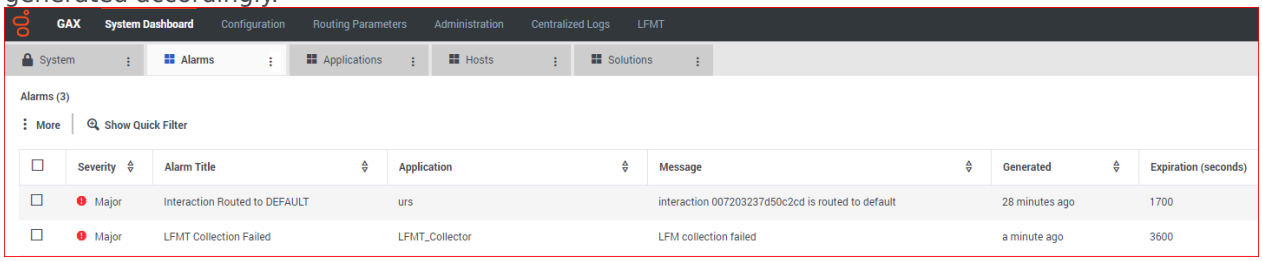
Example

1. Create an Alarm Condition with ID 9600 so that LFMT Collection alarms are generated when a LFMT Collection fails.

2. Ensure the respective LFMT Collector application object has a connection to the relevant Message Server.



3. Based on the above configuration, if/when an LFMT Collection fails (i.e. a Workbench 8.5 application is Stopped and therefore LFMT Collector cannot communicate and collect log files), an Alarm will be generated accordingly.



Additional Information

This section gives additional information to administrators and users for deploying, configuring, and using the LFMT.

Sections within this Additional Information chapter:

1. Configuration of TLS Connections
2. Best Practices
3. Regular Expressions
4. Release Notes
5. FAQ's

Troubleshooting

> **Important**
>
> - As a first troubleshooting step, please review and double-check the LFMT Checklist section.

LFMT Collector will not Start - always reverts back to Stopped

Answer(s):

- Please check if the LFMT Collector application(s) has a connection to a DAP that connects to the LFMT Database

LFMT Indexer will not Start - always reverts back to Stopped

Answer(s):

- Please check if the LFMT Indexer application(s) has a connection to a DAP that connects to the LFMT Database

LFMT configuration is blank and/or LFMT shows "Failed to retrieve applications list" error

Answer(s):

- Please double-check:
  - There's an assigned *Tenant* on the *Server Info* on all the LFMT Application objects (i.e. LFMT Collector, LFMT Indexer, the LFMT GAX instance).
  - LFMT Collector has **ftmessaging** and **sftmessaging** listening Ports configured and these ports are free/open
  - The DAP LFMT application object - Database Name, Database Username, Database Password is correct
  - The DAP LFMT application object - if/when using Oracle Database and if/when using Service Name and not SID - add the [lfmt].use_oracle_service = true option/setting - detailed here

https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/DAPOptions

- The GAX application(s) has a connection to a DAP that connects to the LFMT Database
- Ensure GAX has been restarted post LFMT Connection, Port, Option changes

"Index" dropdown is blank/empty (i.e. CallUUID/ConnID/SessionID) within the "Log File Packaging" page

Answer(s):

- Please double-check if the respective GAX application(s) has a connection to a DAP that connects to the LFMT Database

LFMT newly added Index not working

Answer(s):

- Please double-check:
  - The CME Application for which the Index is to apply has been *checked/selected* in the *Indexing and Scrubbing* section
    - i.e. if you wish to filter the *chicago_URS_a* application based on *ConnID* - the *chicago_URS_a* application has been checked for the respective ConnID Index
  - The respective LFMT Indexer application(s) has been restarted
  - The Regex has been reviewed and tested independently of LFMT on the respective log file text and the desired output is presented

Log files are not being collected

Answer(s):

- Please double-check:
  - Ensure a Workbench Agent 8.5 application has been installed on the respective Host(s) from which log files will be collected from (i.e. sip, urs, stat etc)
  - Double-check the Workbench Agent 8.5 (if using 8.5.102 or below) Application object Template is named **CC_Agent**
    - if not LFMT Collector will not identify/connect to the Workbench Agent 8.5 application(s) and therefore log files will not be collected
    - an indication of the Workbench Agent 8.5 Template being incorrect is the entry **Remote agents available [null]** being written to the respective Workbench Agent 8.5 log file(s)

- If using TLS ensure Certs have not expired

Unable to create LFMT Packages

Answer(s):

- Please double-check:
  - "Error in creating package details file" is present in Collector log
    - Check LFMT Collector option "[app_config]package_location = <packages location or path>" is valid and/or write permissions to the path are sufficient

Unable to download LFMT Package - Failed Forbidden error

Answer(s):

- Please double-check:
  - If/when using LFMT 8.5.104 thru LFMT Client 8.5.105.03 and GAX 9.0.103.08+
    - Ensure the respective GAX Application with LFMT Client Plug-in object, has the [lfmt]/use_lfm_extension option set to true
    - So that *.lfm* files and not *.zip* (default as of 8.5.104) LFMT Package files are created and therefore downloadable via GAX
    - As per GAX RN's GAX-11260 the GAX application now filters unnecessary .gz, .jar, .zip, and .rar API requests.

Configuration of TLS Connections

TLS Connections to Configuration Server

LFMT Indexer and LFMT Collector both support secure connections to Configuration Server's Auto-Detect port. This section describes how to configure these secure connections. It is assumed that the person configuring the secure connection has already become familiar with the *Genesys Security Deployment Guide* and configured the Configuration Server Auto-Detect port.

> **Important**
>
> When creating certificates using OpenSSL as described in the *Genesys Security Deployment Guide* ensure the default Secure Hash Algorithm is at minimum SHA-2. This can be done by editing the `.\ca_conf\ca.conf` file created by the `create_ca.sh` script so **`default_md = sha256`** prior to creating certificates.

> **Important**
>
> If LFMT Indexer and LFMT Collector are to be deployed on a Linux host, ensure the private key is in PKCS #8 format. For more information on converting keys to PKCS #8 for use with Java based Genesys PSDK applications, refer to the *Genesys Security Deployment Guide*.

Installing Certificates and Certificate Authorities on the LFMT Server Host

This section describes how to install the certificates and certificate authorities used for secure connections on the LFMT Server Host.

On Linux

1. If not already completed, install the `Genesys Security on UNIX` package and configure the system environment variable *LD_LIBRARY_PATH* as per the *Genesys Security Deployment Guide*.
2. Copy the certificate, the certificate key, and the certificate authority file to a location on the LFMT Server Host.
3. Ensure the certificate, the certificate key, and the certificate authority file are readable by the user that starts LFMT Indexer and LFMT Collector.

On Windows

1. Copy the certificate, the certificate key, and the certificate authority file to a location on the LFMT

Server Host.

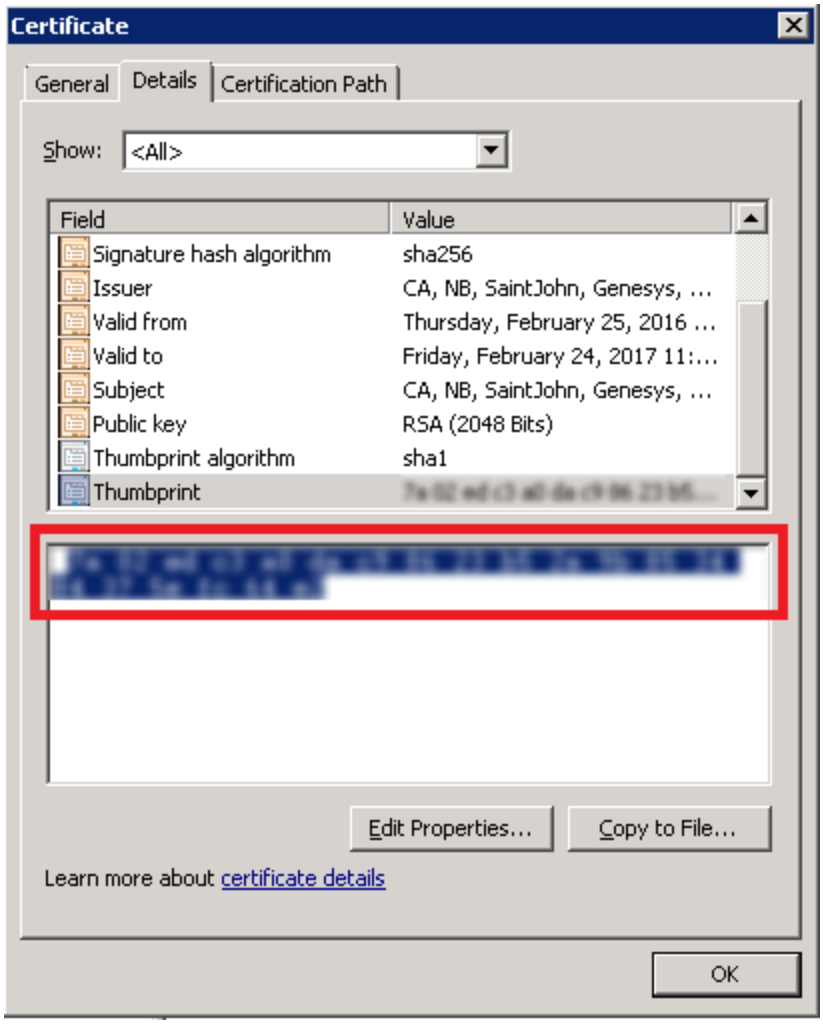
2. Ensure the certificate, the certificate key, and the certificate authority file are readable by the user that starts LFMT Indexer and LFMT Collector.
3. From the Windows Start menu, select Run, and then execute the mmc command to start the Microsoft Management Console (MMC).

   - The Microsoft Management Console should be opened under the user who starts LFMT Indexer and LFMT Collector. If this is the Local System account, you will need to open the console as the Local System user. This can be done using the PSTools **psexec** application with the following command:

     ```
     psexec.exe –i –s mmc.exe
     ```

   - PSTools can be downloaded from http://technet.microsoft.com/en-US/sysinternals.

- Select File > Add/Remove Snap-in.
- In the left pane choose Certificates. Click the Add button.
- Add a Certificates snap-in for *Computer account*. Click Finish.
- As above, add an additional Certificates snap-in for *My user account*.
- In the *Computer Account* snap-in right-click the Trusted Root Certification Authorities folder, and select All Tasks > Import from the shortcut menu. This starts the Certificate Import Wizard.
- On the first Wizard page, click Next.
- On the File to Import page, browse to the certificate authority file (Ex. `ca_cert.pem`), and then click Next.
- On the Certificate Store page, select Place all certificates in the following store. Make sure that the Certificate store text box is set to Trusted Root Certification Authorities. Click Next.
- Click Finish.
- In the *My user account* snap-in open the Certificates folder.
- Right-click the Personal folder, and select All Tasks > Import from the shortcut menu. This starts the Certificate Import Wizard.
- On the first Wizard page, click Next.
- On the File to Import page, browse to the certificate file (Ex. `collector_host.pfx`). Click Next.
- On the Password page, click Next. No password is needed.
- On the Certificate Store page, select Place all certificates in the following store. Make sure that the Certificate store text box is set to Personal. Click Next.
- Click Finish.
- Press F5 to update the MMC view.
- On the left pane, select Certificates > Personal > Certificates.
- On the right pane, locate the imported certificate in the list, and double-click it.
- In the Certificate dialog box, click the Details tab.
- To view the certificate thumbprint, select Thumbprint from the list. The thumbprint, consisting of a string of hexadecimal digits, appears in the lower part of the dialog box. The same process can be used to view the thumbprint for the certificate authority.



Provisioning LFMT Indexer/Collector for Secure Connections

This section describes how to provision LFMT Indexer/Collector for secure connections to the Auto-Detect port of Configuration Server. Use this procedure for both simple and mutual TLS connections.

1. Log into GAX, and navigate to `Configuration Manager`.
2. From the `Environment` section, select `Applications`.
3. In the `Applications` section, locate and open the LFMT Indexer/Collector application.
4. In the `General` tab, specify the Auto-Detect port of the primary and backup Configuration Server for the `port` and `backupport` arguments in the `Command Line Arguments` respectively.
5. In the `Connections` tab, select **Add**. Add a connection to the primary Configuration Server being sure to select the `Auto-Detect` port in the `Port ID` drop-down.
6. In the `Connections` tab, select **Add**. Add a connection to the backup Configuration Server being sure to select the `Auto-Detect` port in the `Port ID` drop-down.
7. In the `General` tab, specify the `Certificate`, `Certificate Key`, and the `Trusted CA` installed on the

LFMT Server Host.

- **`Certificate`:** For Windows this will be the thumbprint of the certificate shown in the Properties of the certificate in MMC Certificates snap-in. For Linux, this will be the complete path to the certificate file. Ex. `/home/genesys/certs/collector_host.pem`
- **`Certificate Key`:** For Windows this will be the thumbprint of the certificate shown in the Properties of the certificate in MMC Certificates snap-in (this normally the same value as used in the `Certificate` field). For Linux, this will be the complete path to the certificate key file. Ex. `/home/genesys/certs/collector_host_java_priv_key.pem`
- **`Trusted CA`:** For Windows this will be the thumbprint of the Trusted Root Certificate Authority shown in the Properties of the certificate authority in MMC Certificates snap-in. For Linux, this will be the complete path to the certificate authority file. Ex. `/home/genesys/certs/ca_cert.pem`

8. Click **Save** to commit the changes.

> ### Tip
> As an alternative to configuring the `Certificate`, `Certificate Key`, and the `Trusted CA` for the LFMT Indexer and Collector at the application level, certificates and certificate authorities can be assigned on the LFMT Server Host Object in GAX.

Best Practices

This section lists some best practices administrators and users should review for optimal deployment, configuration, and operation of LFMT.

- Deploy a separate LFMT Indexer/Collector pair(s) at each Data-Center if they are geographically distributed.
- Deploy each LFMT Database in a RDBMS within the same local as the associated LFMT Indexer/Collector pair.
- During the initial deployment of LFMT, consider a **phased approach** for adding Application servers (i.e. sip, urs, stat, gvp etc) to the log collection process.
- Monitor the performance impact of LFMT on each Application server (i.e. sip, urs, stat, gvp etc) during the initial deployment.
- To reduce the performance impact of log file collection set the LFMT Collection Schedule **Interval** to be **twice** the required log file transfer time.
- Limit the LFMT custom Indexes for each Application/Application type; a general rule is **3 per Application**.
- Set up LFMT Scrubbing and Indexing for only those Application Types that are required.
- Turn off Anti-virus checking on the LFMT Server Host(s).
- Ensure that network traffic generated by Genesys application servers has a higher priority LFMT traffic.
- Set a low quality of service (QoS) value for network traffic generated by LFMT.
- If possible, use a dedicated VLAN or LAN for LFMT traffic.

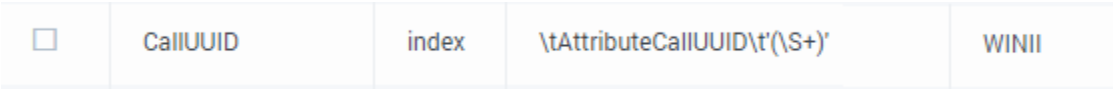
Regular Expressions

This section describes how to create regular expressions used for custom indexes by LFMT Indexer and/or sensitive data scrubbing by LFMT Collector.

> **Important**
>
> - Genesys does not create, validate or support customer regular expressions required within LFMT
> - Genesys regex guidance made be provided, but the customer is responsible for creation, validation, testing and support of user defined LFMT regexes
> - Genesys strongly recommends the customer comprehensively tests the regular expressions that you want to use for LFMT Indexing and Scrubbing before you define them in the LFMT Client
> - A good resource to test LFMT Regexes would be the Genesys Log File Masking Utility (LFMU) as it uses the same Regex Engine approach for masking log files

Creating Regular Expressions

- LFMT regular expressions are created using Java Regular Expression protocol. In the case of both indexing and scrubbing, regular expression *groups* identify the data to be indexed or scrubbed.
- Given the following regular expression:



The regular expression will attempt to match:

1. **\t** - A *tab* character.
2. **AttributeCallUUID** - The text *AttributeCallUUID*.
3. **\t** - A *tab* character.
4. **'** - A single quote.
5. **\S+** - A number of non-whitespace characters.
6. **'** - A single quote.

- In the above expression, the **()** surround the **\S+** so as to define it as a *group*.
- The text matched inside the *group* will be that which is indexed in the database, or scrubbed from the file.

- Applying the expression above to the following application log file as an index.

```
@12:39:20.5370 [0] 8.1.101.69 distribute call/party event: message EventCallDataChanged
        AttributeEventSequenceNumber    000000000010bf8e
        AttributeTimeStamp      56be0ab8000831a8
        AttributeConnID 0075027b50bf1dd8
        AttributeCallUUID       'D0PIFCQ87H5MH67ITU9179MC50000VEO'
        AttributeCtrlParty      '6000'
        AttributeUserData       [2] 00 00..
12:39:20.537 Int 04544 Interaction message "EventCallDataChanged" generated
```

Creates an entry in the LFMT Database where - **CallUUID = D0PIFCQ87H5MH67ITU9179MC50000VEO**

> **Tip**
>
> Tools like **Regex Coach** (http://www.weitz.de/regex-coach/) can be used to test the syntax of the regular expressions.

Release Notes

This section provides links to the LFMT Release Notes.

- LFMT Client Release Note
- LFMT Indexer Release Note
- LFMT Collector Release Note

FAQ's

This section provides a useful list of LFMT Frequently Asked Question's (FAQ's):

What is LFMT

- What is LFMT?
  - Answer: Please review: https://docs.genesys.com/Documentation/ST/DRAFT2/DeploymentGuide/Overview

Components

- What are the LFMT components and their respective functions?
  - Answer: Please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Overview#LFMT_Components

Prerequisites

- What software must be installed before deploying the LFMT?
  - Answer:
    - Genesys Administrator Extension and all of its associated components - LFMT uses GAX for the UI
    - JRE 1.8 (or later) or OpenJDK 8 or OpenJDK 11 - LFMT components are Java based

Workbench Host/Server Operating System Support

- Which Operating Systems are supported by LFMT?
  - Answer:
    - Windows 2012 and 2016
    - RHEL 7 and CentOS 7

LFMT Database

- Which 3rd Party Databases are supported by LFMT?
  - Answer:
    - PostgreSQL 9.1 or later
    - Oracle DBMS 11 to 19c
    - Microsoft SQL Server 2005 or later
- Does the Database contain log files or just metadata?
  - Answer: Only metadata - log files are stored on disk based on the LFMT Collector **cls_location** setting/option

- Does LFMT support TLS database connections (to Oracle, MS-SQL and Postgres) via the respective DAP?
  - Answer: **Yes** - as of LFMT Collector 8.5.104.04, LFMT Indexer 8.5.104.02, LFMT Client 8.5.104.02

Browser Support

- Which Internet Browsers are supported by LFMT?
  - Answer: Chrome, Edge, Firefox - latest versions recommended

Sizing

- Where can I find details on LFMT Sizing?
  - Answer: Please review this section: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Sizing
- Where can I download the LFMT Sizing Template?
  - Answer: Please click here: Genesys Log File Management Tool Sizing Template

Architecture

- Are the LFMT Collector and LFMT Indexer applications deployed in pairs on the same host/VM?
  - Answer: **Yes** - please review this section: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Architecture
- Can multiple LFMT Collector and LFMT Indexer applications pairs be deployed in the same Data-Center?
  - Answer: **Yes**
    - i.e. there could be 3 LFMT hosts/VM's at the "Chicago" Data-Center - "Chicago_1", "Chicago_2" and "Chicago_3"
      - each Host with an LFMT Collector/Indexer pair installed
      - each LFMT Collector/Indexer pair is backed by a "Chicago_1", "Chicago_2" and "Chicago_3" database
      - each LFMT Host would be collecting log files from **different** Genesys Applications Servers
        - "Chicago_1" is collecting SIP logs - "Chicago_2" is collecting URS logs - "Chicago_3" is collecting GVP logs
- Can multiple LFMT Collector and LFMT Indexer applications pairs be deployed on the same host/VM?
  - Answer: **No**
    - i.e. you should not deploy an "LFMT_Collector_1" application and "LFMT_Collector_2" application on the same "Chicago_1" Host

Deployment

- Does Genesys recommend a lab/test deployment before production?
  - Answer: **Yes** - please determine if LFMT and its features/limitations are useful for production use before considering a production deployment
- Does LFMT need its own dedicated host/VM infrastructure?

    - Answer: **Yes** - please review this section: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Sizing
- Is the Workbench Agent 8.5 application required on the *remote* Genesys Application Server hosts (i.e. sip, urs, gvp, fwk etc etc)?
    - Answer: **Yes**
        - if not LFMT cannot collect/send the respective log files to the LFMT Host(s) for storage
- Is the Workbench Agent 8.5 application different to the Workbench Agent 9.x component?
    - Answer: **Yes**
        - use only Workbench Agent 8.5 for LFMT
        - use only Workbench Agent 9.x for Workbench
- Can both the Workbench Agent 8.5 and 9.x applications run on the same host/VM?
    - Answer: **Yes**
        - Workbench Agent 8.5 and 9.x can run on the same host/VM - i.e. if you wish to use both the LFMT and Workbench tools - e.g:
        - The Workbench Agent 8.5 would be collecting log files for the LFMT Host(s) to store in its CLs Repo
        - The Workbench Agent 9.x would be sending Metric data (i.e. CPU, RAM, DISK, NETWORK) to Workbench 9.x Server/Cluster
- Should all LFMT components be running the same version?
    - Answer: **Yes** - i.e. do not mix LFMT Client 8.5.103 with LFMT Collector 8.5.104 - all versions must be the same
- Can the Workbench Agent 8.5 applications be installed in bulk as opposed to one at a time?
    - Answer: **Yes** - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/DepMassDeployWorkbenchAgent
        - Also an automation deployment solution such as Ansible could be used
- Does Genesys recommend a separate GAX instance for LFMT
    - Answer: **Yes** - this will make LFMT upgrades easier as the only installed Plug-in will/should be LFMT and not other Plug-ins used to manage the contact center
        - Also if many Users are regularly creating LFMT Log Packages a separate GAX instance is recommended
- Where can I find a list of the LFMT settings/options?
    - Answer: Please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Options

Log Transfer/Upload

- Are the LFMT collected log files compressed during transfer from the Genesys Application Server(s) (i.e. sip, urs, gvp etc) to the LFMT Host(s)?
    - Answer: Yes - typically at a ratio of ~10:1 - therefore a ~10 MB log file would be transferred at a compressed ~1 MB

Log Storage

- Are the LFMT collected log files compressed at storage/rest?
  - Answer: Yes - typically at a ratio of ~10:1 - therefore a ~10 MB log file would be stored at a compressed ~1 MB

Genesys Platform Integration

- Which Genesys platforms does LFMT currently support integration with?
  - Answer: Genesys Engage On-Premise.

CME Connections for LFMT

- Is there a diagram detailing CME Connections for LFMT
  - Answer: **Yes** - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/ApplicationConnections
- What is the CME Connections summary?
  - Answer:
    - GAX connection to LFMT Collector(s) and LFMT DAP(s) - a GAX application may have multiple connections to more than one LFMT DAP object
    - LFMT Collector connection to GAX and LFMT DAP - an LFMT Collector application object **must have only one** connection to a LFMT DAP object
    - LFMT Indexer connection to LFMT DAP - an LFMT Indexer application object **must have only one** connection to a LFMT DAP object

Ports

- Which Ports are used by LFMT?
  - Answer: This would depend on the Ports assigned when creating the CME Applications
    - Please ensure these Ports are open in the firewall and not used by any existing applications - as an example in our lab we use:
      - LFMT Collector = **8001** (default), **8020** (ftmessaging) and **8030** (sftmessaging)
      - LFMT Indexer = **8002** (default)
      - Workbench Agent 8.5 = **7999** (default), **7101** (ftmessaging) and **7102** (sftmessaging) - also open **2552** for Actor messaging
      - DAP_LFMT = **5432** (default)
      - GAX / LFMT Client = **8080** (default), **9001** (messaging) and **9002** (ftmessaging)

LFMT Authentication

- How do users log into LFMT?
  - Answer: Via GAX - a new LFMT tile will be presented within GAX post the installation of the LFMT Client application

Data Retention

- How/when is data purged/deleted from LFMT?
  - Answer: This is based on the LFMT Indexer **retention_period** setting
    - please review https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/IndexerOptions

GDPR

- How does LFMT accommodate the GDPR policy?
  - Answer: LFMT currently does not support access or erasure requests for data that is stored for an extended period. In order to meet EU GDPR (European Union General Data Protection Regulation) compliance, customers/partners should ensure that the 'LFMT Indexer' application "retention_period" option is set to 30 days or less (if adherence to EU GDPR is required).

Licenses

- Does LFMT need a separate license?
  - Answer: **No** - not a separate license, simply an active Genesys maintenance subscription

Using LFMT

- Is there a guide on using the LFMT features?
  - Answer: **Yes** - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/Using
- Should I stagger the LFMT Collection Schedules of my Genesys Application (i.e. sip, urs, gvp etc) log files or can they all be run simultaneously?
  - Answer: **Yes** - LFMT Collection Schedules should be staggered based on the **Start Time** and/or **Interval** settings
    - Details on Collection Schedules can be found here: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/ColSched
- If an LFMT Collection Schedule is edited and saved, is it Disabled/Stopped and therefore does it need to be manually Enabled/Started thereafter?
  - Answer: **Yes** - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/ColSched
- If an LFMT Index (type Index or Scrub) is added/edited and saved, does the LFMT Indexer(s) application need to be restarted?
  - Answer: **Yes** - if not the Index will not be applied - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/IndScrub

TLS

- Does LFMT support TLS?
  - Answer: **Yes** - please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/TLS

Best Practices

- Does LFMT have any Best Practices guidance?
  - Answer: **Yes** - https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/BestPractices

LFMT Release Notes

- Where can I find the LFMT Release Notes?
  - Answer: Please review: https://docs.genesys.com/Documentation/ST/latest/DeploymentGuide/ReleaseNotes