



License Reporting Manager 8.1

Hardware Sizing and Performance Information Whitepaper

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Document Version: 81lrm_hws_wp_05-2013_v8.1.100.01

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Hardware Sizing and Performance Information

This document provides sizing information to use in planning LRM 8.1.1 deployments, until this information is available in the Genesys Hardware Sizing Guide.

License Reporting Manager (LRM) calculates and stores usage data for licensed Genesys products and user-defined bundles to provide Hosted Service Providers with billing data and management reports.

The Standard Server configurations (GEN_LINUX_SERVER and GEN_WIN_SERVER) that are listed under “*Recommended Platform Configurations*” in the Preface of the *Genesys Hardware Sizing Guide* should be sufficient for LRM to process concurrent usage and enabled-seats data in a medium to large contact center. Genesys recommends using a separate server or Virtual Machine (VM) with equivalent dedicated resources for the LRM server in a medium to large contact center. For sizing information on other Genesys products that are used with LRM, see the *Genesys Hardware Sizing Guide*.

For a small to medium contact center, you can host LRM on the same server or VM as other Genesys applications, if the other applications are not expected to be very active at the time of night when LRM runs the scheduled nightly statistics job to gather and calculate statistics for sellable item data from ICON, GVP and Configuration Server.

Statistics were calculated by LRM for 3 tenants (each with 7,000 logins a day) and reported on the usage for the following sellable items: CIM MS, SIP Server, and Agent Connector seats. To keep processed storage data for up to 13 months in this scenario, LRM should require less than 10GB. This requirement is expected to increase as the number of tenants and sellable items and bundles increases.

Table 1: Summary of Recommendations

	Medium Contact Center	Large Contact Center
Total agents:	1000	21,000
Total shifts:	2	3
Agents/shift:	500	7000
Logons per day:	1000	21,000
Products:	CIM	CIM
Minimum recommended free disk space for LRM DB	10 GB	20 GB
Disk space recommended for LRM DB to keep >13 months of reporting data	>20 GB depending upon number of tenants, SIs, bundles	>40 GB depending upon number of tenants, SIs, bundles
Minimum recommended CPU	1 Intel CPU 2.6 GHz core 2 duo	2 Intel CPU 2.6 GHz core 2 duo
Minimum recommended Memory	4 GB	4 GB
Dedicated server required?	No	Yes
VM info/recommendations	VMs are okay if provided similar CPU, memory and disk resources	VMs okay if provided a similar CPU, memory and disk resources

Tested Scenarios

LRM load testing was performed for the following Hardware and Software Platforms, and Databases to create the sizing guidelines for LRM 8.1.1.

LRM Server Platform Configurations

LRM and other Genesys components were hosted on virtual machines.

Base ESX server configuration:

- CPU Core = 16 (Intel(R) Xeon® CPU E5-26650 @ 2.40GHZ)
- RAM = 128 GB
- Hard Disk Space = 4 TB
- NICs = 16

VMs were used for LRM with the following configuration:

Linux Operating System: GEN_LINUX_SERVER (VM)	
OS	Red Hat Linux Enterprise Server v6
Processor Type, Quantity, Speed	2 cores of Intel® Xeon® CPU E5-26650 @2.40 GHZ
Memory Size	4 GB RAM
Hard Disk Space	40 GB
Ports	Networking Ports: 2 TP Ethernet 1000/100 BASE-T cards In full duplex mode
Microsoft Windows Operating System: GEN_WIN_SERVER (VM)	
OS	Microsoft Windows 2008
Processor Type, Quantity, Speed	2 cores of Intel® Xeon® CPU E5-26650 @2.40 GHZ
Memory Size	4 GB RAM
Hard Disk Space	40 GB
Ports	Networking Ports: 2 Ethernet 1000/100 BASE-T ports in full duplex mode

For each OS, LRM was hosted on one VM while Management Framework, ICON, Database Server, SIP Server and other Genesys components were hosted on another virtual machine of type GEN_WIN_SERVER (VM).

Database used:

- a) MS SQL Server 2008
- b) Oracle 11g
- c) PostgreSQL 9.0

OS Used for LRM:

- a) Windows 2008 64-bit
- b) Red Hat Linux v6 64-bit

Measurements Summary

For a large contact center with 3 tenants, each having about 7,000 simulated agents, Licenser Reporting Manager release 8.1.1 running on a GEN_LINUX_SERVER VM or GEN_WINDOWS_SERVER VM (as described in Testing Scenarios section) had no problem loading the data from the ICON DB and processing it in significantly less than 5 minutes for all 3 database systems (MS SQL 2008, PostgreSQL 9, and Oracle 11g). The database size grew by less than 8MB each day. The simulated agents logged into a Genesys_CIM_Platform_MS environment. The places/DNs used for agent logins were configured for a SIP Switch. GVP media ports were not used. Therefore, LRM computed concurrent peaks for only Genesys_CIM_Platform_MS, Agent Connector, and SIP Server sellable items for 3 tenants (each with about 7000 simultaneous agent logins during different shifts). It is expected that in a more realistic customer environment where Genesys Interaction Workspace, Genesys Agent Desktop with GAD Social Media Plug-ins, SIP Voicemail server ports, GVP ASR, TTS and Media ports, and additional items are used, the processing time for LRM could increase by a factor of 5-10. However, the fact that LRM requires so little CPU and memory resources to process 21,000 simple agent logins for a day suggests that even with processing times increasing by a factor of 5-10, LRM would still require less than an hour to finish processing a day's worth of data.

For a medium contact center with 2 tenants, each tenant having 500 simulated agents, LRM running on a Linux or Windows VM, as described above, took less than two minutes for processing one day's data on all 3 database systems. The database size grew by less than 1MB each day. As is true of the large contact center, it is expected that in a more realistic customer environment where Genesys Interaction Workspace, Genesys Agent Desktop with GAD Social Media Plug-ins, SIP Voicemail server ports, GVP ASR, TTS and Media ports, *etc.* are used, the processing time for LRM could increase significantly over the measurements described here.