

Login VSI Benchmarking Standards and Guidelines

Introducing Login VSI

Login VSI is the de-facto industry standard benchmarking tool for testing the performance and scalability of Server Based Computing (SBC) and Virtual Desktop Infrastructures (VDI).

Login VSI is 100% vendor independent and can be used to test any centralized Windows desktop environment, including Citrix XenDesktop, Citrix XenApp, Microsoft Remote Desktop Services, VMware Horizon View or any other Windows based SBC or VDI solution.

Login VSI is used for testing and benchmarking by all major hardware and software vendors active in the SBC and VDI space, and is recommended for this usage by both leading IT-analysts and the technical community. Login VSI based test results are published in numerous technical white papers (visit www.loginvsi.com) and are presented at all relevant technical conferences. Login VSI is also used by enterprises organizations (including many Fortune 500 companies), system integrators, hosting providers and testing companies.

Why standards and guidelines

To warranty that test results can be trusted, and be objectively compared to one another, it is important that clear and accepted testing standards and guidelines are available. This document provides an overview of the standards and guidelines for Testing with

Login VSI version 4.1, including binding recommendations for:

1. The correct setup of the test-infrastructure
2. The correct setup and execution of the tests itself
3. The correct reporting of results
4. The complete documentation of the infrastructure used

When tests and resulting reports are executed according to these standards, the results published will be transparent, reliable and replicable for all that are interested. Adherence to these standards will enhance a potential purchaser's ability to objectively evaluate and to compare product attributes.

The standards described in this document form the basis for the checks and reviews that will be executed in order to receive the 'Validated by Login VSI' – certification, which includes the right to use the same logo.

Audience for this document

This document is intended for Performance Analysts, Technical Marketers and all persons who want to execute performance and scalability tests with Login VSI, with the purpose of publishing objective and credible results.

Login VSI Benchmarking Standards and Guidelines 2018

An accepted industry standard testing process needs to adhere to the following 4 steps:

Part 1. Setup of the test infrastructure

Steps described below are industry standard guidelines, and mandatory for public benchmarking purposes. When deviating from them, which is not recommended, it should be made clear in the published results.

- Test data may only come from the documented test infrastructure. Any results gathered from a different configuration or environment will be invalid
- Extrapolating performance or scalability is not allowed in a Validated by Login VSI reference architecture
- It is recommended that any BIOS or hardware tuning is documented to make reproducing test results much easier

Part 2. Setup and Execution of a Test

Steps described below are industry standard guidelines, and mandatory for public benchmarking purposes. When deviating from them, which is not recommended, it should be made clear in the published results.

- Before each test is started, the server host and launcher infrastructure are to be completely restarted to ensure the test is not influenced by previous tests.
- Each test should be initiated at least 20 minutes after the last VM has been started.
 - It should be documented if VM's (VDI Desktops) are pre-booted
- Test are performed with an unmodified version of the Login VSI KNOWLEDGE WORKER workload.
- All tests are performed at least three times and the average result is reported in the published document (VSIbase and VSImax).
- VSImax should be reached with dynamic calculation mode before a test can be called successful. If no VSImax is reached make sure to document that NOT reaching VSImax is ok and was due to the system having enough performance to prevent a poor end-user experience which can be reflected by a good VSIbase, and a VSIavg that is below threshold.
- All sessions started by Login VSI should be logged off automatically at the end of the test before a test can be called successful.
- All tests should be executed in the standard benchmarking mode
- There should be equal to, or less than 1% stuck sessions on any valid test

Part 3. Reporting of results

- Original "Login VSI Analyzer Graphs" should be added to the published documentation
- The test directories from the VSI Share should be zipped and provided to Login VSI for review and archival
- The test report should be provided to Login VSI and is recommended for inclusion in the Reference Architecture

Part 4. Documentation of the infrastructure used

To describe the infrastructure used in the tests, the following details must be provided.

4.1 Hardware configuration

| Component | Details |
|--|-----------------------------------|
| Server Brand | brand-name |
| Server Model | type |
| Number of processor packages | number |
| Number of cores per processor | number |
| Number of hardware threads per core | number |
| System power management policy | Low/medium/high performance |
| CPU | |
| Vendor | brand-name |
| Name | type |
| Model number | number |
| Core frequency | Ghz |
| Hardware | |
| BIOS version | version |
| BIOS settings | settings |
| Memory | |
| Total RAM (GB) | GB |
| Local hard drives | |
| Number of drives | number |
| Size GB | GB |
| Type | HDD or Flash |
| Raid Controller | |
| Vendor | brand |
| Model | model |
| Firmware | number |
| Raid Level | RAID-5 with online spare or other |
| Network | |
| Network interface #1 | type, Gb |
| Type | type |
| Operating system | |
| Name | ESXi or other |
| File system | Brand/type |
| Kernel | number |
| Language | EN or other |
| Description of the storage system used | |
| Vendor | |
| Model | |
| Version | |

4.2 Login VSI configuration

| | |
|-------------------------------|--------------------------------|
| Launchers | |
| Number of active launchers | number |
| Target settings | |
| Number of physical hosts | number |
| Number of sessions | number |
| Timeframe (Seconds) | 2880 (or lower) Required |
| Workload | Knowledge worker (recommended) |
| Auto Logoff Timeout (Seconds) | 120 (recommended) |
| Debug logging | Enabled/Disabled |
| Benchmarking mode | Enabled (required) |

4.3 Login VSI results requirements

| | |
|---------------------|------------|
| % of stuck sessions | 1% or less |
|---------------------|------------|

4.4 Target configuration

| | |
|--------------------------|------------------------------|
| Hypervisor | name |
| Operating system | Windows Server 2016 or other |
| Architecture | x64 or other |
| Build | number |
| Number of (v) CPU's | number |
| Memory | GB |
| Login VSI Version | 4.1 |
| Microsoft Office version | 2016-EN-x86 or other |

4.5 Installed programs on target:

List of installed programs can be acquired by running "get-wmiobject -class win32_product" in a powershell command prompt.

| | |
|---------------------------------------|---------------|
| Example: Adobe Reader 9.1 | Exact version |
| Example: Oracle Java (TM) 6 Update 21 | Exact version |

4.6 List of services on target:

List of services can be acquired by running "get-service >> services.txt" in a powershell command prompt.

| Displayname | Status |
|---|--------------------------|
| Example: Adobe Acrobat Update Service | Running/stopped/disabled |
| Example: Application Experience | Running/stopped/disabled |
| Example Application Layer Gateway Service | Running/stopped/disabled |

4.7 List of hotfixes on target:

List of services can be acquired by running "get-wmiobject -class "Win32_QuickFixEngineering" >> hotfix.txt" in a powershell command prompt.

| HotFixID |
|--------------------|
| Example: KB2680328 |
| Example: KB2680330 |

4.7 List of optimizations on target:

List the OS optimizations used to configure the best performance on the target. It is recommended to use the VMware OS Optimization Template (OSOT) or the Citrix Optimizer. If either optimizer is used please provide the XML configuration file or additional information about which services were disabled or configured differently.