NerveCenter 6.0 Release Notes

Windows and UNIX
Version 6.0.03 (bld16)

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NerveCenter 6.0 Release Notes

LogMatrix NerveCenter™ is a proactive event correlation application that intelligently filters network events, automates corrective actions and forwards important events to a network management platform.

A site can move directly to NerveCenter 6.0 from any NerveCenter 4.1, 5.0 or 5.1, 5.2 release, patch, or hotfix. NerveCenter version 6.0 is not compatible with prior releases in that the NerveCenter 6.0 Server needs to interact with the matching NerveCenter 6.0 Desktop toolset.

Please read **New Features** for information about the changes found in NerveCenter 6.0.

NC6.0.03 (bld16) is an updated release for NC6.0 as of June 2013. All accumulated patches following the release of NC6.0.00 are included in this updated release.

To upgrade from versions prior to 4.1, contact LogMatrix.
(techsupport@logmatrix.com)

Availability

The NerveCenter 6.0 Desktop toolset is available for the Linux, Solaris and Windows operating systems. The Desktop toolkit is included within the NerveCenter Server product for Linux and Solaris and also available as an independent software package – not bundled within the NerveCenter Server software package – for the Windows operating system.

The NerveCenter 6.0 Desktop toolkit is provided as an installable software package consisting of the NerveCenter Client and Administrator applications, NerveCenter Command (a command–line utility), documentation and the mibTool MIB Compiler.

The NerveCenter Server is provided as an installable software package consisting of the NerveCenter Desktop toolkit plus the Server, a library of sample NerveCenter Models, and network management platform integration components. This package is available for Linux, Solaris and Windows. Windows coverage includes Windows XP, Server 2003 R2, Server 2008, Server 2008 R2 and Windows 7.

Requirements

This section describes the hardware and software requirements to install NerveCenter 6.0.

Software Requirements

This section describes the operating system and software requirements for NerveCenter 6.0.

Linux Requirements

Table 1: Linux Platform Requirements

Linux Component		NerveCenter Component	
		Server	Desktop
Operating System	RedHat Enterprise Linux 5.x 32- or 64-bit (x86 or x86-64) RedHat Enterprise Linux 4.x 32- or 64-bit (x86 or x86-64) RedHat Enterprise Linux 3.x 32-bit (x86) CentOS 5.x 32- or 64-bit (x86 or x86-64) Oracle Linux 5.x 32- or 64-bit (x86 or x86-64)	Required	Required
Graphical Desktop	GNOME	Required	Required
IP Addressing	Fixed IPv4 address and hostname	Required	N/A
Web Browser	Firefox 3.x+ Mozilla 1.6+	N/A	Optional (Firefox 12 recommended)
Web Server	Apache 2.0+	Optional	N/A
Network Management	HP OpenView NNM 7.53	Optional	N/A
PDF Reader	Adobe Acrobat Reader 7+	N/A	Optional

❋ For X Windows System ["X11"] software to run the following NerveCenter components: Client, Administrator, IPSweep and SerializeDB, an X11 Server must be installed but does not have to be running.

The DISPLAY environment variable must be set and point to a valid X11 display for the following NerveCenter components: Client, Administrator, and SerializeDB (not IPSweep). The GNOME desktop included as part of the required RedHat Enterprise Linux distributions satisfies this requirement. GNOME is an X11 environment and provides the required X11 software.

NerveCenter requires the following RPMs from the Linux release media: libXt, libX11, libSM, libICE, libXext, libXau and libXdmcp; all of which are part of the GNOME distribution.

✳ If you will be using the NerveCenter MIB Compiler, mibTool, you must install Java™ Platform, Enterprise Edition 5 or higher. (http://www.java.com/)

✳ The process /usr/sbin/rpcbind must be running for NerveCenter to start.

✳ If you are installing NerveCenter on the same machine as OpenView, you should install and confirm OpenView is working properly before installing NerveCenter.

✳ To view the help, you must specify a path to a supported web browser when installing NerveCenter. See Installing NerveCenter on UNIX in Installing NerveCenter for details.

Solaris Requirements

Table 2: Solaris Platform Requirements

Solaris Component		NerveCenter Component	
		Server	Desktop
Operating System	Solaris10/SPARC 1/06 Edition though 08/11, inclusive	Required (Solaris10 5/08+ recommended)	Required
Graphical Desktop	Java Desktop GNOME CDE	Required	Required
IP Addressing	Fixed IPv4 address and hostname	Required	N/A
Web Browser	Firefox 3.x+ Mozilla 1.6+	N/A	Optional (Firefox 12 recommended)
Web Server	Apache 1.3+	Optional	N/A
Network Management	HP OpenView NNM 7.53 IBM Tivoli Netcool/OMNIbus	Optional (Solaris 10 11/06 Edition recommended for use with NNM)	N/A
PDF Reader	Adobe Acrobat Reader 7+	N/A	Optional

✳ For X Windows System ["X11"] software to run the following NerveCenter components: Client, Administrator, IPSweep and SerializeDB, an X11 Server must be installed but does not have to be running.
The DISPLAY environment variable must be set and point to a valid X11 display for the following NerveCenter components: Client, Administrator, and SerializeDB (not IPSweep). The CDE, GNOME or Java Desktop desktop included in these Solaris 10

distributions satisfies this requirement. Each is an X11 environment and provides the required X11 software.

NerveCenter requires the following Solaris software packages from the Solaris 10 release media: SUNWxwplt, SUNWxwice, and SUNWmfrun.

✳ If you will be using the NerveCenter MIB Compiler, mibTool, you must install Java™ Platform, Enterprise Edition 5 or higher. (http://www.java.com/)

✳ The process /usr/sbin/rpcbind must be running for NerveCenter to start.

✳ If you are installing NerveCenter on the same machine as OpenView, you should install and confirm OpenView is working properly before installing NerveCenter.

✳ For integration to be complete with Netcool/OMNIbus you must include the NerveCenter probe provided by IBM Tivoli (nc probe version 64 rev 1). For more information, contact your IBM Tivoli representative.

✳ To view the help, you must specify a path to a supported web browser when installing NerveCenter. See Installing NerveCenter on UNIX in Installing NerveCenter for details.

Windows Requirements
Table 3: Windows Platform Requirements

Windows Component		NerveCenter Component	
		Server	Desktop
Operating System	Windows 7 Professional / Ultimate Windows Vista Business / Ultimate SP2 Windows Server 2008 R2 Windows Server 2003 R2 Windows XP Professional SP3	Any 32– or 64–bit version (Windows Server R2 or Windows 7 recommended)	Any 32– or 64–bit version
IP Addressing	Fixed IPv4 address and hostname	Required	N/A
Web Browser	Internet Explorer 8,9 Firefox 3.x+ Google Chrome 15+	Optional (IE9 or Firefox 12 recommended)	Optional (IE9 or Firefox 12 recommended)
Network Management	HP OpenView NNM 7.53 IBM Tivoli Netcool/OMNIbus Hitachi IT Operations Analyzer	Optional	N/A
PDF Reader	Adobe Acrobat Reader 7+	Optional	Optional

✳ If you will be using the NerveCenter MIB Compiler, mibTool, you must install Java™ Platform, Enterprise Edition 5 or higher. (http://www.java.com/)

Hardware Requirements

The following tables list the recommended computer hardware configuration for NerveCenter 6.0. These recommendations assume the machine is running the base operating system and the NerveCenter Server components only.

NerveCenter Desktop components (nccmd, client, ncadmin, mibtool, documentation) can be run on any PC meeting the OS requirements. Recommended platforms for NerveCenter Server on Windows are: Windows Server 2003 R2, Windows Server 2008 R2 and Windows 7.

Table 4: Recommended Hardware – NerveCenter Server without Additional Pollers

	Solaris	Linux and Windows
CPU	SPARC64 VII or UltraSPARC T2 [Plus]	Intel Xeon X3400 Series @ 2.4+ GHz or AMD Opteron 6000/6100 Series
Memory	4+ GB RAM	4+ GB RAM
Disk Space	160 GB	160 GB
Swap	2 GB	2 GB

Table 5: Recommended Hardware – NerveCenter Server with One Poller Package

	Solaris	Linux and Windows
CPU	UltraSPARC T2 [Plus]	Intel Xeon X3400 Series @ 2.4+ GHz or AMD Opteron 6000/6100 Series
Memory	8+ GB RAM	8+ GB RAM
Disk Space	160 GB	160 GB
Swap	4 GB	4 GB

Installation

Installation instructions for NerveCenter can be found in the document Installing NerveCenter, available as the file **install.pdf** in the root directory of the release media or of the download.

Caution: Before installing or upgrading NerveCenter, you should review the New Features section.

For other information about NerveCenter, see the documentation available in the InstallPath/docs directory of the Client or Administrator.

Upgrading to NerveCenter 6.0

The following steps are performed when upgrading.

❋ Confirm that the target systems meet the platform requirements described in these Release Notes.

❋ Stop all NerveCenter applications, services and processes.
See "Stopping NerveCenter Processes" in **Installing NerveCenter**.

❋ Serialize the NerveCenter database.
See "Serializing the NerveCenter Database" in **Installing NerveCenter**.

❋ Back up any files you want to save.
See "Backing Up Your NerveCenter Database and Files" in **Installing NerveCenter**.

❋ Upgrade or Uninstall NerveCenter.
If you are upgrading the existing NerveCenter installation, see "Installing NerveCenter on UNIX" or "Installing NerveCenter on Windows" in **Installing NerveCenter.**

❋ If you are uninstalling NerveCenter, see "Removing NerveCenter from UNIX" or "Removing NerveCenter from Windows" in **Installing NerveCenter**.

Notices

NerveCenter Licensing

NerveCenter, beginning with release 5.1.00, uses a new licensing mechanism. Instead of serial numbers or license keys, you must obtain a license file for each NerveCenter server. NerveCenter Server processes cannot be started without this file.

The NerveCenter Client and Administrator, the NerveCenter Command (command–line utility) and mibTool MIB Compiler do not require a license.

You will receive a hostname.dat file for each NerveCenter server you are licensing. This license file must be copied to **/opt/OSInc/conf/** (UNIX) or **InstallPath\conf** (Windows).

If you are upgrading NerveCenter servers, run **/opt/OSInc/bin/nclicreport** (UNIX) or **InstallPath\bin\nclicreport.exe** (Windows) on each server to print the license key information needed for obtaining the license file required for NerveCenter 5.1+ upgrades. Contact your LogMatrix representative to obtain license files.

NerveCenter and IPv6

NerveCenter supports networks with devices running the IPv6 protocol within the following guidelines.

❉   Monitored or traversed networks and devices must support the IPv6 protocol. If IPv6 devices reside on different network than the NerveCenter management node, the appropriate routers and gateways must support IPv6 routing.

❉   The SNMP Agents on your IPv6 devices may need to be be configured to support all SNMP requests on IPv6.

❉   DNS, NIS, or other network services must be properly configured to use name resolution for IPv6 addresses.

❉   The host for each NerveCenter server must support both IPv6 and IPv4.

While NerveCenter supports monitoring IPv6 networks, the following limitations apply:

❉   Communication between the NerveCenter server, the Administrator, and the Client does not support IPv6.

❉   The IPSweep alarm does not support IPv6.

❊ When using Perl, commands generated by NerveCenter work with IPv6. However, all Perl network packages do not support IPv6. For example, GET or SET commands in the NET::SNMP package might not work with IPv6.

❊ Communication between NerveCenter and the HP OpenView NNM and IBM Tivoli Netcool/OMNIbus network management do not support IPv6.

NerveCenter 6.0 Models

The models provided with NerveCenter are for demonstration use only, and are not intended for production.

NerveCenter 6.0 Issues/Features

The following tables show the issues resolved by NC6.0.03 (by build number) and NC6.0.xx known issues.

Table 6: Issues resolved with NC6.0.03 by build number

Build #	Function	Description
bld11	Windows Install	Windows Server platform installations and MSSQL integrations were not succeeding.
bld11	Perl	Addition of NCTimeStamp.
bld11	AddVarbinds API	Use of the API resulted in growth in the running NerveCenter Server.
bld11	AddVarbinds API	Access from Perl Subroutine Actions added.
bld11	SMTP Action Solaris	Corrections to SMTP usage by ncserver.
bld11	GetBulk	Unpacking optimization work.
bld11	Poll Management	Improve cancellation reporting. Improve self reporting (PollTimerHandler.csv, etc.).
bld11	trapgen	Allow v2cTrap's Enterprise OID to be omitted.
bld11	"Start mibTool"	Added command for Windows server installs.
bld12	GetBulk	Unpacking corrections.
bld14	NCServer/NCAdmin	Corrections to log file uploading for Windows–based ncserver.
bld14	ICMP Polling	Corrections to protocol–layer timeout and network error report handling.
bld15	MIB Browser	Corrections to internal table walk logic, Corrections to user controls.
bld15	Polling	Poll instance overrun detection & reporting.
bld15	Poll Management	Halt SNMP polls that become unnecessary during the table walk (node becomes suppressed, etc.).
bld15	ICMP Polling	Ensure not hindered by node SNMP settings or for active Suppression state.

bld15	SNMP Polling	GetBulk unpackaging corrections.
bld15	Poll Management	Throughput corrections & optimizations. Improved poll cancelation handling. Corrections to 'delta' storage/lookup.
bld15	SNMPv3 Polling	Corrections and cleanup for v3 operations: Initialize, Classify, TestVersion. Add V3OperationsLog.csv file.
bld15	logging	resetpollinglogs.bash removes added log files.
bld15	ICMP/SNMP Polling	Correction of gateway reporting for network error events.
bld15	Alarm / Poll Management	Correction of Poll Management not running an Alarm's next Polls after state change.
bld15	Inform Action	Correction to Inform's Varbind handling. Corrections to incomfing Inform handling w/in Trap Manager.
bld15	Log File aging / rotation	Corrections to some log files for their aging & rotation handling.
bld15	SNMP Interface	Corrections & Cleanup for NerveCenter's SNMP Agent request handling.
bld15	importutil	Provided means for stating SNMPv3 Authentication and Privacy keys when importing nodes to the server's Node List.
bld16	Windows Install	PostInstallSetup.bat (Windows) Correct the name of the default precompiled mib file.
bld16	Unix Install	Changes to help assist prepare Linux and Solaris installation to be run by non-root login accounts. Files: setup (a Perl script used internally by the installer) ncstart ncsnmp ncstop nc-brass-prep.pl nc-snmpv3node-reader.pl
bld16	clear trigger	Remove unneeded memory allocations during execution of a Clear Trigger action.
bld16	SNMPv3 Authorization	Remove repetition of SNMPv3 Authorization data setup during polling.
bld16	trapgen	The command-line parsing of options for a SNMPv2/v3 Trap or Inform did not permit defaulting the notification's timestamp or entperprise oid by using a hyphen (-) as allowed for with SNMP v1 Trap specification. File: /opt/OSInc/bin/trapgen

Table 7: NC6.0.xx Known Issues

Issue	Description
Poll Scheduling becomes confused for SNMPv3 nodes when the remote device's SNMP Agent receives a new SNMPv3 configuration but the node's SNMPv3 configuration is not updated within NerveCenter.	Polls will become stuck for v3 nodes in the NerveCenter Node List. Updating the affected node configurations will resolve the problem.
Polling Statistics files not available for NerveCenter Server for Windows.	The polling statistics file generations, added for NC6.0, is supported only on Linux and Solaris.
Express version of Microsoft SQL Server not supported.	The NerveCenter Server for Windows product needs to be run with versions of Microsoft SQL Server other than the Express version.

New Features

NC6.0

NerveCenter 6.0 release contains everything included in the NC5.1.06 and NC5.2 releases. NC6.0 adds the following additional functionality, relative to NC5.1.06:

❄ The NerveCenter Server for Windows product installation process has been replaced. The new installer enables installation and operation of NerveCenter Server for Windows on Windows XP, Windows Server 2003 R2, Windows Server 2008 R2 and Windows 7.

❄ The NerveCenter Client application now contains a MIB Browser capability. The MIB Browser can be run on a per-node basis from the Query tab of a node's dialog window within the Client application. Queries can be made by MIB name or by OID.

❄ The Server's Poll Scheduling and Poll Response Handling functionality has been rewritten.
– The Server's live Polling Schedule can be viewed through the Administrator application.
– Polling occurs on-time for normal situations. A report can be viewed through the Administrator application showing if/when scheduling is falling away from on-time.
– Per-node and per-Poll Polling Schedules can be viewed through the Client application.

❄ A feature called AddVarBinds API has been added for NC6.0. This API, called from Perl environments within NerveCenter, allows for the addition of VarBinds to SNMP data received from an SNMP Agent through either a poll or a trap. Poll Functions and Trap Masks can be written to utilize the AddVarBinds API in order to enhance the data being reported by a NerveCenter system.

❄ The VB(n) feature on Alarm transitions has been extended to the Command Action. You may now specify VarBinds to be passed by a NerveCenter system to a command-line process or script.

❄ The NerveCenter Administrator application allows uploading of key NerveCenter Logs and Reports for viewing on the desktop where the Administrator is running.

❄ Timeout period handling for ICMP is separated from SNMP. The two protocols have independent retry and timeout interval settings.

❄ Payload sizing for ICMP and ICMPv6 Ping (ICMP Echo / Echo Response) operations is configurable.

✳ Optional per-Node configuration is provided for ICMP and SNMP timeout handling. The ICMP and SNMP settings for each node can be configured in the Client application.

✳ Optional per-Node configuration is provided for ICMP and ICMPv6 Ping payload sizing. The ICMP/ICMPv6 Ping settings for a node can be configured in the Client application.

✳ SNMP and ICMP protocol-layer operations can be optionally logged for any node. The Client application allows enable/disable of this feature for any managed node. The recorded log is viewable through the Client application.

✳ A wider set of Perl modules is included.

✳ A provided script allows the NC5.2 database to be returned to NC5.1 format. (No script is needed for moving from NC5.1 to NC5.2 – the NC5.2 product automatically performs this as needed.)

✳ The ncversion command, introduced in NC5.1.06, is enhanced to support reporting versions for all NerveCenter tools.
% ncversion
LogMatrix NerveCenter v6.0
% ncversion -a
LogMatrix NerveCenter v6.0 6003 BLD16
% ncversion ncserver
LogMatrix NerveCenter v6.0

ncserver Version 6.0.03(buildID 6003 BLD16), Copyright (C) 1989-2013 LogMatrix Inc.
%

✳ A Poll Throttle is introduced. The throttle controls the maximum number of logical polls that can be started by a NerveCenter Server in the course of one second. The default value for this throttle is 1,000. It can be set in several manners, defined in the NC6.0 User's Guide.

✳ Seven sample Perl scripts have been added to the Samples area, showing how to use trapgen to issue the ColdStart, LinkDown and LinkUp traps in SNMPv1 and SNMPv2c. The scripts build and then issue the SNMP v1/v2c Trap by invoking NerveCenter's 'trapgen' utility. The scripts can be used from a Linux, Solaris or Windows terminal session within a NerveCenter Command action.

Location:
 /opt/OSInc/Samples/trap-generation/

C:\Program Files\LogMatrix\NerveCenter\Samples\trap-generation\

Files:
SNMPv1ColdStartTrap.pl
SNMPv1LinkDownTrap.pl
SNMPv1LinkUpTrap.pl
SNMPv2cColdStartTrap.pl
SNMPv2cLinkDownTrap.pl
SNMPv2cLinkUpTrap.pl

❋ For Linux systems where 'ldconfig' is used to configure the system's permitted run-time share library collection, the NC6.0.03 BLD16 installer offers to perform the steps of registering the NerveCenter shared library locations. This optional step can be skipped and performed later by the user under their own control. The operation copies the file 'nervecenter.conf' from /opt/OSInc/conf/ to /etc/ld.so.conf.d/ and then runs 'ldconfig'.

Locations:
/opt/OSInc/nc/install/
/etc/ld.so.conf.d/

Files:
nervecenter.conf

❋ The script ncpermissions is provided so as to allow a system to be configured for permitting not-root accounts to run 'ncstart'. The script needs to be run by the 'root' account.
It changes directory and file ownership and permissions so as to allow users for the 'ncadmins' group to successfully run 'ncstart'.

Locations:
/opt/OSInc/nc/bin/

Files:
ncpermissions

Sample usage:
% su

Password: *********
cd /opt/OSInc/nc/bin
./ncpermissions

❋ The 'ncstart' command is updated with two optional abilities, both aimed at restricting the accounts that should be running the 'ncstart' command. The first update is a means to avoid having NerveCenter Server (ncserver) being started by the 'root' account. With this update the 'ncstart' command can detect that the 'root' account is attempting to run the 'ncstart'. In reaction, the command switches to a named user before continuing. This enhancement is useful for when a booting system attempts to auto-start NerveCenter – boottime operations are performed by the root account and this enhancement can be used to cause the 'ncstart' to switch itself to a named user account. The second update is a means to limit which user accounts can run 'ncstart'. The 'ncstart' command checks a registration file and will continue only if the account executing 'ncstart' is listed. These two enhancements to 'ncstart' do not change the requirement that for 'ncstart' to be successfully run, the invoking account must be either the root account or an account that is a member of the 'ncadmins' group.

Locations:
/opt/OSInc/bin/ncstart

Files:
/opt/OSInc/conf/ncstart-user
/opt/OSInc/conf/ncstart-authorized

Setup:
'ncstart' will switch itself to the user account named in the file ncstart-user if the file is present and 'ncstart' has been invoked by the root account. If this file ncstart-user is not present or if ncstart is not started by the root account, then no switch-user action occurs. 'ncstart' will check the name of its invoking user account against the list of names provided in ncstart-authorized. If the user account is listed, then the command continues. If the ncstart-authorized file is not present, then ncstart does not limit which user accounts may run the command. If the file is present and the invoking user account is not found in the file, then ncstart halts and does not start the NerveCenter Server.

Sample ncstart-user file:
Itadmin

Sample ncstart-authorized file:
:itadmin:
:jadams:

❊   Additional files are added /opt/OSInc/nc/bin that can be called up on to have a user trace the execution of ncserver or other NerveCenter commands. These scripts are being quietly provided for use by Customer Support. Both command use the Linux 'strace' command to record command executions.

Locations:
/opt/OSInc/nc/bin/

Files:
ncstart-trace
ncrun-trace

❊   Two files are added to the set of tables being produced by NerveCenter Server. The files show the run-time performance of the Action Manager.

Locations:
/var/opt/NerveCenter/tables/

Files:
ActionMgr-Messages.csv
Actions-Performance.csv

Table 8: New features by build number

Build #	Function	Description
bld11	nccmd	Added "–i AlarmInstanceID" for "fire trigger" command.
bld11	AddVarbind API	Requested ease-of-use features were added.
bld11	Node Definition	Addition of per-node SNMP Timeout/Retry and ICMP Timeout/Retry/TTL/Size params
bld11	Node protocol traceing	Addition of per-node protocol layer traffic trace files.
bld12	Polling / Node defn	Addition of per-node "no getbulk" attribute, change to nervecenter.node file.
bld12	nccmd	Additions to "list node –x" command: –x (v1, v2, v3, snmp, icmp)
bld12	nccmd	Additions to "set node" command for setting NoGetBulk feature.
bld12	ncget	Additional command-line switches: –t, –ttl, –r
bld15	Trace files	Added Parse_TraceCounters.pl and Parse_TraceQueues.pl to UNIX installs.
bld15	TraceQueues.log	Added in-queue traffic column.
bld15	nervecenter.node	Allow clear-text passwords within incoming node defn file.

bld15	nervectr login	Removal of 'nervectr' login requirement from installer and product.
bld15	trapgen	Enhancement to support issuing SNMPv3 Traps.
bld15	ncstart	modify options to include [–counter	–nocounters] [–queues	–noqueues] [–overruns	–nooverruns]
bld16	trapgen	Sample SNMP Trap generation Perl scripts.
bld16	ldconfig	Linux ldconfig configuration file.
bld16	ncstart	Permissions setup script for preparing use of ncstart by non–root accounts.
bld16	ncstart	Configuration for ensuring ncstart run by non–root user and/or set of specified accounts.
bld16	tracing	ncstart and ncrun trace scripts.
bld16	logfile	Set frequency of NerveCenter log file generation and provide means to write log files up on demand.
bld16	tables	Addition of Action Manager performance tables.

Perl Modules

This following table lists the modules added to the standard Perl 5.8.3 distribution included with recent NerveCenter releases.

Table 7 Included Perl modules by NerveCenter Release

NC5.1.04	NC5.1.05	NC5.1.06	NC6.0
• DBI–1.602 • Net–SNMP–5.2.0 • Net–Telnet–3.03 • Net–TL1–0.05 • XML–Parser–2.27 • Net–MySQL–0.09 • DBD–mysqlPP–0.04 • NC–0.01	• DBI–1.602 • Net–SNMP–5.2.0 • Net–Telnet–3.03 • Net–TL1–0.05 • XML–Parser–2.27 • Net–MySQL–0.07 • DBD–mysqlPP–0.03 • Digest–SHA1–2.11 • HTTP–Lite–2.1.6 • NC–0.01 • NC–DATA–1.02	• Socket6–0.23 • IO–Socket–INET6–2.65 • Net–IP–1.25 • Digest–SHA–5.47 • Digest–SHA1–2.11 • Digest–HMAC–1.01 • Digest–MD5–2.51 • Crypt–DES–2.05 • Crypt–CBC–2.30 • Net–DNS–0.66 • Net–SNMP–5.2.0 • Net–Telnet–3.03 • Net–TL1–0.05 • XML–Simple–2.18 • XML–Parser–2.27 • Net–MySQL–0.07 • ExtUtils–MakeMaker–6.56 • Test–Simple–0.96 • HTTP–Lite–2.3 • DBI–1.614 • DBD–mysqlPP–0.03 • Time–Piece–1.20 • Time–Piece–MySQL–0.06 • DBD–mysql–4.017 • NC–0.01 • NC–AlarmCounters–0.01 • NC–DATA–1.04 • NCXMLDB–1.0	• Test–1.25 • Pod–Escapes–1.04 • Pod–Simple–3.08 • Devel–Symdump–2.08 • Pod–Coverage–0.20 • Test–Simple–0.96 • Test–Pod–Coverage–1.08 • Test–Pod–1.40 • Exporter–5.63 • FreezeThaw–0.5001 • Crypt–DES–2.05 • Crypt–CBC–2.30 • Digest–SHA1–2.12 • Digest–HMAC–1.01 • Digest–SHA–5.47 • Digest–MD5–2.51 • MD5–2.03 • Scalar–List–Utils–1.21 • Params–Util–1.04 • ExtUtils–MakeMaker–6.56 • Clone–0.31 • Text–CSV_XS–0.65 • Sub–Name–0.05 • Class–Accessor–0.33 • XML–NamespaceSupport–1.11 • XML–SAX–0.96 • XML–Parser–2.27 • XML–Simple–2.18 • Convert–ASN1–0.22 • Authen–SASL–2.13 • File–Temp–0.22 • PathTools–3.31 • IO–CaptureOutput–1.1102 • Devel–CheckLib–0.6 • URI–1.58 • Time–Piece–1.20 • Time–Piece–MySQL–0.06

NC5.1.04	NC5.1.05	NC5.1.06	NC6.0
			• Socket6–0.23 • IO–Socket–INET6–2.65 • Net–IP–1.25 • Net–SNMP–6.0.1 • Net–IP–1.25 • Net–DNS–0.66 • Net–Telnet–3.03 • Net–TL1–0.05 • perl–ldap–0.39 • Net–Daemon–0.48 • PlRPC–0.2020 • SQL–Statement–1.33 • DBI–1.614 • Net–MySQL–0.09 • DBD–mysqlPP–0.04 • DBD–mysql–4.017 • Compress–Raw–Bzip2–2.034 • Compress–Raw–Zlib–2.034 • IO–Compress–2.034 • HTML–Tagset–3.20 • HTML–Parser–3.68 • libwww–perl–5.837 • Sub–Uplevel–0.22 • Tree–DAG_Node–1.06 • Test–Warn–0.23 • version–0.88 • Perl–OSType–1.002 • Module–Metadata–1.000004 • IO–1.25 • Test–Harness–3.23 • CPAN–1.9600 • CPAN–Meta–YAML–0.003 • JSON–PP–2.27105 • Parse–CPAN–Meta–1.4401 • Version–Requirements–0.101020 • CPAN–Meta–2.110930 • NC–0.01 • NC–AlarmCounters–0.01 • NC–DATA–1.04 • NCXMLDB–1.0

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E-Email support
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Electronic Support
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When you purchased your product and/or renewed your maintenance contract, you would have received a user name and password to access the LogMatrix Call Tracking System using SalesForce. You may need to contact your contracts or NerveCenter administrator for the username and password for your account with SalesForce.

If you have not received or have forgotten your log-in credentials, please e-mail us with a contact name and company specifics at techsupport@logmatrix.com.

We are committed to providing ongoing education and training in the use of our products. Through a combined set of resources, we offer quality training to our global customer base.

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❋ Software Alerts – latest software alerts relative to NerveCenter.

❋ User Community Access

You can seek as well as share advice and tips with other NerveCenter users at

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