



IBM Systems

Dynamic Systems Analysis Installation and User's Guide

Version 2.20





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Dynamic Systems Analysis
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Note

Before using this information and the product it supports, read the information in “Notices” on page 43.

This edition applies to version 2.20 of Dynamic Systems Analysis and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

This publication provides information about how to download and use Dynamic Systems Analysis, including

Conventions and terminology

In this book, when you are instructed to enter a command, type the command and press Enter.

These notices are designed to highlight key information:

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

Publications and related information

You can view the same content in the Dynamic Systems Analysis topic collection in the IBM ToolsCenter for System x and BladeCenter information center as a PDF document. To view a PDF file, you need Adobe® Acrobat Reader, which can be downloaded for free from the Adobe Web site at www.adobe.com/products/acrobat/readstep.html.

Information centers and topic collections

- **IBM ToolsCenter for System x and BladeCenter information center**

publib.boulder.ibm.com/infocenter/toolctr/v1r0/index.jsp

View the IBM ToolsCenter for System x and BladeCenter information center which provides integrated information for multiple IBM Systems x and BladeCenter tools, including Dynamic Systems Analysis.

- **Dynamic Systems Analysis**

publib.boulder.ibm.com/infocenter/toolctr/v1r0/topic/dsa/dsa_main.html

The Dynamic Systems Analysis topic collection provides information about how to download and use Dynamic Systems Analysis to collect, analyze, and diagnose system health, inventory and other information. This information is updated periodically and contains the most up-to-date documentation available for Dynamic Systems Analysis.

Publications

- *Installation and User's Guide*

This publication provides information about how to download and use Dynamic Systems Analysis to collect, analyze, and diagnose system health, inventory and other informatio

Web resources

Listed here are the Web sites and information center topics that relate to Dynamic Systems Analysis.

Web sites

- **IBM ToolsCenter for System x and BladeCenter**

www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=TOOL-CENTER&brandind=5000016

View this Web site to download tools that support IBM System x and IBM BladeCenter products.

- **Dynamic Systems Analysis**

www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-DSA&brandind=5000016

View this Web site to download the Dynamic Systems Analysis tool and documentation.

- **Support for IBM BladeCenter**

www-304.ibm.com/systems/support/supportsite.wss/brandmain?brandind=5000020

View this Web site to find information about online technical support, downloads and drivers, and RETAIN tips, and to provide feedback about IBM BladeCenter products.

- **Support for IBM System x**

www-304.ibm.com/jct01004c/systems/support/supportsite.wss/brandmain?brandind=5000008

View this Web site to find information about online technical support, downloads and drivers, and RETAIN tips, and to provide feedback about IBM System x products.

- **IBM ServerProven**

www.ibm.com/servers/eserver/serverproven/compat/us/

View this Web site to learn about hardware compatibility of IBM System x and IBM BladeCenter systems with IBM applications and middleware.

Forums

- **IBM System x Forum**

www.ibm.com/developerworks/forums/forum.jspa?forumID=740

View this Web site on ibm.com to learn about various forums that are available to discuss technology-related and product-related issues pertaining to IBM Systems hardware and software products. This Web site includes a link for obtaining the forum using a Rich Site Summary (RSS) feed.

How to send your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

If you have any comments about this publication or any other IBM ToolsCenter for System x and BladeCenter publication,

- Go to the information center Web site at . There you will find the feedback page where you can enter and submit comments.

- Complete one of the forms at the back of any IBM ToolsCenter for System x and BladeCenter publication and return it by mail, by fax, or by giving it to an IBM representative.

Chapter 1. Technical overview

Dynamic Systems Analysis (DSA) is a system information collection and analysis tool that is used by IBM System x Service and Support personnel to aid in the diagnosis of system problems. This software can be used while the operating system is running.

Two editions of Dynamic Systems Analysis are available:

Installable Edition

You can download the Installable Edition from the IBM Web site, install it on IBM System x and IBM BladeCenter systems running Linux or Windows, and then run it from a command line interface. This edition is intended for persistent use on the local system.

Portable Edition

You can download the Portable Edition from the IBM Web site and install it on removable media, such as CD, DVD, or USB flash drive, instead of the local system.

This edition of Dynamic Systems Analysis runs from a command line interface as a self-extracting executable file. It creates a temporary directory called /tmp on Linux or %TEMP% on Windows, and extracts all of the Dynamic Systems Analysis files to that directory. It then runs the command. When the command completes, the temporary directory and all of the Dynamic Systems Analysis files are deleted from the local system.

Dynamic Systems Analysis collects information about the following aspects of a system, if applicable:

- System configuration
- Installed packages
- Kernel Modules
- Network interfaces and settings
- Performance data and details for running processes
- Hardware inventory, including PCI and USB information
- IBM LightPath status
- Service Processor status and configuration
- Vital product data, firmware, and basic input/output system (BIOS) information
- Drive Health Information
- ServeRAID configuration
- LSI RAID and controller configuration
- Event logs for the operating system, ServeRAID controllers, and service processors

The system information is collected into a compressed XML file that can be sent to IBM Service and Support. You can view the system information using optionally generated HTML Web pages.

You can use Dynamic Systems Analysis to create a merged log that includes events from all collected logs and to compare the firmware configurations on a server to those from UpdateXpress.

Important:

- To install or use Dynamic Systems Analysis, you must be logged in to the local system using a user ID that has administrator or root privileges.
- On Linux systems, you must run Dynamic Systems Analysis from a journaling file system (such as ext3 or ReiserFS). You cannot run these commands from a virtual machine file system (VMFS).

Chapter 2. Installing Dynamic Systems Analysis

This section provides information about hardware and software requirements, downloading instructions, and updating procedures.

Hardware and software requirements

Dynamic Systems Analysis has specific requirements for hardware and software. These requirements include support for a certain supported operating systems and hardware requirements for running Dynamic Systems Analysis.

Hardware requirements

To successfully run Dynamic Systems Analysis, the system on which you install Dynamic Systems Analysis must meet certain hardware requirements.

Disk space requirements

To install Dynamic Systems Analysis, the system must have 30-MB of disk space.

Memory requirements

To run Dynamic Systems Analysis, the system must have 256-MB or more physical memory for systems running Window and 512-MB or more physical memory systems running Linux. The amount of memory required for this process depends on the size of the logs being collected from the system. It is recommended that DSA Preboot Edition run on a system with more than 1-GB physical memory.

To display the DSA data, systems must have 30-MB to 100-MB of available memory. The amount of memory required depends on the size of the logs being viewed.

ServeRAID requirements

Dynamic Systems Analysis can collect ServeRAID log information from ServeRAID Manager 6.10 and later. Dynamic Systems Analysis cannot collect information from the following ServeRAID controllers unless ServeRAID Manager is installed:

- ServeRAID-7t SATA RAID
- ServeRAID-8i
- ServeRAID-8k
- ServeRAID-8k-l
- ServeRAID-8s

Service processor requirements

Environmental data is available only on System x servers that have either an Integrated System Management Processor (ISMP) or a Remote Supervisor Adapter (RSA) series service processor.

Supported hardware

Use this information to identify various IBM systems and storage products that are supported by Dynamic Systems Analysis.

Supported Intel and AMD processor-based systems

You can run diagnostic tests and collect system information for the following Intel and AMD processor-based systems using Dynamic Systems Analysis:

- **System x servers**
 - IBM System x226, machine type 8648, 8488
 - IBM System x206m, machine type 8485, 8490
 - IBM System x236, machine type 8841
 - IBM System x260 and x3800, machine type 8865, 8866
 - IBM System x306m, machine type 8849,8491,1887
 - IBM System x335, machine type 8676,8830
 - IBM System x336, machine type 1879,8837
 - IBM System x346, machine type 8840, 1880
 - IBM System x366 and x3850, machine type 8863, 8864,7362,7365
 - IBM System x460 and x3950, machine type 8872, 8878,7363,7366
 - IBM System x3105, machine type 4347
 - IBM System x3200, machine type 4362,4363
 - IBM System x3200 M2, machine type 4367,4368/9233,9234
 - IBM System x3250, machine type 4364,4365,4366
 - IBM System x3250 M2, machine type 4190/4191/4194
 - IBM System x3350, machine type 4192, 4193
 - IBM System x3400 and x3500, machine type 7973,7974, 7975, 7976,7977
 - IBM System x3455, machine type 7940, 7984, 4197, 7941, 7986
 - IBM System x3550, machine type 7978,1913
 - IBM System x3550 M2, machine type 7946
 - IBM System x3650, machine type 7979,1914
 - IBM System x3650 M2, machine type 7947
 - IBM System x3655, machine type 7985,7943
 - IBM System x3755, machine type 8877, 7163
 - IBM System x3850 M2 single node, machine type 7141,7144,7233,7234
 - IBM System x3950 M2 single node, machine type 7141,7233
 - IBM System x3950 M2 dual node, machine type 7141,7233
 - IBM System x3950 M2 3-4 node, machine type 7141,7233
 - iDataPlex - machine type 7321,7322
- **Intellistation workstations**
 - Z20, machine type 6223, 6227
 - Z40, machine type 9228
 - M30, machine type 6225, 6228
 - M40, machine type 6218
 - M50, machine type 9229
- **Blade servers**
 - BladeCenter HC10 workstation blade, machine type 7996
 - BladeCenter HS12 blade server, machine type 1916, 8014, 8028
 - BladeCenter HS20 blade server, machine type 1883, 8843
 - BladeCenter HS21 blade server, machine type 1885, 7995, 8853
 - BladeCenter HS21 XM blade server, machine type 1915
 - BladeCenter HS22 blade server, machine type 1936, 7870
 - AMD Opteron LS20 for IBM BladeCenter, machine type 8850
 - AMD Opteron LS21 for IBM BladeCenter, machine type 7971
 - AMD Opteron LS22 for IBM BladeCenter, machine type 7901
 - AMD Opteron LS41 for IBM BladeCenter, machine type 7972

- AMD Opteron LS42 for IBM BladeCenter, machine type 7902

Supported Storage

DSA does not run directly on an external storage device. DSA collects system information and runs diagnostic tests on the following storage devices:

- IBM System Storage DS3000
- IBM System Storage DS4000
- IBM System Storage DS8000

Supported Server Options

- **Host bus adapters**
 - Emulex 4Gb/s FC PCI Express HBA (lpe11000/lpe11002)
 - Emulex 4Gb/s FC PCI-X 2.0 HBA (lp11000/lp11002)
 - Emulex 8Gb FC Single-port HBA for IBM System x
 - Emulex 8Gb FC Dual-port HBA for IBM System x
 - IBM SAS HBA controller
 - LSI 1068 SAS HBA
 - QLogic 4G and 8G FC single port HBA
 - QLogic 4G and 8G FC dual port HBA
 - QLogic iSCSI PCIe HBA
 - QLogic iSCSI PCIe dual port HBA
- **Ethernet adapter**
 - Broadcom 10Gb Ethernet CFFh Expansion Card for IBM BladeCenter
 - Broadcom Netextreme II
 - IBM NetXtreme II 1000 Express Ethernet Adapter
- **Fibre Channel adapter**
 - Emulex 4G FC exp. card
 - Emulex 4G SFF FC exp.
 - QLogic 4G/8G FC CFF exp. card
 - QLogic 4G/8G FC HBA
 - QLogic 4G/8G SFF FC exp. card
- **Network adapter**
 - IBM 10 GbE PCIe SR Server Adapter
 - IBM NetXtreme II 10 GigE Express Fiber SR Adapter
 - Intel PRO/1000 PT Dual Port Server Adapter (no diagnostic support)
 - Intel PRO/1000 PT Quad Port Server Adapter (no diagnostic support)
 - Intel PRO/1000 PF Server Adapter (no diagnostic support)
- **RAID adapter**
 - Adaptec IBM ServeRAID 6i +
 - Adaptec IBM ServeRAID 7k and 7t
 - Adaptec IBM ServeRAID 8i, 8k,, 8k-l, and 8s
 - LSI AR 10is
 - LSI IR 1078, 1064, and 1064e
 - LSI MegaRAID 1078
 - LSI MegaRAID 8480
 - LSI xRaid 10i

- LSI xRaid 10k and xRaid 10m
- **Tape drive**
 - IBM DDS5 tape drive
 - IBM DDS5 SATA 36 and 72
 - IBM DDS6 tape drive
 - IBM HHLTO4 SAS tape drive
 - IBM LTO2 tape drive
 - IBM LTO2 FH 200 and 400
 - IBM LTO3 SAS tape drive
 - IBM LTO3 HH SAS 400 and 800
 - IBM VS160 tape drive
 - IBM GoVault tape drive
- **Daughter card**
 - cKVM Daughter Card for IBM BladeCenter
 - LSI BR10ie

Software requirements

Use this information to understand the required software and supported Web browsers for Dynamic Systems Analysis.

Required device drivers

It is strongly recommended that the appropriate service processor device drivers are installed and running before running Dynamic Systems Analysis. This provides access to additional problem determination information, including the hardware event logs. For systems equipped with a Baseboard Management Controller (BMC), the appropriate drivers are the IPMI device driver and mapping layer. If the machine has a Remote Supervisor Adapter II (RSA II), use the Remote Supervisor Adapter Daemon. For all supported service processors including the older Remote Supervisor Adapter (RSA) or Integrated Systems Management Processor, you can download drivers from the Support for IBM System x page on the Web at www-304.ibm.com/jct01004c/systems/support/supportsite.wss/brandmain?brandind=5000008

To collect SCSI & USB device information (including diagnostics), the "sg" driver must be loaded. Run **lsmod** and verify that "sg" is loaded before running Dynamic Systems Analysis. If it is not loaded, run **modprobe sg**.

To collect Broadcom Ethernet firmware levels, the Broadcom NetXtreme Gigabit Ethernet Drivers must be installed. The tg3 driver provided by default in current Linux distributions does not export this information. These drivers are available for download from IBM Support Web site at www.ibm.com/support.

To collect LSI Logic 1020/1030 SCSI Controller and RAID information, the "mptctl" driver must be loaded. Run **lsmod** and verify that "mptctl" is loaded before running Dynamic Systems Analysis. If it is not loaded, run **modprobe mptctl**.

To collect Emulex HBA information, the emulex driver and utility (corekit) must be installed. Run **lsmod** and verify that "lpfc" and "lpfcdfc" are loaded before running Dynamic Systems Analysis.

To collect Service Processor logs, configuration, and environmental data, the appropriate Service Processor driver must be installed. These drivers are available for download from IBM Support Web site at www.ibm.com/support.

(Linux only) To collect ServeRAID information for ServeRAID controller 7t,8i,8k-1,8k,8s on systems running RedHat 5, libstdc++.so.5 must be installed.

To collect Emulex FC HBA data, the Emulex utility (HBACmd) must be installed.

To transfer data collections to the IBM Support site using FTP, libcurl must be installed.

To use the UpdateXpress comparison analysis feature, the system on which the analysis is performed must have an Internet connection.

Note: The UpdateXpress comparison analysis feature supports only system firmware comparisons, including BIOS, diagnostics, and service processor. Device drivers are not compared in this release, due to limitations with UpdateXpress.

UpdateXpress versions 4.02 and later are supported.

Supported Network Virtual Teaming software

Dynamic Systems Analysis Installable Edition is supported for use with the following Network Virtual Teaming software:

- Linux Bonding versions 2.4.1, 2.6.0, & 2.6.1

Supported Web browsers

To view the information that is collected by DSA, you must use one of these Web browsers.

- Internet Explorer 6.0 Service Pack 1 or later
- Mozilla 1.4.0 or later
- Firefox 1.04 or later

Supported operating systems

Use this information to identify operating systems that are supported by Dynamic Systems Analysis

The following operating systems are supported by Dynamic Systems Analysis.

- **Editions of Windows for 32-bit systems:**
 - Windows Server 2008 (supports Service Pack 1)
 - Windows Server 2003 (supports Service Pack 1 and 2)
 - Windows Server 2003, Release 2
 - Windows Vista Business Edition (supports Service Pack 1)
 - Windows XP (supports Service Pack 1, 2 and 3)
- **Editions of Windows for 64-bit systems:**
 - Windows Server 2008 (supports Service Pack 1)
 - Windows Server 2003 (supports Service Pack 1 and 2)
 - Windows Server 2003, Release 2
 - Windows Essential Business Server 2008
 - Windows HPC Server 2008
 - Windows Hyper-v Server
 - Windows Small Business Server 2008

- Windows Small Business Server 2003, Release 2
- Windows Vista Business Edition (supports Service Pack 1)
- Windows XP (supports Service Pack 1, 2 and 3)
- **Editions of Linux for 32-bit and 64-bit systems:**
 - SUSE Linux Enterprise Server (SLES) 9 (supports Service Packs 1, 2, and 3)
 - SUSE Linux Enterprise Server (SLES) 10 (supports Service Packs 1 and 2)
 - SUSE Linux Enterprise Server (SLES) 10 with Xen Kernel (supports Service Packs 1 and 2)
 - SUSE Linux Enterprise Real Time 10
 - RedHat Enterprise Linux 3.0 (supports Updates 1 through 9)
 - RedHat Enterprise Linux 4.0 (supports Updates 1 through 6)
 - RedHat Enterprise Linux 5.0 (supports Updates 1 and 2)
 - RedHat Enterprise Linux 5.0 with Xen Kernel (supports Updates 1 and 2)
 - RedHat Enterprise Linux Real Time 5.1
- **VMware:**
 - VMware ESX Server, versions 3.0 through 3.5 (supports version 3.5 Updates 1, 2, and 3)
 - VMware ESXi 3.5 (Build: 71173)

Installing Dynamic Systems Analysis on removable media

You can install Dynamic Systems Analysis on removable media, such as a CD, DVD, or USB flash drive.

Important: Ensure that the removable media has enough free space to contain the Dynamic Systems Analysis.

Perform these steps to install Dynamic Systems Analysis on removable media:

1. Download the appropriate portable-edition package for the local operating system from the Dynamic Systems Analysis Web site at www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-DSA&brandind=5000016:
 - `ibm_utl_dsa_v.r.m_portable_platform.exe` for Windows systems
 - `ibm_utl_dsa_v.r.m_portable_platform.rpm` for Linux systems

where *installation_directory* is the path to the extracted installation files, *v.r.m* is the version of Dynamic Systems Analysis, and *platform* is the supported Linux distribution.
2. Insert or mount the removable medium.
3. Copy the portable-edition package to the removable media.

Installing or updating Dynamic Systems Analysis on Linux

Use this information to install or update Dynamic Systems Analysis on a system that is running Linux using standard RPM commands.

Important: You must be logged in to the system using a user ID that has administrator or root privileges.

Dynamic Systems Analysis for Linux is distributed as packages for each supported distribution of Linux that can be downloaded from the Web. You can install Dynamic Systems Analysis in attended or unattended mode for scripted installations.

Perform these steps to install or update Dynamic Systems Analysis:

1. Verify that the distribution of Linux on the system is supported.
2. Download the appropriate installable-edition package for the local operating system from the Dynamic Systems Analysis Web site at www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-DSA&brandind=5000016.
3. If a version of Dynamic Systems Analysis is currently installed on the system, uninstall Dynamic Systems Analysis by typing the following command and pressing Enter:

```
rpm -ea 'rpm -qa|grep dsa'
```
4. Type the following command and press Enter to install Dynamic Systems Analysis:

```
rpm -i ibm_utl_dsa_version_install_platform.rpm
```


where *version* is the version of Dynamic Systems Analysis and *platform* is the supported Linux distribution.

Tip: By default, Dynamic Systems Analysis installs in the /opt/IBM/DSA directory.

Installing or updating Dynamic Systems Analysis on Windows

Use this information to install Dynamic Systems Analysis on a system that is running Windows.

Important:

- You must be logged in to the system using a user ID that has administrator or root privileges.
- Ensure that all other programs or applications are closed.

Dynamic Systems Analysis for Windows is distributed as 32-bit and 64-bit packages that can be downloaded from the Web. You can install Dynamic Systems Analysis in attended or unattended mode for scripted installations.

Perform these steps to install Dynamic Systems Analysis using the installation wizard:

1. Verify that the distribution of Windows on the system is supported.
2. Download the appropriate installable-edition package for the local operating system from the Dynamic Systems Analysis Web site at www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-DSA&brandind=5000016.
3. Click Start > **Run**.
4. In the **Open** field, type the following command and press Enter:

```
installation_directory\ibm_utl_dsa_version_install_platform.exe
```


where *installation_directory* is the path to the extracted installation files, *version* is the version of Dynamic Systems Analysis, and *platform* is the supported Linux distribution.
5. Follow instruction in the installation wizard to complete the installation.

Tips:

- By default, Dynamic Systems Analysis installs in the c:\Program Files\IBM\DSA or c:\Program Files(x86)\IBM\DSA directory.

- If Dynamic Systems Analysis is already installed on the local system, the installation process removes a previous version automatically. Files in the IBM_Support directory are not affected.

Alternatively, to perform an unattended installation of Dynamic Systems Analysis, change to the path where the distribution was downloaded and run this command:

```
\ibm_utl_dsa_version_install_plaform.exe /s /v"/qn INSTALLDIR=path"
```

where

version Specifies the version of Dynamic Systems Analysis.

platform

Specifies the supported Windows distribution.

path

Specifies the fully qualified path to which Dynamic Systems Analysis is to be installed (for example, d:\uUtilities).

Uninstalling Dynamic Systems Analysis on Linux

Use this information to uninstall Dynamic Systems Analysis from the local system running Linux using standard RPM commands.

When Dynamic Systems Analysis is uninstalled, all files are removed, except for the Dynamic Systems Analysis output files, and the system is returned to its previous state.

Perform these steps to uninstall Dynamic Systems Analysis from the local system:

1. Type the following command and press Enter to uninstall Dynamic Systems Analysis:

```
rpm -ea 'rpm -qa|grep dsa'
```
2. Type the following command and press Enter to ensure that the installed RPM packages were removed:

```
rpm -qa --last | less
```

Uninstalling Dynamic Systems Analysis on Windows

Use this information to uninstall Dynamic Systems Analysis from Windows.

When Dynamic Systems Analysis is uninstalled, all files are removed, except for the Dynamic Systems Analysis output files, and the system is returned to its previous state.

Perform these steps to uninstall Dynamic Systems Analysis from the local system:

1. Close all programs and applications.
2. Click **Start** → **Settings** → **Control Panel**. The Control Panel window opens.
3. Double-click **Add or Remove Programs**. The Add or Remove Programs window opens.
4. Click the **IBM Dynamic Systems Analysis** and then click **Change/Remove**.

Alternatively, to perform an unattended uninstallaion of Dynamic Systems Analysis, change to the path where the distribution was downloaded and run this command:

```
ibm_utl_dsa_version_install_plaform.exe /s /v"/qn /x
```

where

version Specifies the version of Dynamic Systems Analysis.

platform Specifies the supported Windows distribution.

Chapter 3. Running diagnostic tests on the local system

Perform these steps to run all available nondestructive diagnostic tests on all available devices in the local system using the **collectall** command:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and *platform* is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to run diagnostics tests:

Windows **collectall.exe -diags**

Linux **collectall.sh -diags**

Perform these steps to run specific diagnostic tests on the local system using the **rtcli** command, which is available only in Dynamic Systems Analysis Installable Edition::

1. From a command line, change to the directory where Dynamic Systems Analysis is installed.
2. Enter the following command to run diagnostics tests:

Windows **rtcli.exe run [-d *device*] [-t *test*] [-x]**

Linux **rtcli.sh run [-d *device*] [-t *test*] [-x]** where *device* is the specific device for which you want to run tests, and *test* is the specific test that you want to run. If you do not specify the **-x** option, only nondestructive diagnostic tests are run. If you specify **-x**, both destructive and nondestructive tests are run.

Chapter 4. Collecting system information

You can use Dynamic Systems Analysis to collect system information and convert the collected data to another format.

Collecting system information on the local system

Perform these steps to collect system information on the local system:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to collect system information:

 **collectall.exe [-x] [-v] [-text]**

 **collectall.sh [-x] [-v] [-text]**

This command creates compressed CIM-XML output by default. You can also create HTML output by specifying the **-v** option and ASCII text output by specifying the **-text** option. If you specify the **-x** option, compressed CIM-XML output is not created, and you must specify the **-v** or **-text** option, or both.

Collecting system information on a WinPE image

Perform these steps to run all available nondestructive diagnostic tests on all available devices in the local system using the **collectall** command:

1. Boot the local system with the Windows Preinstallation Environment (WinPE) CD.
2. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
3. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.

4. Enter the following command to collect system information:

Windows **collectall.exe [-x] [-v] [-text]**

Linux **collectall.sh [-x] [-v] [-text]**

This command creates compressed CIM-XML output by default. You can also create HTML output by specifying the **-v** option and ASCII text output by specifying the **-text** option. If you specify the **-x** option, compressed CIM-XML output is not created, and you must specify the **-v** or **-text** option, or both

Tip: You can edit the **startnet.cmd** file to run Dynamic Systems Analysis automatically after WinPE boots.

Collecting system information on a remote system running the VMware ESXi

Prerequisites:

- The remote system running with the VMware ESXi3.5 must be accessible by the system running DSA from network.
- The system running DSA must have port 5989 open.

Perform these steps to collect system information on a remote system running the VMWare embedded hypervisor:

1. Insert the USB flash drive containing VMWare ESXi3.5 in the target system.
2. Boot the system.
3. Select DHCP or configure the IP address manually following VMWare instructions.
4. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:

```
ibm_utl_dsa_v.r.m_portable_plaform
```

where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
5. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
6. Enter the following command to collect system information:

Windows **collectall.exe -vmwesxi user_id:user_id@ip_address[:port]**

Linux **collectall.sh -vmwesxi user_id:user_id@ip_address[:port]**

where *user_id* and *password* are the user ID and password used to authenticate to the hypervisor, *ip_address* is the IP address of the hypervisor, and port is the port for the hypervisor.

Collecting IPMI event logs from a remote system

Perform these steps to collect Intelligent Platform Management Interface (IPMI) event logs from a remote system using out-of-band mode:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and *platform* is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to collect system information:

Windows **collectall.exe -ipmilan system**

Linux **collectall.sh -ipmilan system**

where *system* is the remote system to which you want to collect IPMI event logs. Specify the system using the following format:
`user_id:password@ip_address[:port]`.

Converting collected data to another format

Perform these steps to convert data collected on the local system to another format:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and *platform* is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to convert a compressed CIM-XML file to HTML and ASCII text format:

Windows **collectall.exe -i data_file {[-v] [-text]}**

Linux **collectall.sh -i data_file {[-v] [-text]}**

where *data_file* is the fully-qualified name of the compressed CIM-XML data file that you want to convert. Specify **-v** to convert the data to HTML format. Specify **-text** to convert the data to ASCII text format.

Chapter 5. Comparing system information

You can use Dynamic Systems Analysis to compare collected system information.

Comparing installed and latest versions of firmware

Prerequisite: The local system must have Internet access or access.

Perform these steps to compare the installed versions of firmware on the local system to the latest versions available on the Web:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to compare system information:

```
Windows collectall.exe -ux [-x] [-v] [-text]
Linux   collectall.sh -ux [-x] [-v] [-text]
```

Note: Internet access is required for the **-ux** option.

When the comparison is completed, the analysis is written to a compressed CIM-XML output file by default. You can also create HTML output by specifying the **-v** option and ASCII text output by specifying the **-text** option. If you specify the **-x** option, compressed CIM-XML output is not created, and you must specify the **-v** or **-text** option, or both.

Comparing current system information to previously collected data

Important: You can compare only system information that was collected using the same version of Dynamic Systems Analysis.

Perform these steps to collect the system information on the local system and then compare the current system information to one or more system information files that were previously collected:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`

where *v.r.m* is the version of Dynamic Systems Analysis , and *platform* is the supported Linux distribution.

- d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to compare system information and display the results:

```
➤ Windows collectall.exe -r data_file[ data_file...] -v
```

```
➤ Linux collectall.sh -r data_file[ data_file...] -v
```

where *data_file* is the fully-qualified name of the system information file that you want to compare. Separate multiple data files using a space.

Comparing multiple system information files

Perform these steps to compare two or more system information files that were previously collected:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and *platform* is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.

3. Enter the following command to compare system information:

```
➤ Windows collectall.exe -r data_file[ data_file...] -i data_file -v
```

```
➤ Linux collectall.sh -r data_file[ data_file...] -i data_file -v
```

where *data_file* is the fully-qualified name of the system information file that you want to compare.

If you specify the **-i** option, this command compares the specified data file against the data file specified by the **-r** option. If you do not specify the **-i** option, this command collects the current system information on the local system before comparing it against the data file specified by the **-r** option.

Chapter 6. Transferring data and logs

You can use Dynamic Systems Analysis to transfer data and logs to a remote system, or to the Electronic Services web portal for use in the My Systems and My Notifications functions.

Transferring collected data to a remote system

Use this procedure to send collected data to IBM Service and Support or another remote system using File Transfer Protocol (FTP).

Perform these steps to transfer data collected on the local system to a remote system using FTP:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`
where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.
 - d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Type the following command and press Enter to collect current system information in HTML format and transfer the data file to a remote system:

 **collectall.exe [-v] -t [system]**

 **collectall.sh [-v] -t [system]**

where *system* is the remote system to which you want to transfer files, specified using the following format: *user_id:password@ip_address[:port]/path/*. If you do not specify a system, the data file is sent to IBM.

Important: Port 21 must be enabled through the firewall.

Transferring collected data to IBM customer inventory repository

Prerequisite: The local system must have Internet access to transfer the data file.

Perform these steps to transfer data from the local system to the IBM customer inventory repository:

1. If you are using Dynamic Systems Analysis on removable media:
 - a. Insert the media into the system, and if necessary, mount the removable media.
 - b. From a command line, change to the directory for the removable media.
 - c. Enter the following command to collect system information:
`ibm_utl_dsa_v.r.m_portable_plaform`

where *v.r.m* is the version of Dynamic Systems Analysis , and platform is the supported Linux distribution.

- d. Change to the temporary directory where DSA is installed.
2. If you are using Dynamic Systems Analysis installed on the local system, from a command line, change to the directory where Dynamic Systems Analysis is installed.
3. Enter the following command to transfer the system information file:

 **collectall.exe -upload [IBMid:user_id]**

 **collectall.sh -upload [IBMid:user_id]**

where *user_id* is your IBM ID. If **-IBMid** is not specified, you are prompted to enter your IBM ID. DSA verifies the IBM ID and if it is valid, adds the IBM ID to the data file before transferring it. If you specify a IBM ID that is not valid or if you do not specify an IBM ID, the data file is transferred but the IBM ID is not included.

Important: Port 443 must be enabled through firewall.

Chapter 7. Troubleshooting and support

Use this section to troubleshoot and resolve problems with Dynamic Systems Analysis.

For solutions to problems that other customers have encountered, see the IBM System x Forum customer forum at www.ibm.com/developerworks/forums/forum.jspa?forumID=740.

Known limitations, problems, and workarounds

This section describes limitations, problems, and workarounds that are applicable to Dynamic Systems Analysis.

- On systems where the service processor clock does not have the same timezone settings as the local system, the merged log might appear to be out of order. The entries are sorted correctly but appear incorrect because the timezone setting is not displayed.
- When Dynamic Systems Analysis collects dates and times that are before January 1, 1970, 00:00:00, or after January 19, 2038, 03:14:07, Dynamic Systems Analysis reports these dates and times as January 1, 1970, 00:00:00. These dates fall outside the valid range for a date in Dynamic Systems Analysis.
- Dynamic Systems Analysis might report the memory speed as "Unknown" in the Memory section of the Hardware Information report. This is due to issues with SMBIOS support on some systems.
- For the System x225 and IntelliStation Z10 systems, the PCI Information report might misrepresent which slot a PCI device is in due to an SMBIOS issue.
- Due to a limitation in HS40(8839), Dynamic Systems Analysis can determine the status of only the system error LED. No other LEDs are available.
- Due to a limitation in System x206m and x306m, Dynamic Systems Analysis cannot determine the status of the system LEDs. No LEDs are available for collection.
- For the System x3550 systems, the system fans are physically attached together as pairs, and each pair has a single LightPath LED attached. The Dynamic Systems Analysis LightPath report displays each pair of fans as a single fan LED.
- For the IntelliStation A10 systems, the Processor section of the Hardware Information report does not display cache information for secondary processors. This is due to an issue with the SMBIOS support.
- If you are running Dynamic Systems Analysis on a multi-node IBM Systems server such as System x460 systems, Dynamic Systems Analysis cannot specify to which node certain hardware belongs. This is due to limitations of either Windows APIs or SMBIOS. The System x460 appears to Windows and SMBIOS as a single, complete system and not as split up into nodes. Also, because LightPath and IPMI logs are populated only by the primary node, specific details regarding non-primary nodes are not collected.
- Dynamic Systems Analysis collects CPLD firmware levels (such as Super I/O card firmware, PCI-X card firmware, CPU card firmware) on systems that have CPLD. Information about the individual CPLD firmware levels versus the CPLD package version on the web (such as version 1.06) can be obtained in `ver_chk.txt`, which is located on each CPLD disk. The first column in this file is

the SIO card CPLD version. The second column is the PCI-X card CPLD version. The third column is the CPU card CPLD version. The last column is the overall disk version number.

- The IPMI device driver must be installed to collect IPMI BIST information.
- GoVault (part number 25R0006) is not recognized as a tape drive in DSA Diagnostics (version 2.02 and prior) and does not appear in the tape drive section of the HTML viewer. GoVault appears as a hard disk due to the hardware implementation and device driver. DSA can recognize the device, but it is listed in the disk drive section.
- For the HS20 and LS20 systems, the DSA Lightpath report shows the System LED as being off, even if the associated physical LED is lit.
- When you run Dynamic Systems Analysis with the **-ux** option on HC10 (7996), there are no BIOS and BMC firmware comparison result in UpdateXpress section.
- When you run Dynamic Systems Analysis with **-ux** option, the ATI video driver comparison result in UpdateXpress might be downlevel. For example, for driver ATI2MTAG.SYS, it shows 6.14.10.6744 for the latest version. It should be 8.24.50. For the latest firmware and driver updates, see www.ibm.com.
- When you run Dynamic Systems Analysis with the **-ux** option on Windows XP or Windows Vista, the result in UpdateXpress section might not be available or might not be accurate.
- When you run Dynamic Systems Analysis with the **-ux** option on LS20 (8850), the BIOS comparison result in UpdateXpress section might be downlevel. For example, it shows the latest version is 1.28 but it should be 1.29. Also, the ServeRaid driver comparison might be downlevel. For example, it shows the latest version of NFRD960.SYS as 7.10.0.0 but it should be 7.12.11. For the latest firmware and driver updates, see www.ibm.com.
- Memory Manufacturer information is missing on HS21.
- Current State in LED Settings cannot report some failure of DIMM in LS21 and LS41. Check the IPMI event, and get the failure DIMM event.
- Some SMART Attributes in Drive Health might be missing in iDataplex (7321, 7322).
- HS22(7870/1936) does not support QLogic FC Controller.
- Configuration LED is missing from Lightpath Information in System x3650 (7979, 1914) and System x3550 (1913).
- For HS22 (7870, 1936), iDataplex (7321, 7322), System x3650 M2 (7947), and System x3550 M2 (7946), if the RNDIS driver is not installed, environmental data and chassis event logs are not collected. RNDIS driver can be installed automatically when IMM Firmware update in the operating system. If you update IMM FW from the IMM website, RNDIS driver is not installed on the operating system. In this case, manually install RNDIS, or SP configuration Chassis event log and environment data cannot be collected.
- For HS22 (7870, 1936), iDataplex (7321, 7322), System x3650 M2 (7947), and System x3550 M2 (7946), virtual disk is created by Integrated Management Module.
- Broadcom Firmware info cannot be collected in System x260, x3800, x460 and x3950 on VMware ESX 3.5 server.
- LSI RAID configured as level 1E is recognized as level 1 in DSA data collection.
- UpdateXpress function specified by the **-ux** option when running DSA is not supported on the following systems: System x335, x336, Intellistation Z20, Z40, M30, M40, M50, iDataplex dx320, dx340, and dx360.

- (Installable edition only) When you run Dynamic Systems Analysis with the **-ux** option on HS12, the result in UpdateXpress for LSI 1064e SAS controller might not be accurate. It shows the latest level is 1.26.80 but actually it should be 1.26.84.
- (Portable edition only) When you run Dynamic Systems Analysis with the **-ux** option on x346 (8840), the result in UpdateXpress for device driver file NFRD960.SYS is 7.10.0.0. But actually it should be 7.12.0.0.
- (Portable edition only) When you run Dynamic Systems Analysis with the **-ux** option on HS12 (8014, 8028, 1916), the result in UpdateXpress for LSI 1064e SAS controller might not be accurate. It shows the latest level is 1.26.80 but it should be 1.26.84.
- (Linux only) The openIPMI driver on SLES10 supports a maximum 4 BMCs on multinode.
- (Linux only) UpdateXpress function does not work on SLES10 32bit and 64bit operating systems. If you need to compare version, refer to the **-i** option.
- (Linux only) QLogic iSCSI Controller information cannot be collected in SLES10 Realtime and RedHat5 Realtime.
- (Linux only) In the DSA PCI information page, PCI devices might miss the corresponding mappings of PCI slots on ESX 3.5 server.
- (Linux only) IPMI driver works only on RedHat 4 U7 or later on multi-node system.
- (Linux only) IPMI driver works only on VMware 3.5 U3 or later on multi-node system.
- (Linux only) QLogic iSCSI Controller cannot be collected in SLES10 Realtime OS and RedHat5 Realtime OS.
- (Linux only) Certain, rare conditions on the SCSI bus might temporarily prevent Dynamic Systems Analysis from collecting sense data from SCSI-attached tape devices. In the event that this data is not collected on a system with a SCSI-attached tape device, run Dynamic Systems Analysis again to collect the data.
- (Linux only) The Merged Devices report is not available on RedHat Enterprise Linux due to operating system limitations.
- (Linux only) The ServeRAID report might report the number of logical drives as 1, while ServeRAID Manager reports the number of logical drives as 0. This is due to an issue with the tool used by Dynamic Systems Analysis to collect this data.
- (Linux only) The SLES9 64-bit installation does not create a link to libcurl.so in /usr/lib64. To use the FTP transport feature, create a symbolic link from libcurl.so to libcurl.so.2.0.2.
- (Linux only) The OpenIPMI driver must be upgraded to version 1.4.19 on SLES9 SP2 to collect IPMI logs and other service processor information using Dynamic Systems Analysis.
- (Linux only) Dynamic Systems Analysis is not able to collect firmware information from the Broadcom NX2 (NetXtreme II) network adapter due to limitations of the current Broadcom BMAPI interface.
- (Linux only) For the System x226 system, the firmware/VPD report might erroneously report that there is an RSA card installed. This is due to an issue with the SMBIOS support.
- (Linux only) On systems running Linux for x86_64, Dynamic Systems Analysis might not be able to determine PCI slot information due to a limitation in BIOS. This affects the following machine types: IBM System x346, x336, x460, x366, and x260.

- (Linux only) On the Intellistation M40, M50, and Z20, Dynamic Systems Analysis does not obtain information for the monitor. Data such as model, manufacturer, manufacturing date, resolution, refresh rate, and scan mode for the monitor are not be available in Hardware Inventory.
- (Linux only) During normal Dynamic Systems Analysis operation, entries are written to the system messages log (/var/log/messages). By default, these messages are also written to the root console of the system. This is a normal side-effect of DSA operation and the messages, including any errors, can be safely ignored.
- (Linux only) Dynamic Systems Analysis cannot collect SMART data from SATA disk drives that are using the Linux libata drivers. This is due to limitations of the libata driver.
- (Linux only) On systems with PCI Express slots, the type of slot might be listed as "Other." These slots are not associated with the appropriate PCI device that might be in the PCI Express slot.
- (Windows only) Slot of PCI-E and PCI adapters are blank in the PCI information Section in System x3400 and x3500 (7973, 7974, 7975, 7976, 7977), System x3200 M2 (4367, 4368, 9233, 9234), System x3250 M2 (4190, 4191, 4194), and System x3350 (4192, 4193) on Windows 2008. The future BIOS release will fix this issue.
- (Windows only) Dynamic Systems Analysis Installable Edition is not supported on Windows PE (both 32-bit and 64-bit).
- (Windows only) When Dynamic Systems Analysis is installed on a Windows 2000 system that does not have Windows Service Pack 3 or later installed, Dynamic Systems Analysis does not display a message stating that Service Pack 3 or later is required. Instead, it displays the following message: 1155:Couldn't find file InstMsiw.exe. To avoid this message, install Windows Service Pack 3 or later before installing Dynamic Systems Analysis.
- (Windows only) When an adapter is removed from the system that was previously configured in a network virtual team using the Intel PROSet software package, DSA might report that the adapter is still present with a corrupt MAC address. Disregard the information returned for this adapter.
- (Windows only) On 64-bit editions of Windows, Dynamic Systems Analysis does not collect firmware and ASF information for Broadcom network controllers. This is due to a limitation of the current Broadcom BMAPI interface.
- (Windows only) Using Windows HPC server edition, all RSA nodes are not available on x3950, x3850M2 and x3950M2.
- (Windows only) Using Microsoft Windows 2003 or Windows 2008 Enterprise edition, all RSA nodes are not available on x3950, x3850M2 and x3950M2. See the IBM ServerProven Web site at www.ibm.com/servers/eserver/serverproven/compat/us/ for specific operating-system support per system.
- (Windows only) Using Microsoft WindowsPE all RSA nodes and BMC nodes are not available on System x3950, x3850 M2 and x3950 M2. See the IBM ServerProven Web site at www.ibm.com/servers/eserver/serverproven/compat/us/ for specific operating-system support per system.
- (Windows only) Window components and installed hotfixes cannot be collected in Windows 2008.

Dynamic Systems Analysis event log

All diagnostic test status and error information is recorded in the DSA event log. Each log record contains:

- Time stamp
- Source
- Message type
- Message text

You can set the name and location of the log file using the DSA_LOGFILE environment variable. This variable takes a string that contains a valid path on the system on which DSA is running. The file does not need to exist, but the path to the file must exist. If this variable is not set, logging will be lost.

Dynamic Systems Analysis core dump file

A core dump file might be created when Dynamic Systems Analysis ends unexpectedly.

On Windows, the core dump file, name DSA_CORE.dmp, is created in the directory where DSA was run.

On Linux, the core dump is disabled by default. To enable core dump to be created, run the **ulimit -c** command. When enabled, the core dump file, named with random numbers such as dump01043, is created in the directory where DSA was run.

Getting help and technical assistance

Use this information to locate technical assistance for your IBM® System x® and BladeCenter® tools.

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

Before you call

Use this information before you call Service and Support and report a problem.

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Ensure that you have the latest version of the tool installed.
- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system.
- Go to the IBM support Web site at www.ibm.com/systems/support/ to check for technical information, hints, tips, and new device drivers.
- Use an IBM discussion forum on the IBM Web site to ask questions.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Use this information for locating detailed information on using the documentation.

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include information centers, online documents, printed documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to the IBM support Web site at www.ibm.com/systems/support/ and follow the instructions. Also, some documents are available through the IBM Publications Center Web site at www.ibm.com/shop/publications/order/. Documentation for IBM System x and BladeCenter tools are available in the IBM ToolsCenter Web site at www.ibm.com/shop/publications/order/.

Getting help and information from the World Wide Web

Use this information to find the latest information about IBM systems, optional devices, services, and support.

On the World Wide Web, the IBM Web site has up-to-date information about IBM systems, optional devices, services, tools, and support. The address for IBM System x information is www.ibm.com/systems/x/. The address for IBM BladeCenter information is www.ibm.com/systems/bladecenter/. The address for IBM IntelliStation® information is www.ibm.com/intellistation/.

You can find service information for IBM systems and optional devices at www.ibm.com/systems/support/.

Software service and support

Use this information to contact IBM service and support with questions about your IBM System x and BladeCenter tools.

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with System x servers, BladeCenter products, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, see www.ibm.com/services/sl/products/.

For more information about Support Line and other IBM services, see www.ibm.com/services/, or see www.ibm.com/planetwide/ for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

Use this contact information to order new equipment or request IBM service support.

You can receive hardware service through IBM Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. See www.ibm.com/planetwide/ for support telephone numbers, or in the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

Appendix A. Accessibility features for Dynamic Systems Analysis

Accessibility features help users who have a disability, such as restricted mobility or limited vision, to use information technology products successfully.

Accessibility features

The following list includes the major accessibility features in Dynamic Systems Analysis:

- Can be operated using only the keyboard
- Communicates all information independent of color
- Supports the attachment of alternate output devices
- Provides help information in an accessible format
- (Microsoft® Windows® systems only) Supports interfaces commonly used by screen readers and screen magnifiers

The Dynamic Systems Analysis topic collection in the IBM ToolsCenter for System x and BladeCenter information center, and its related publications, are accessibility-enabled.

Keyboard navigation

This product uses standard Microsoft Windows navigation keys.

IBM and accessibility

See the IBM Human Ability and Accessibility Center Web site for more information about the commitment that IBM has to accessibility.

Appendix B. Dynamic Systems Analysis commands

You can preform all Dynamic Systems Analysis functions from a command-line interface.

How to read syntax diagrams

Review the conventions used in syntax diagrams to understand the command descriptions.

The syntax diagram consists of options and option arguments. *Options* consist of a hyphen and single letter (for example, -h) or two hyphens and multiple letters (for example, -- help). Options can be followed by one or more *option arguments* (for example, as illustrated in [--cd=*volume*]).

Consider these conventions when reading syntax diagrams:

- Options that are enclosed in brackets ([]) are optional. Do not include these brackets in the command.
- Options that are enclosed in braces ({ }) are required. Do not include these braces in the command.
- Options that are not enclosed in either brackets or braces are required.
- The names of options are case sensitive and must be typed exactly as shown. Options preceded by two dashes (--) must be specified in their entirety.
- The names of option arguments that require substitution by actual values are italicized.
- The pipe (|) character signifies that you choose one option or the other. For example, [a | b] indicates that you can choose either a or b, but not both. Similarly, {a | b} indicates that you must choose either a or b.
- An ellipsis (...) signifies that you can repeat the option argument on the command line.

collectall

Use the **collectall** to collect information about the local system.

Syntax

```
collectall -? | -h
```

```
collectall -l
```

```
collectall -b
```

```
collectall -diags
```

```
collectall -website [-i data_file]
```

```
collectall -r [data_file] -v [-i data_file]
```

```
collectall -t [user_id:password@IP[:port]/path/] -i data_file
```

```
collectall -ux [-x] [-v] [-text]

collectall -ipmilan user_id:password@ip_address[:port]

collectall -vmwesi user_id:password@ip_address[:port]

collectall [-x] [-text] [-v [-html]] [-i data_file] [-d output_directory
[-c]] [-dumpxml] [-f]

collectall -upload [IBMId:id]
```

Description

Important:

- To install or use Dynamic Systems Analysis, you must be logged in to the local system using a user ID that has administrator or root privileges.
- On Linux systems, you must run Dynamic Systems Analysis from a journaling file system (such as ext3 or ReiserFS). You cannot run these commands from a virtual machine file system (VMFS).

To run this command on a system running Windows, change to the directory where Dynamic Systems Analysis was installed (for example, C:\Program Files\IBM\DSA). Use **collectall.exe** to run this command.

To run this command on a system running Linux, Use **collectall.sh**.

If no options are specified, this command collects and saves information in a compressed XML file in the *installation_directory*\IBM_Support\ on Windows systems or /var/log/IBM_Support on Linux systems. This file contains the collected data and the consolidated property specification documents from each collector that collects data. The file is named *mtm_serialnumber_datetime.xml.gz*, where *mtm* is the machine type and model number of the local system, *serialnumber* is the serial number of the local system, and *datetime* is the date and time that data was collected. If Dynamic Systems Analysis cannot obtain a valid machine type, model number, or serial number of the system, any resultant output file and subdirectory will use the string "Unknown" in place of these values.

For more information about the standard of CIM-XML specifications, see the CIM Web-Based Enterprise Management (WBEM) Web site at www.dmtf.org/standards/wbem/.

Commands and options

- b Runs in batch (unattended) mode. When this option is specified, user-interactive prompts are not displayed.
- c Creates the output directory specified by -d option if it doesn't already exist. If the directory does exist, this option has no effect.
- d *output_directory*
Specifies the fully-qualified or relative directory where the data files are to be placed (for example: /tmp/DSA or c:\temp\DSA for Windows)

Important: If you do not specify the -c option, the specified output directory must exist on the local system.

-diags

Runs all nondestructive diagnostics tests for the applicable devices.

The nondestructive diagnostic tests include:

- Optical drive tests, including verify media, read error, and drive self test
- Tape drive tests, including tape presence, tape alert, tape load, and tape self test

-dumpxml

Saves the compressed CIM-XML file to disk after each collector plug-in runs.

Tips:

- This option significantly slows down the collection process and is intended only for debugging purposes.
- This option cannot be used with the **-x** and **-i** options.

-f Collects the full ISMP service processor log.

-? | -h

Displays information about this command, including syntax and option descriptions.

-html *output_directory*

Specifies the fully-qualified or relative directory where the HTML data files are to be placed (for example: /tmp/DSA or c:\temp\DSA for Windows)

Tips:

- If you do not specify this option, the set of HTML data files is saved in the *outputdir\mtm_serialnumber_datetime* directory, where *outputdir* is the output directory specified by the **-d** option, *mtm* is the machine type and model of the local system, *serialnumber* is the serial number of local system, and *datetime* is the date and time when data was collected.
- If you do not specify the **-c** option, the specified output directory must exist on the local system.

-i *data_file*

Targets the existing compressed CIM-XML data file, specified using fully-qualified name, instead of collecting data on the current system.

-ipmilan *user_id:password@ip_address[:port]*

Collects IPMI event log on the specified remote server using out-of-band mode.

-l Displays the license text.

-r *data_file* [*data_file...*]

Compares current system information against one or more specified system information files, in compressed CIM-XML format. Use fully-qualified file names (for example, /tmp/compfile.xml.gz or c:\temp\DSA\compfile.xml.gz). Separate multiple file names using a space.

Tip:

- If you specify the **-r** option, you must also specify the **-v** option, which creates output in HTML format.
- If the **-i** option is also specified, this command compares the data files specified with the **-r** option to the current data file specified by the **-i** option instead of collecting the current system information.

-t [*user_id:password@ip_address[:port]*] [*path*]

Transfers the inventory data file to the specified system using the specified File Transfer Protocol (FTP). Specify the system using these arguments:

user_id:password

The credentials needed to access the FTP server.

ip_address

The IP address or host name of the FTP server.

port

The port number to use to access of the FTP server.

path

The directory on the FTP server in which you want to copy the inventory data files.

Tip: If you specify this option with no arguments, the data file is transferred to the `testcase.boulder.ibm.com/eserver/toibm/xseries/` FTP server by default.

-text

Creates output in ASCII text format.

Collected data is placed in the output directory in a single text file named *mtm_serialnumber_datetime.txt*, where *mtm* is the machine type and model number of the local system, *serialnumber* is the serial number of the local system, and *datetime* is the date and time that data was collected. Data is grouped in to high-level categories (for example, system overview, network settings, and installed application). Related system information for the high-level categories is categorized further and printed into several tables that contain properties and their value.

-upload [IBMid:*id*]

Sends inventory data to the Electronic Services web portal for use in proactive support functions such as My Systems and My Notifications. The data is sent using HTTPS.

The IBM ID is the ID that is authorized to view the inventory data sent using the Electronic Services web portal page. If you specify this option with no IBM ID, the data is sent, but you will not be able to access it using the Electronic Services web portal.

-ux

Compares the installed firmware levels and latest version of firmware levels in the UpdateXpress database on the Web.

Important: The local system must have Internet access.

-v Creates output in HTML format.

Collected data is categorized and placed in a set of HTML files (for example, `system_overview.html` for system-overview information, `net.html` for network settings information, and `installedapp.html` for installed-application information). In each HTML file, related system information is categorized further and printed into several tables that contain properties and their value.

This option also creates an `index.html` file from which you can view all system information. When you display this file in a Web browser, the left pane contains links for each category of information, and the right pane displays the related information.

Tip: This option will commonly be used with the `-i` option, but will not require the `-i` option.

-vmwesi *user_id:password@ip_address[:port]*

Collect system information from the specified remote system running VMware ESXi 3.5.

Tip: This option cannot be used with the `-ipmilan`, `-r`, `-diags`, and `-f` options.

-website

Transfers the compressed CIM-XML files to a simulated Multitools server.

-x Does not create output in the compressed CIM-XML format.

Tip:

- This command creates output in the compressed CIM-XML format by default.
- If you specify the `-x` option, you must specify either the `-v` or `-text` options.

Examples

1. Collect data in a compressed CIM-XML output

This example illustrates how to collect data in a compressed CIM-XML file in the *installation_directory\IBM_Support* on Windows systems or */var/log/IBM_Support* on Linux systems.

Windows **collectall.exe**

Linux **collectall.sh**

2. View previously collected data

This example illustrates how to import an existing data file named *system1.xml.gz* in the default output directory *C:\Program Files\IBM\DSA\IBM_Support* and then saves the data in HTML and text format.

Windows **collectall.exe -i input**

Linux **collectall.sh -i system1.xml.gz**

3. Convert collected data into HTML and text output

This example illustrates how to import an existing data file named *system1.xml.gz* in the default output directory *C:\Program Files\IBM\DSA\IBM_Support* and then saves the data in default output directory in HTML and text format.

Windows **collectall.exe -v -text -i input**

Linux **collectall.sh -v -text -i system1.xml.gz**

rtdcli

Use the **rtdcli** command line interface to run diagnostic tests on specific devices.

Syntax

rtdcli help

rtdcli run *[-d device]* *[-t test]* *[-x]*

rtdcli devices

`rtdcli tests`

Description

Prerequisites: This interface is available only in the Installable Edition.

Important:

- To install or use Dynamic Systems Analysis, you must be logged in to the local system using a user ID that has administrator or root privileges.
- On Linux systems, you must run Dynamic Systems Analysis from a journaling file system (such as ext3 or ReiserFS). You cannot run these commands from a virtual machine file system (VMFS).

To run this command on a system running Windows, change to the directory where Dynamic Systems Analysis was installed (for example, C:\Program Files\IBM\DSA). Use **rtdcli.exe** to run this command.

If no options are specified, this command display the command help.

To run this command on a system running Linux, Use **rtdcli.sh**.

Commands and options

help

Output usage help screen to stdout.

run [-device *device*] [-test *test*] [-x]

Runs the specified diagnostic tests on the specified devices.

You can specify one or more of the following options. If no options are specified, this command runs all nondestructive tests on all devices.

-device *device*

Runs diagnostics tests on the specified device.

Tip:

- If a device name contain spaces, enclose the name in quotation marks (for example, `-d "DVD-ROM 0"`).
- To get a list of valid devices, run the **rtdcli devices** command.

-test *test*

Runs only the specified diagnostics test.

Tip:

- If a test name contain spaces, enclose the name in quotation marks.
- To get a list of valid devices, run the **rtdcli tests** command.

-x Runs both nondestructive and destructive diagnostic tests.

If this option is not specified, only nondestructive diagnostic tests are run. The nondestructive diagnostic tests include:

- Optical drive tests, including verify media, read error, and drive self test
- Tape drive tests, including tape presence, tape alert, tape load, and tape self test

devices

Output devices and available tests to stdout

tests

Output list of installed tests to stdout

Examples

1. Run a diagnostics test on a device

This example illustrates how to run the Verify Media Mounted test on the CDR0M1 optical drive.

```
► Windows rtdcli.exe run -d CDR0M1 -t VerifyMedia
► Linux   rtdcli.sh run -d /dev/cd1 -t VerifyMedia
```

Appendix C. Environment variables

These environment variables are used by Dynamic Systems Analysis.

DSA_INCLUDE

Specifies one or more plug-ins that are to be included when **collectall** is run. Separate the plug-ins by a space, comma, or semi-colon. Use the base plug-in name (for example, Ddinfo;installedapps).

Tip:

- The plug-in names are displayed when collection occurs.
- The DSA_INCLUDE and DSA_EXCLUDE variables are mutually exclusive.
- To reset the effect of this environmental variables, set empty values to the variables (for example, DSA_INCLUDE=).

Attention: Do not change this environment variable. This variable is used for debugging and is intended for use only by IBM technical support.

DSA_EXCLUDE

Specifies one or more plug-ins that are to be excluded when **collectall** is run. Separate the plug-ins by a space, comma, or semi-colon. Use the base plug-in name (for example, Ddinfo;installedapps).

Tip:

- The plug-in names are displayed when collection occurs.
- The DSA_INCLUDE and DSA_EXCLUDE variables are mutually exclusive.
- To reset the effect of this environmental variables, set empty values to the variables (for example, DSA_INCLUDE=).

Attention: Do not change this environment variable. This variable is used for debugging and is intended for use only by IBM technical support.

DSA_LOGLEVEL

Indicates the level of detail requested for logging. You can specify one of these values:

- **0:** Error
- **1:** Warning
- **2:** Status
- **3:** Debug
- **4:** Verbose

Attention: Do not change this environment variable. This variable is used for debugging and is intended for use only by IBM technical support.

DSA_LOGFILE

Specifies the path and file name for the DSA event log.

Important:

- The path must exist on the local system on which DSA is running.
- If this variable is not defined, logging may be lost.

DSA_EVENTLOG_MAX

Specifies the maximum number of entries collected from each system event log. The value must be a positive integer with six or few digits. The default value is 5 000.

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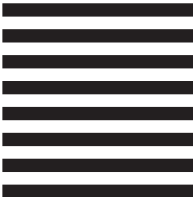
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