



## **WX Application Acceleration Platforms**

# **WX Client User's Guide**

*Release 6.0*

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Published: 2009-10-19

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#### Revision History

June 2009—Revision 01  
October 2009—Revision 02

The information in this document is current as of the date listed in the revision history.

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# About This Guide

This preface describes how to use this guide and request technical support:

- Objectives on page ix
- Audience on page ix
- Document Conventions on page ix
- List of Technical Publications on page x
- Requesting Technical Support on page x

## Objectives

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This guide describes how to install and use the Juniper Networks WX client. The WX client accelerates traffic between a Windows 2000 or Windows XP computer and a remote WXC application acceleration platform.

## Audience

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This guide is intended for Windows users who want to install and use the WX client. Your network administrator can remotely install the WX client for you, with no additional configuration required.

## Document Conventions

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Table 1 on page ix defines notice icons used in this guide, Table 2 on page x defines text conventions used throughout the book, and Table 3 on page x defines the GUI conventions.

**Table 1: Notice icons**

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates that you may risk losing data or damaging your hardware.
	Warning	Alerts you to the risk of personal injury.

**Table 2: Text Conventions**

Convention	Description
Plain sans serif type	Filenames and directory names.
<i>Italics</i>	<ul style="list-style-type: none"> <li>■ Terms defined in text.</li> <li>■ Variable elements for which you supply values.</li> <li>■ Book titles.</li> </ul>
+ ( <i>plus sign</i> )	Key names linked with a plus sign indicate that you must press two or more keys simultaneously.

**Table 3: GUI Conventions**

Convention	Description
> (chevron)	Navigation paths through the UI.
<b>Bold type</b>	User interface elements that you select in a procedure, such as tabs, buttons, and menu options.
<i>Italics</i>	Variables for which you supply values.

## List of Technical Publications

The following additional WX documents are available at <http://www.juniper.net/techpubs>:

- *WX Administration Guide*—Explains how to use the Web interface to install and configure the WX application acceleration platforms.
- *JWOS Command Reference Guide*—Explains how to use the CLI interface to configure the WX application acceleration platforms.

## Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/customers/support/downloads/710059.pdf>.
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- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

## Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting support.html> .



## **Part 1**

# **Using the WX Client**

- Getting Started on page 3
- Managing the WX Client on page 7



## Chapter 1

# Getting Started

The following topics describe how to get started using the WX client:

- About the WX Client on page 3
- Installing and Uninstalling the WX Client on page 3
- Starting and Stopping the WX Client on page 4
- Viewing the WX Client Version and Online Help on page 4

### About the WX Client

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The WX client provides application acceleration between a Windows 2000 or Windows XP workstation and a remote WX device running JWOS 6.0 or later. Mobile users and users in small remote offices can now have the performance benefits of data compression and acceleration without requiring a dedicated WX device.

Note the following:

- The WX client must be installed on each Windows client, not on a single Windows system that serves as a gateway for other clients.
- The Windows operating systems, Internet browsers, and other key hardware and software versions supported by the WX client are listed in *WX Client Supported Platforms* posted at <http://www.juniper.net/techpubs/hardware/wx/>.
- The WX client has been tested to work with the German, French, Japanese, Simplified Chinese, Spanish, Russian and Korean versions of Windows. However, the WX client has not been localized for any languages. The user interface is available in English only.

### Installing and Uninstalling the WX Client

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One way to install the WX client is to download the client from a licensed WX device. For other installation methods, see the *WX Administration Guide*.

To download the WX client from a WX device:

1. Contact your WX system administrator to obtain the IP address of an appropriate WX device. The administrator may also provide a username and password.
2. On a Windows 2000 or Windows XP workstation (32-bit edition), enter the following URL:

`https://WX_IP_address/client`

3. Enter the username and password, if needed, and click **Login**.
4. Select **Install Now**, and if necessary, click **Install** in the Security Warning dialog box. Note the following:
  - If the Windows Firewall is enabled, click **Unblock** when prompted to allow the WX client to accept external connections.
  - If you are prompted to stop the Network Connect client, click **OK** and restart the Network Connect client after the WX client is installed.

When installation is complete, the WX client starts automatically, and the WX icon is shown in the system tray in the lower-right corner of the Windows desktop. Traffic acceleration starts automatically when remote WX devices are discovered. No additional configuration is necessary.

To uninstall the WX client software, select **Start > All Programs > Juniper Networks > WX Client > Uninstall**.

## Starting and Stopping the WX Client

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The WX client starts automatically after installation. At any time you can close the WX client or temporarily disable client processing.

To stop and restart the WX client:

1. Double-click the WX icon in the system tray to open the WAN Acceleration Client window, or right-click on the icon and select **Basic View** or **Advanced View**.
2. To stop the WX client from processing traffic, click **Disable**. The tray icon is changed to red. Click **Enable** to resume processing. Click **Hide** to close the WAN Acceleration Client window.
3. To stop and close the WX client, click **Exit**. To restart the WX client, double-click the WX icon on the Windows desktop.

## Viewing the WX Client Version and Online Help

---

To view the WX client version and online help:

1. Double-click the WX icon in the system tray to open the WAN Acceleration Client window, or right-click on the icon and select **Basic View** or **Advanced View**.
2. Click the arrow icon in the lower-left corner and select **About** to view the version of the WX client.
3. Click the arrow icon and select **Help** to select one of the following options:
  - **Help Topics**. Opens the online version of this guide.
  - **WX Client User Page**. Opens the WX client resource page (login required).



- **Juniper Networks Home Page.** Opens the main Web page for Juniper Networks.
- **Purchase Information.** Opens the main sales information page for Juniper Networks.



## Chapter 2

# Managing the WX Client

The following topics describe how to manage the WX client:

- Viewing the WX Client Status on page 7
- Changing the WX Client Settings on page 8
- Viewing the WX Client Log Entries on page 9
- Running a Packet Capture on the WX Client on page 9
- Using the WX Client Flow Filter on page 10
- Creating a WX Client Diagnostic File on page 10

## Viewing the WX Client Status

The Overview tab of the WX client displays the client status, the number of bytes processed, the data compression percentage, and the client run time. The current list of connections to remote WX devices is also displayed.

To view the WX client status:

1. Double-click the WX icon in the system tray to open the WAN Acceleration Client window. The Basic View is displayed by default.
2. To view all the status information, click the arrow icon in the lower-left corner and select **Advanced View**.
3. Review the following information:

Field	Description
WX Client Status	Current status of the WX client. Clicking <b>Disable</b> stops directing traffic to the WX client for processing.  A status of <b>Enabled but limited</b> or <b>no network connectivity</b> indicates the WX client has no network connectivity or there is no default route.
Duration	Length of time the WX client has been running. Note that clicking <b>Disable</b> does not stop the duration timer.
Total Bytes Received	Number of bytes of TCP traffic directed to the WX client for processing since the client started.
Total Bytes Sent	Number of bytes sent out after processing by the WX client.

Field	Description
Optimized Flows	Number of traffic flows that have been compressed and/or accelerated.
Compression	<p>Percentage of data compression achieved through Network Sequence Caching (NSC). The percentage is calculated as follows:</p> $[(\text{Bytes into NSC} - \text{Bytes Out of NSC}) / \text{Bytes into NSC}] \times 100$ <p>If all of the traffic is eligible for NSC, then Bytes into NSC is the same as Total Bytes Received.</p>
Connected WX Appliances	Number of remote WX devices with which the WX client has formed an adjacency to compress and accelerate traffic.
WX Associations	List of adjacent WX devices to which the WX client is accelerating traffic (Advanced View only). For each device, the list indicates the device name, status, IP address, and whether TCP acceleration and compression (NSC), and CIFS acceleration are enabled.

## Changing the WX Client Settings

You can change some of the WX client settings, such as the default MTU size and the client services that are enabled.

To change the WX client settings:

1. Right-click the WX icon in the lower-right corner of the Windows desktop and select **Advanced View**.
2. Select the **Settings** tab and specify the following information:

Settings	Description
Disk	<p>The number of megabytes of disk space reserved for the NSC compression dictionary is displayed. The dictionary is shared by all users of the client.</p> <p>To erase the compression dictionary when you close the WX client, select the <b>Clear disk cache on exit</b> check box.</p>
MTU	To change the default Maximum Transmission Unit (MTU) size, select <b>MTU Size</b> and enter the appropriate value (up to 1500).
Services	Select or clear the check boxes to enable or disable TCP acceleration, NSC compression, or CIFS acceleration. Note that disabling TCP acceleration also disables NSC compression.

3. Click **Apply** to apply the changes to the WX client.

## Viewing the WX Client Log Entries

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To view the WX client log entries:

1. Right-click the WX icon in the lower-right corner of the Windows desktop and select **Advanced View**.
2. Select the **Logs** tab to view the most recent log entries.

The Log Contents window displays the most recent log entries for the selected logging level. Each entry starts with the date, time, and severity level of the message

3. To change the logging level, select one of the following:
  - **None**. Disables logging for the WX client.
  - **Standard Info**. Enables messages of severity level WARNING, ERROR, and FATAL to be written to the log (the default).
  - **Detailed Info**. Enables messages of all severity levels to be written to the log, including INFO, DEBUG, and VERBOSE.
4. To search the displayed log entries, enter the text you want to find and click **Search**. The entries that contain the specified text will be highlighted. The search is not case-sensitive.
5. To view more detailed or older log entries, click **Explore Log Files** and open the file `debuglog.log` with a text editor. The log may contain entries from other Juniper Networks applications. Log entries for the WX client include the text `WxGUI.exe wxclient` in each entry.
6. To clear the entries in the Log Contents window, click **Clear**. The entries are retained in the log file.

## Running a Packet Capture on the WX Client

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For diagnostic purposes, a packet capture can be run to collect the packets in and out of the WX client. The packet capture is saved in `pcap` format.

To run a packet capture on the WX client:

1. Right-click the WX icon in the lower-right corner of the Windows desktop and select **Advanced View**.
2. Select the **Diagnostic** tab, and select **Packet Capture** from the drop-down list.
3. Click **Start** and specify the name and location where you want to save the packet capture file. The file extension `.pcap` is appended to the file name.
4. Click **Stop** to stop the packet capture.

## Using the WX Client Flow Filter

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The flow filter lets you view the traffic between a specific source and destination IP address and port.

To use the flow filter:

1. Right-click the WX icon in the lower-right corner of the Windows desktop and select **Advanced View**.
2. To view the addresses and ports of the current traffic flows:
  1. Select the **Diagnostic** tab, and select **Collect Support Data** from the drop-down list.
  2. Click **Start** to display the support information, and scroll down to the **Netstat - TCP Socket Stats** section. Each traffic flow has a WAN socket entry, followed by a LAN entry. In the WAN entry, the Local Address is the Windows PC and the Foreign Address is the WXC device. In the LAN entry, the Local Address is the remote server and the Foreign Address is the Windows PC.

In the following example, 10.204.71.86 is the PC address:

```
=====
Netstat - TCP Socket Stats
=====
Total Elem: 164
Proto Local Address      Foreign Address    Send-Q Recv-Q State
tcp   10.204.71.86:4104    10.204.120.18:5006 16384 0    ESTABLISHED
tcp   10.204.120.93:5006  10.204.71.86:4104  0      0    ESTABLISHED
```

3. Make a note of the source (Local) and destination (Foreign) addresses and ports of the traffic flows you want to display in the flow filter. The port numbers follow the colon after the address.
4. Select **Flow Filter** from the drop-down list, enter the appropriate source and destination IP addresses and ports, and click **Start**. Use a blank or an asterisk (\*) to indicate any IP address or port. The output of the flow filter is displayed in the same window.

## Creating a WX Client Diagnostic File

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WX client configuration and diagnostic information can be viewed, saved, and/or emailed to Technical Support for analysis. The diagnostic file is a Windows cabinet file (.cab) that contains configuration files, diagnostics, log files, and key registry settings.

To create a diagnostic file:

1. Right-click the WX icon in the lower-right corner of the Windows desktop and select **Advanced View**.
2. Select the **Diagnostic** tab, and select **Collect Support Data** from the drop-down list.

3. Click **Start** to display the support information.
4. Click **Store Diag** to specify the name and location where you want to save the file. The file extension **.cab** is appended to the file name.
5. Click **Email Diag** to open an email in your default email client and append the diagnostic file (the file is not saved locally). The file name defaults to:

*username\_hour\_minutes\_ddmmyy.cab*





## **Part 2**

# **Files and Registry Settings**

- WX Client Files and Registry Settings on page 15



## Appendix A

# WX Client Files and Registry Settings

The following topics describe the WX client files and registry modifications:

- WX Client File and Folder Locations on page 15
- WX Client Registry Modifications on page 18
- WX Client Log and Diagnostic Information on page 19
- WX Client Windows Shortcuts on page 19
- WX Client Files Retained after Uninstallation on page 19

## WX Client File and Folder Locations

The following table lists the files and folders created when you install the WX client. The WX client is installed on the same drive as Windows (drive C: shown here).

Location	Files
<b>Juniper Unified Network Service (JUNS)</b>	
C:\Windows\Downloaded Program Files\	<ul style="list-style-type: none"><li>■ JuniperSetupClientControl.ocx</li><li>■ JavaRuntime Environment &lt; version &gt;</li></ul>
These files are retained after the WX client is uninstalled.	
<b>WX Client</b>	

Location	Files
C:\Documents and Settings\< user > \Application Data\Juniper Networks\Setup Client	<ul style="list-style-type: none"> <li>■ dsmmf.exe</li> <li>■ dsmmfres_de.dll</li> <li>■ dsmmfres_es.dll</li> <li>■ dsmmfres_fr.dll</li> <li>■ dsmmfres_ja.dll</li> <li>■ dsmmfres_ko.dll</li> <li>■ dsmmfres_zh.dll</li> <li>■ dsmmfres_zh_cn.dll</li> <li>■ JuniperSetupClient.DMP (if a WX client failure occurs)</li> <li>■ JuniperSetupClient.exe</li> <li>■ JuniperSetupClient.ini</li> <li>■ JuniperSetupClientDLL.dll</li> <li>■ JuniperSetupClientOCX.exe</li> <li>■ monstatsq</li> <li>■ setupResource_de.dll</li> <li>■ setupResource_en.dll</li> <li>■ setupResource_es.dll</li> <li>■ setupResource_fr.dll</li> <li>■ setupResource_ja.dll</li> <li>■ setupResource_ko.dll</li> <li>■ setupResource_zh.dll</li> <li>■ setupResource_zh_cn.dll</li> <li>■ string_de.properties</li> <li>■ string_en.properties</li> <li>■ string_es.properties</li> <li>■ string_fr.properties</li> <li>■ string_ja.properties</li> <li>■ string_ko.properties</li> <li>■ string_zh.properties</li> <li>■ string_zh_cn.properties</li> <li>■ uninstall.exe</li> </ul>
C:\Documents and Settings\All Users\Application Data\Juniper Networks\WX Client	<ul style="list-style-type: none"> <li>■ WXClient.log</li> <li>■ WX_hcif.log (when installed with Host Checker)</li> </ul>

Location	Files
C:\Program Files\Juniper Networks\WX Client	<ul style="list-style-type: none"> <li>■ Clientlogconf.txt</li> <li>■ config.in.tmpl</li> <li>■ Config_All.ini (when installed with MSI)</li> <li>■ DCRP.ini (when installed with MSI or Host Checker)</li> <li>■ Generate_CrashDump.exe</li> <li>■ N.db.tmpl</li> <li>■ NB.db.tmpl</li> <li>■ Nsc.conf</li> <li>■ NscLog.db.tmpl</li> <li>■ nscmap</li> <li>■ pthreadVC2.dll</li> <li>■ sqlite3.dll</li> <li>■ uninstall.exe</li> <li>■ UninstallWXClient.exe (when installed with MSI)</li> <li>■ versionInfo.ini</li> <li>■ wx_sys.conf.tmpl</li> <li>■ wx_tray.ico</li> <li>■ WXClient.chm</li> <li>■ WXClientDriverInitLog.log</li> <li>■ WXClient-Installer.exe (when installed with MSI)</li> <li>■ WxGUI.exe</li> <li>■ WxInstallerDll.dll</li> </ul>
C:\Program Files\Juniper Networks\WX Client\Configurations	<ul style="list-style-type: none"> <li>■ config_addpdefs.ini</li> <li>■ config_adjacency.ini</li> <li>■ config_cifs.ini</li> <li>■ config_exchange.ini</li> <li>■ config_nsc.ini</li> <li>■ config_system.ini</li> <li>■ config_tcpproxy.ini</li> </ul>
C:\JWACDiskCache	<ul style="list-style-type: none"> <li>■ NSC folder <ul style="list-style-type: none"> <li>■ NB.db</li> <li>■ NR.db</li> <li>■ NscFlow.db</li> <li>■ NscLog.db</li> <li>■ NW.db</li> </ul> </li> <li>■ objstore folder</li> </ul>
<b>WX Client Driver</b>	

Location	Files
C:\Program Files\Common Files\Juniper Networks\WxCDriver	<ul style="list-style-type: none"> <li>■ ftrshim.sys</li> <li>■ wxc32driver.cat</li> <li>■ wxc32driver_m.cat</li> <li>■ WxCDriver.inf</li> <li>■ WxCDriver_m.inf</li> <li>■ WxDriverInstaller.dll</li> </ul>
The WxCDriver folder is retained after the WX client is uninstalled.	

## WX Client Registry Modifications

The following table describes the registry modifications:

Location	Key Name	Value
<b>Juniper Unified Network Service (JUNS)</b>		
HKLM\Software\Juniper Networks\Common Files\dsLogService	String dsLogService	% Program Files%\Common Files\Juniper Networks\JUNS\dsLogService.dll
HKLM\Software\Juniper Networks\Logging\Level	String Level	"3"
	String LogFileName	"% DocumentsAndSettings%\All Users\Application Data\Juniper Networks\ Logging\debuglog.log"
	String LogSize	"10"
<b>WX Client</b>		
[HKEY_LOCAL_MACHINE\SOFTWARE\Juniper Networks\WX Client]	String InstallPath	C:\Program Files\Juniper Networks\WX Client
	Unicode string DiskCachePath	C:\JWACDiskCache  <b>NOTE:</b> The cache is created on the drive with the most available disk space.
	DWORD NSCCacheSize	Cache size (default is 1024)
	String WXClientInternalVersion	Installed WX Client internal version
	String WXClientExternalVersion	Installed WX Client external version
	String InstalledDriverVersion	Installed WX Client driver version
	String msi	Set if WX client is locally installed
	Binary wx_id	Interface MAC address used for WX ID of the client

Location	Key Name	Value
HKLM\Software\Microsoft\Windows\CurrentVersion\Uninstall\WxClient		Add or Remove program entry (not present when installed with MSI).

## WX Client Log and Diagnostic Information

The WX client adds log files to the following location:

C:\Documents and Settings\All Users\Application Data\Juniper Networks\Logging\

The following log is created during WX client installation:

C:\Documents and Settings\All Users\Application Data\Juniper Networks\WX Client\WXClient.log

If the WX client fails, a diagnostic JWACCrashDump.dmp file will be created in:

C:/Program Files/Juniper Networks/WX Client

If the WX driver fails, by default a small memory dump is saved as %SystemRoot%\Minidump\Mini< date>-< n>.dmp. To save a kernel memory dump (%SystemRoot%\Memory.dmp) when a driver fails, right-click on My Computer, and select **Properties > Advanced**, click **Settings** under Startup and Recovery, and select **Kernel memory dump** from the Write debugging information list.

## WX Client Windows Shortcuts

The following Windows shortcuts are created:

- C:\Documents and Settings\All Users\Desktop\Juniper WAN Acceleration Client
- C:\Documents and Settings\All Users\Start Menu\Programs\Juniper Networks\WX Client\Juniper WAN Acceleration Client
- C:\Documents and Settings\All Users\Start Menu\Programs\Juniper Networks\WX Client\Uninstall

## WX Client Files Retained after Uninstallation

The following files and folders are not removed when the WX client is uninstalled:

- WXClient.log
- Logging folder and log files
- WXCDriver folder (deleted after next Windows restart)
- JUNS files and registry settings

