

Deploying PatchLink WebConsole Suite

for Novell® NetWare®.

Networking Services

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DEPLOYMENT GUIDE



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*Developed in collaboration
with Patchlink*

PATCHLINK™

Novell®

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Deploying the PatchLink WebCoNsole Suite for Novell® NetWare®



The PatchLink WebConsole Suite for Novell® NetWare® provides a rich, Web-based remote management environment that allows administrators to manage their Novell network from anywhere on the Internet. The WebConsole Suite offers a holistic solution to all your NetWare and Novell eDirectory™ management needs. With this single, comprehensive solution, you can perform functions that previously required multiple third-party tools and utilities. Best of all, you don't have to upgrade your network to take advantage of the suite. You can use it to manage all NetWare server versions from NetWare 3.12.

This paper provides a step-by-step procedure for deploying the WebConsole Suite for NetWare in your network environment. As with any network software, PatchLink advises that you install the suite first in a test environment, so that you can become fully acquainted with its operation before deploying it in a production environment.

If you have any questions about the deployment of the WebConsole Suite, please feel free to contact PatchLink directly either via email at support@patchlink.com or by telephone at 1.888.970.1025 option 2.

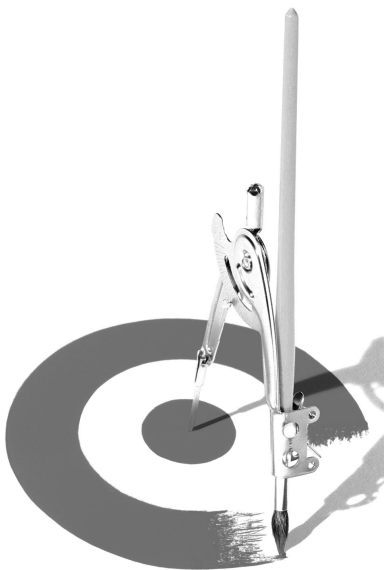
STEP 1: PLAN THE WEBCONSOLE DEPLOYMENT

The first step of the deployment process is to identify which servers within your environment will be running the WebConsole Suite. Because the product is loaded only on demand and adds little overhead to your production servers, we recommend that you install it to every server.

There are two basic types of installation:

WebConsole Master Server: This installation is made to all servers that must support the snap-in features of the WebConsole Suite that operate across multiple servers. For example,

the DS Doctor Agent processes must run on the Master Server as well as the Remote Servers to enable you to analyze the health of your e-Directory. The server on which the WebConsole Master Server is to be installed **must also have a Web server installed.** There must be at least one WebConsole Master Server within each network managed by the WebConsole Suite. In large tree environments, however, with multiple geographic locations and distributed administrative staff, you may wish to install several Master Servers within your network, one at each main site.



WebConsole Remote Server: This installation is made to all other servers (other than Master Servers) that are to run WebConsole. The server on which WebConsole Remote Server is to be installed need not necessarily have a Web server installed. In addition, you don't have to copy any of the WebConsole HTML pages and images to the Remote Server. As a result, the WebConsole Remote Server adds very little overhead to normal server operations.

If you are unfamiliar with Web server set up and configuration in the NetWare environment, PatchLink strongly recommends that you install the Master Server on a server that has the typical install version of NetWare 5.1. That's because the typical install automatically sets up a secure Web server configuration on the server.

PatchLink also recommends that you use a secondary server such as a print or non-critical file server as your Master Server. In this way, you can ensure that the use of the WebConsole applications will have no impact whatsoever on the performance of critical system functions such as client authentication to eDirectory servers. In general, you should run only the minimum set of WebConsole management functions on your critical servers. You should assign more processing intensive management functions, such as data analysis and reporting, to a server that has CPU cycles to spare.

If your network employs a firewall, you have to determine whether you need WebConsole access to your network from outside the firewall. If you do, PatchLink strongly recommends that you open

only one port to your WebConsole Master Server and that you SSL encrypt that port connection. Doing so will give your administrator WebConsole access from anywhere on the public Internet without allowing unauthorized people to see passwords or data transmissions sent over the public network.

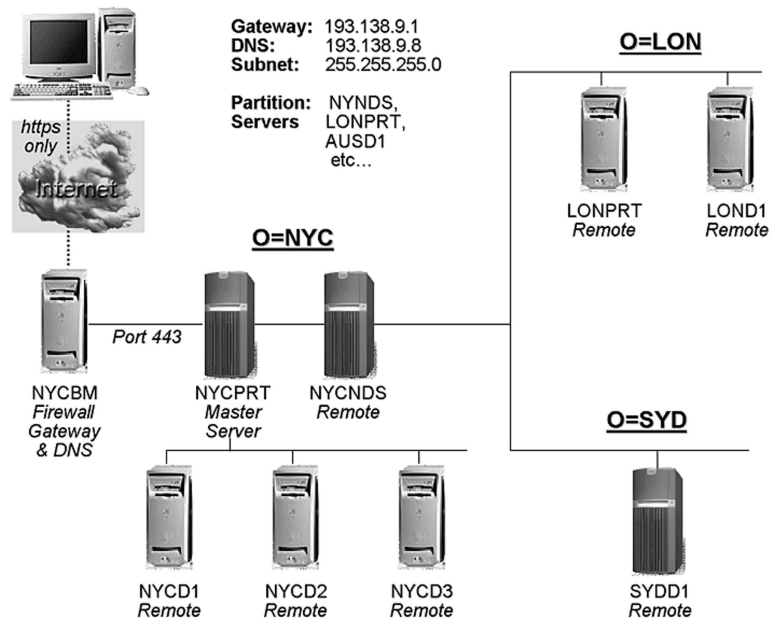
You must load and correctly configure TCP/IP on every Master Server and Remote Server in your environment. As a result, you should determine in this planning step your local DNS addresses—such as server address, gateway address and subnet address. In this process, you may discover some older servers that you want to manage with WebConsole, but haven't yet migrated them to IP.

Although you can manage NetWare 3.x, 4.x and 5.x servers using WebConsole, the remainder of this document focuses on a network based on NetWare 4.11 and above.

As with any network software installation, it is useful to draw up a quick diagram to help you determine which servers will be managed using WebConsole, where the Master Servers are to be installed, and which port will be used for browser communication within your network. If your firewall performs network address translation, remember that you will also need to assign an external TCP address and DNS name for your Master Server.

A sample network diagram is illustrated in Figure 1. You should create a similar diagram for your network configuration before proceeding, or at minimum establish the nodes that will be installed with WebConsole and verify that IP connectivity will exist between all nodes.

Figure 1. Sample network deployment diagram



STEP 2: MAKE SURE THAT TCP/IP IS PROPERLY CONFIGURED

You need to ensure that your TCP/IP configuration is set up properly on any server that you install WebConsole. NetWare servers are typically set up with static IP addresses, which is not a complete client configuration for TCP/IP.

One final planning issue to address is the Web browser you will be using on your administration workstation. Although the WebConsole HTML interface supports a wide variety of browser technologies, PatchLink recommends that you use a Java-capable Web browser with JDK 1.1 support or higher. As of this writing, the minimum recommended versions are Netscape 4.05 and Internet Explorer 4.01.

Your Internet connection can be anything from a telephone line or wireless Internet card (such as a Ricochet modem) to DSL and beyond. The more bandwidth available, the faster the toolbar icons, graphics and applets load. You should note, however, that you can run the WebConsole for NetWare product in a completely non-graphical and non-Java mode. This may be preferable if you have high latency or low bandwidth connections.

Certain features of the WebConsole Suite require communication between all WebConsole servers in the network. This requires full and proper TCP/IP set up. Future versions of the WebConsole Suite, for example, will be able to update software automatically on the Remote Servers from the Master Server.

Shown below are some checks you can perform to ensure that you have TCP/IP set up properly in all WebConsole servers. You should perform these checks at this point to ensure that you can run the full functionality of WebConsole.

Ping Testing: Load Ping onto your server console. This utility performs a useful test to determine whether your NetWare server has connectivity with the rest of your LAN and the Internet. Ping, however, is not infallible. For example, a firewall or router within your network environment may block Ping traffic.

If your TCP/IP configuration is set up correctly, you should be able to:

- Ping the static IP address (xx.xx.xx.xx) of any other server or workstation in your network.
- Ping another machine within your network by entering its name, such as **www.yyyy.com**
- Ping an external server such as **www.yahoo.com**

If any of these Ping tests fail, it is likely that your NetWare server has no Gateway or DNS Server specified in its configuration, or the subnet settings or BIND statements are incorrect. In a secure network, you may not be able to send packets out to the public Internet, in which case you won't be able to reach external servers such as **www.yahoo.com**.

Gateway Settings: Edit the configuration file `SYS:\ETC\NETINFO.CFG` to verify that your BIND statement for your static TCP/IP address contains the `GATE=xx.xx.xx.xx` statement, where `xx.xx.xx.xx` is the address of your IP gateway machine for the rest of your network or the LAN/WAN router box.

DNS Settings: Without a valid DNS server configuration, your NetWare server software will be unable to talk to other machines by name. To check this setting, edit the file `SYS:\ETC\RESOLV.CFG` and look for the following lines:

```
domain yyyy.com
nameserver yy.yy.yy.yy
```

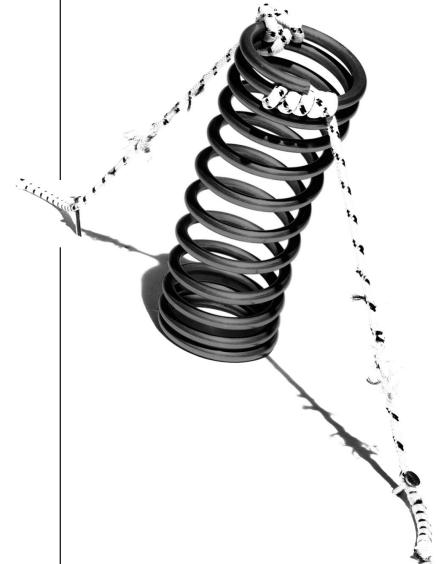
Where `yyyy.com` is your local company DNS domain name (optional) and `yy.yy.yy.yy` is the TCP/IP address of your DNS server. (The DNS server can run any network operating system.)

WinSock 2 Setup: Make sure that you have installed the optional WinSock 2 feature on NetWare 5.0 servers. This feature is required by some of the new WebConsole features. For older NetWare 4.x servers, you can download and install the WinSock 2 NLMs from <http://developer.novell.com/ndk/ws2comp.htm>.

If you have made any TCP/IP configuration changes in performing the above checks, you must now enter the command `REINITIALIZE SYSTEM` on your console to make your new settings active. To confirm that you are now ready to install the WebConsole Master Server, re-run the Ping checks on your server to verify that everything is now working properly.

STEP 3: PREPARE THE MASTER SERVER BY INSTALLING A WEB SERVER

Now that you have designed your installation, you know on which server(s) you will install the WebConsole Master Server. The Master Server is the foundation for managing your network with WebConsole. That's why it is important to install the latest NetWare service pack and compatible Web server configuration before continuing with the WebConsole install process.



HELPFUL DOCUMENTATION

You may want to refer to the *IPX to IP Deployment Guide* at: www.novell.com/products/netware/deployment_solutions

While you're there, you may also want to reference the document "How Novell Deployed DNS and DHCP in its Global Network."

HELPFUL DOCUMENTATION

The WebConsole installation process is fully documented in the PDF-formatted user manual, which you can use for reference. You'll find the document on your WebConsole product CD. You can also find it at: <http://www.patchlink.com/support/documents/WCNWManual.pdf>

Service Pack Requirements: Refer to the following table to see what service pack is required for your target NetWare operating system. Note that this service pack is only required on the Master Server. You can run other versions on the rest of your network if that is appropriate.

NETWARE OS VERSION	MINIMUM SERVICE PACK
Intranet Ware	NW4SP9
NetWare 4.2	NW4SP9
NetWare 5.0	None Required
NetWare 5.1	None Required

NetWare 5.1 Servers: PatchLink recommends that you run at least the Master Server(s) on a NetWare 5.1-based server. You should also install the Novell Enterprise Web Server and NetWare Web Manager on this server, and include correctly configured PKIS security. When you have verified that the Web server is running by accessing it with a Web browser, you can proceed directly to Step 3.

NetWare 4.x and NetWare 5.0 Servers: For other versions of NetWare, you will have to install a Web server. If you are using the IntranetWare product line, you will find a copy of the Novell Web Server 3 on your product installation CDs. NetWare 4.2 comes with the Novonyx Enterprise Server. NetWare 5.0 is bundled with the Novonyx FastTrack Server.

Although any of these Web Servers works with WebConsole, Patchlink recommends that you download and install the version of the Novell Enterprise Web Server that is located at: <http://www.support.novell.com/servlet/filedownload/pub/nesn451a.exe>. Patchlink recommends this version because it is easy to install onto NetWare 4.x and NetWare 5.0 servers. You install

the Novonyx Enterprise Web Server from your Windows workstation. Just double click the install program and follow the instructions. You will need a drive that is mapped to the SYS:\ volume of the target server. When you complete the install, you'll see the Web server run. A Web browser window is launched along with the product documentation.

If you are using older versions of the Novell Web Server or Novonyx FastTrack Server, you may experience problems such as occasional missing images. A list of known problems is included in the WebConsole for NetWare README document.

STEP 4: INSTALL WEBCONSOLE MASTER SERVER

Now that you have prepared your Master Server for WebConsole, you can begin the installation of the WebConsole Master Server software. (The WebConsole Master Server install process typically takes ten to fifteen minutes per server.)

Before you begin installation, make sure that you are mapped to the root of the SYS: volume on the target server, as an administrative user, with sufficient rights to allow you to install the product.

Launch the WebConsole install program. It will prompt you for:

- Serial numbers for the product and snap-in features. By default, the product serial number field contains a 30-day evaluation serial number. If you have permanent serial numbers for the product or snap-ins, you should enter them now. Otherwise, leave the default product serial numbers in place.

You can enter the actual serial numbers later when you purchase the full product suite.

- The type of installation. Select “Master Server” to install WebConsole onto your NetWare-based Master Server. This server must also have a Web server installed as indicated in Step 3.
- Your Web server configuration. Because you are using the Novonyx Enterprise Server, you should choose the “Novonyx/Netscape/Novell Enterprise Server” option.
- The drive upon which you want to install the WebConsole Master Server. You must be mapped to the root of the SYS:\ volume on the target server.

The remainder of the install and configuration process is fully automated. The installation program will copy all the product files to your selected NetWare server and make the appropriate Web server configuration changes.

At the end of the install process, the install program will display the latest README file. The WebConsole Master Server is now ready for use.

Click Start → Programs → PatchLink WebConsole on your Windows start menu to launch your browser, or enter the URL http://<server_name>/netbasic/webcon/ from any browser on your network, where <server name> is the DNS name or IP address of the Master Server.

To log into the server, you will need to specify your NDS user name and password, and possibly your context if your administrator user is not in the bindery context of the Master Server. Note that the default context is the context

in which the server resides within eDirectory. (If you are using a login username that exists in that same context, you do not need to enter a context at this point.)

The first time you use WebConsole, it automatically reconfigures the Web server so that it is ready for use.

To obtain full step-by-step instructions on WebConsole management functions, refer to the online help documentation. You can access the documentation by clicking the Help icon on the far right of the icon menu. To return to the main menu from any sub-menu, click the Main Menu icon on the icon bar.

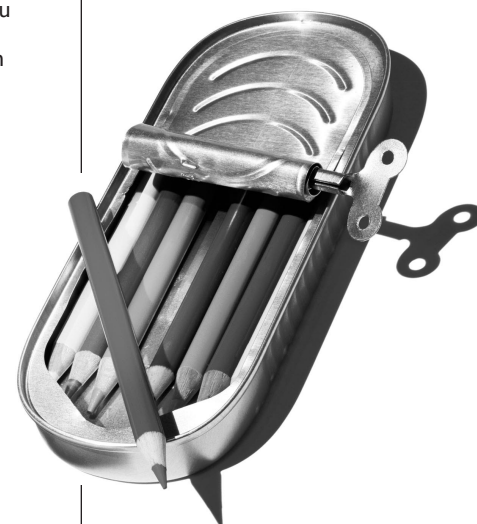
STEP 5: INSTALL WEBCONSOLE REMOTE SERVERS

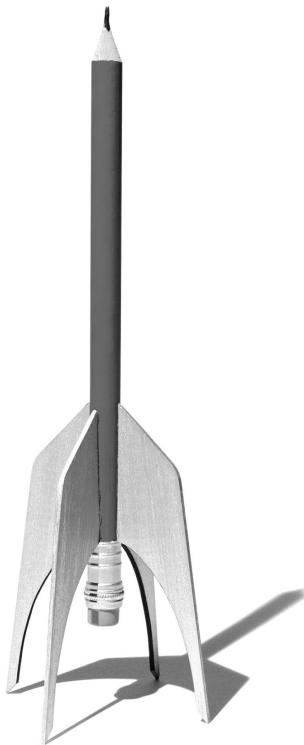
Once your Master Server is installed and running, you can install WebConsole Remote Server on the other servers within the network.

NOTE: If you are conducting an evaluation of WebConsole, PatchLink recommends that you install at least one Remote Server to gain an understanding of the full capabilities of WebConsole. Like the Master Server install process, the Remote Server process takes about 15 minutes per server to complete. Launch the WebConsole install program.

It will prompt you for:

- Serial numbers for the product and snap-in features. By default, the product serial number field contains a 30-day evaluation serial number. If you have permanent serial numbers for the product or snap-ins, you





should enter them now. Otherwise, leave the default product serial numbers in place. You can enter the actual serial numbers later when you purchase the full product suite.

- The type of installation. Select “Remote Server” to install WebConsole onto your target NetWare-based Remote Server.
- The drive upon which you want to install the WebConsole Remote Server. Select the drive that has been mapped to your Remote Server SYS volume. As with the Master Server installation, you must have admin rights on the SYS volume and have an existing mapped drive to the target server to install the product.

Once your Remote Server is installed, you must add the server to the Remote Servers list within the Master Server. Do this by logging into WebConsole on your Master Server. Click on the control panel icon on the main menu. From the control panel area, click “Remote Server” and then click the “Add” button.

To add the Remote Server, enter its name (Host Name) for display purposes and its TCP/IP address (Address), then click the “Add” button to enter this new setting.

NOTE: Do not change the RCGI NLM Info or Path information on this page

To minimize the number of times that you have to restart the Web server, PatchLink recommends that you add all your Remote Servers at the same time. When you are finished, you must restart your Web server to pick up the new settings.

The next time you log into your Master Server, you will be prompted with a list containing your Master Server and all the currently registered Remote Servers. Click the desired server and then log in.

The entire Remote Server interface runs over pure IP using the Novell RCGI layer running on port 8003 on the Remote Server.

NOTE: Your internal company firewalls may block this secondary Web server port. If so, there are two ways to get around the problem:

- (1) Open the RCGI port for traffic through your internal firewall.
- (2) Install a WebConsole Master Server at a second location that you can reach with PORT 443 (https) directly or via a Proxy Server if required by your security infrastructure.

If you need to remove an installation of WebConsole, run the WCREM utility from the system console to remove all the installed files from the server.

STEP 6: SET UP WEBCONSOLE SUITE SNAP-IN FEATURES

Now that you have completed the basic install of WebConsole, you may want to explore the additional functionality enabled by the snap-in features of the product suite. You’ll find information on the snap-ins in the online WebConsole help guide.

Most snap-ins provide Enterprise Wide functionality. As a result, you need to run these modules only on the Master Server.

The remainder of this section provides helpful tips on implementing some of the additional functions provided by the snap-ins.

DSDoctor Snap-In



The DSDoctor snap-in provides comprehensive eDirectory Health Check and repair capabilities. DSDoctor runs in the Master Server and services all servers that have WebConsole Remote Server installed. As a result, you need load the DSDoctor Agent only on the Master Server.

The DSDoctor agent gathers such information as partition synchronization status, abends since last boot and up/down server status from the Remote Servers in the network. It does this by polling each network server to determine whether its view of the eDirectory partitions is consistent with the rest of the network, whether abends have occurred and whether the server is up or down.

If you have multiple Master Servers, you may want to load the DSDoctor agent onto each of those servers to enable you to gather separate status from the machines of different organizations. This approach allows the IT departments in each area to analyze their own segments of the eDirectory tree without interfering with each other or having access to servers outside their span of control.

In addition to gathering status information, DSDoctor can also perform automatic directory repair enterprise-wide. This feature also requires the WebConsole Remote Server to be installed on all servers within the tree.

HelpDesk Snap-In



When you first launch the HelpDesk snap-in, it presents a wizard that walks you through the process of setting up the feature:

- Create the HelpDesk Administrator user account. The HelpDesk Administrator is a machine-generated user who has administrative rights. It is from this account that you make changes to the directory, such as delegating change password rights to non-administrator users.
- Assign features to non-administrator users. You indicate which users are authorized to use which features of the HelpDesk snap-in, such as Reset Account or Change Password. You should identify at least one non-administrator user so that you can test drive this function.
- Indicate which users can resolve trouble tickets. These users are called Support Technicians within the HelpDesk.

When the HelpDesk wizard completes, it will transfer you to the HelpDesk submenu. Here, you should establish the Category, Sub-Category and Status codes for your organization. To do so, click on the Management icon and then the Database icon:

- Click View Cat Codes and enter your categories, for example, "Hardware", "Software" and "Networking".
- Click View Cat Sub-Codes and enter your sub-categories for incidents in each category. For example, the category "Hardware" might

have sub-categories of "PC Workstation", "PC Server", "MAC Workstation", "Router" and "Printer".

- Set priorities codes by clicking View Priorities and entering your management-defined codes such as "High", "Medium" and "Low".
- Click View Status Codes and enter the valid status levels for trouble tickets entered into HelpDesk. Typically these are commonly used status levels such as "Open", "Resolved" and "Closed".

You should implement a strategy to back up the incident data periodically. That's because the database created by the HelpDesk snap-in provides a valuable knowledge base of current and past incidents within your organization.

The HelpDesk database files are BTRIEVE database files and are located in the SYS:\NETBASIC\CONTROL directory. PatchLink recommends that you back up these files to another volume in your network.

ReportConsole Snap-In



ReportConsole generates live-queried reports from your eDirectory on demand. Because the tool runs only when you request a report, it does not impact network performance significantly. You may, however, experience some delay in retrieving information from eDirectory depending upon your current DS configuration.

To optimize reporting capabilities:

- Make sure there is a replica of DS information on the WebConsole Master Server on which you are running the report. This ensures that

eDirectory won't have to go out over the wire to retrieve every piece of information it needs.

- If you are running an older version of NDS, consider upgrading to the eDirectory NDS v8 because it delivers much faster performance than previous versions.
- Check to see if the data on which you are reporting can be indexed by eDirectory so that it can be retrieved more efficiently from the directory data store.

BorderConsole Snap-In



The BorderConsole snap-in is designed for use with the Novell Border Manager server only. The snap-in is a pure-Java applet that is downloaded into your browser as needed. It allows you to manipulate the firewall, cache and proxy parameters of the Border Manager on that server.

NOTE: The BorderConsole snap-in will function properly only when Novell Border Manager is correctly installed and running on your target server.

STEP 7: LOCK DOWN YOUR WEB SERVER (OPTIONAL)

Once your WebConsole environment is running correctly, PatchLink recommends that you lock down access to the Master Server completely, especially if the server will be accessed from outside the corporate firewall such as over the public Internet or insecure company WAN links.

NetWare 5.1 Server

The typical install of NetWare 5.1 includes an install of the Novell Enterprise Web Server, Novell FTP Server and Novell PKI system. The Web server

is pre-configured to run on both Port 80 (HTTP) and Port 443 (HTTPS) with the secure port 443 communication authorized using a certificate issued by the PKIS subsystem.

To lock down the configuration so that only the encrypted port (443) can be used to access the WebConsole Master Server:

- Edit the Master Server's `\novonyx\suitespot\https-xxx\config\magnus.conf` file with the following changes to make the main Web server run securely on the normal HTTP port 80:

Change: Port 80 to Port 443

Change: Security Off to Security On

- Remove the SSL secure virtual server on port 443 by changing `\novonyx\suitespot\https-xxx\config\obj.conf` (as shown below), and commenting out the line following it. This prevents the Web server from starting a virtual server on the same port as the main Web server:

```
Change: NameTrans fn="document-root"  
       address="192.168.1.11"  
       port="443"  
to     #NameTrans fn="document-root"  
       address="192.168.1.11"
```

- Restart your Web server by entering the following commands at the system prompt:

```
NSWEBDN
```

```
NVXWEBUP
```

To protect your server further, remove NetWare Web Manager from your configuration. This prevents anyone from reconfiguring your Web server

configuration without your knowledge. To prevent the Web Manager from loading in the future, remove it from the servers' AUTOEXEC.NCF file:

Change: NSWEB to NVXWEBUP

This inhibits the launching of the NetWare Web Manager when the Novell Enterprise Web Server is launched.

NOTE: If you make this change, you will also need to enter:

```
https:\\<server_name>\netbasic\webcon\
```

in your browser where `<server name>` is your IP address or hostname. This will allow you to access the WebConsole server once it is installed.

PatchLink recommends that you install the Organizational CA certificate for your NetWare server in your Web browser to avoid encountering a challenge on each and every new browser. Remember that to be verified "authentic," the name, address and validity date of the certificate presented by your server must be valid and the issuing Certificate Authority must be trusted by your browser. In all other circumstances you will receive a browser warning every time you visit the secure Website.

NetWare 4.x and NetWare 5.0 Server

The procedures for locking down NetWare 4.x and NetWare 5.0 servers are nearly the same as for the NetWare 5.1 server. The only difference is that the PKIS infrastructure is not installed by default and does not issue a valid



The Novonyx FastTrack and Netscape Enterprise Server Web server products can even be configured with browser certificates as additional tokens to verify the authenticity of the administrator who is connecting in. Refer to the original documentation included with those products.

certificate that can be used in the Web server by default. To obtain a valid certificate, you need to send a certificate-signing request (CSR) to Verisign, Entrust, Thought Inc or any other public Internet trust authority. The procedures for generating a CSR request for Novonyx FastTrack and Netscape Enterprise servers are documented completely in the online documentation for these Web servers.

For additional security consider limiting the TCP addresses that can actually get to the Web server. This can be done within the Netscape Enterprise Server configuration.

NOTE: The NetWare Web Manager is called the "Administration Server" in the older Netscape/Novonyx product offerings.

CONGRATULATIONS. You have just completed the installation of your WebConsole Suite for NetWare. You now have a secure and comprehensive remote management utility that permits you to manage your Novell NetWare servers from anywhere.

Be sure to check out the latest version of WebConsole - WebConsole 5.0 Universal Suite - which manages all your platforms making one Net a reality.

LINKS

Patchlink:	www.patchlink.com
White Paper:	www.patchlink.com/products/it_management_suite/webconsolewp.pdf

ADDITIONAL INFORMATION

For additional information on day-to-day management of Novell NetWare, product features, Q&A, etc. please see the following links:

Product Information:	http://www.novell.com/products/netware/produinfo.html
NetWare Documentation:	http://www.novell.com/documentation/lg/nw51/docui/index.html
Novell Cool Solutions:	http://www.novell.com/coololutions/netware/
Developer Notes:	http://developer.novell.com
App Notes:	http://developer.novell.com/research/index.htm
Customer Support Knowledge Base:	http://support.novell.com/search/help.htm
Novell Developer Kit (NDK):	http://developer.novell.com/ndk/doc.htm
Novell Solution Search:	http://developer.novell.com/nss/
Novell Consulting Services:	http://www.novell.com/consulting/
Novell Consulting Business Solutions Offerings (BSOs):	http://www.novell.com/consulting/bso/
Novell Education	http://www.novell.com/education
Novell Partner Network:	http://www.novell.com/partners/locator.html
NetWare Case Studies:	http://www.novell.com/success/by_product.html

NOVELL OFFICES WORLDWIDE

Novell Corporate Headquarters
1800 South Novell Place
Provo, Utah 84606
USA
Tel: (801) 861 7000
Toll-free: (800) 453 1267

AMERICAS REGION

Novell Canada
3100 Steeles Avenue East
Suite 500
Markham, Ontario L3R 8T3
Canada
Tel: (905) 940 2670
Fax: (905) 940 2688

Novell de Argentina S.A.
Ing. Butty 240, piso 6
Edificio Laminar
(1001) Capital Federal
Argentina
Tel: (54) 11 4 510 2626
Fax: (54) 11 4 510 2656

**Novell do Brasil
Software Limitada**
Avenida das Nações
Unidas, 12.995
8º Andar
04578-000 São Paulo - SP
Brasil
Tel: (55) 11 5505 4040
Fax: (55) 11 5505 4041

Novell Chile
Edificio Nuevo Centro
Providencia
Av. 11 de Septiembre 1881,
Of. 615
Providencia, Santiago
Chile
Tel: (56) 2 3769211
Fax: (56) 2 3769776

Novell de Colombia
Teleport Business Park
Calle 114 No. 9 - 45
Torre B - Of. 709
Santafé de Bogotá
Colombia
Tel: (57) 1 629-2969
Fax: (57) 1 629-3509

Novell de México
Bld. Manuel Avila
Camacho #138-1
Col. Lomas de Chapultepec
Mexico D.F., C.P. 11000
Tel: (52) 5 284 2700
Fax: (52) 5 284 2799

Novell Central America
One East Broward Blvd.
Suite 700
Ft. Lauderdale, FL 33301
USA
Tel: (954) 713 2869
Fax: (954) 356 0409

Novell de Panamá
Calle 53 Marbella,
World Trade Center
Piso 2, Oficina 10
Ciudad de Panamá
Panama
Tel: (507) 206-8714
Fax: (507) 206-8777

Novell del Perú
Pasaje Martir Olaya 129,
Of. 1701, Miraflores
Lima 18
Peru
Tel: (511) 214 1340
Fax: (511) 214 1087

EUROPE, MIDDLE EAST, AFRICA REGION

Novell Austria
Heiligenstädter Lände 27c
1190 Vienna
Austria
Tel: (+43) 1 367 74 44
Fax: (+43) 1 367 74 44 20

Novell Belgium NV
Koningin Astridplein 5,
(3rd floor)
2018 Antwerpen
Belgium
Tel: (32) 3 206 1793
Fax: (32) 3 206 1799

Novell Praha s.r.o.
Praha City Center
Klimentska 46
110 02 Praha 1,
Czech Republic
Tel: (420) 2 2185 66 11
Fax: (420) 2 2185 66 22

Novell Danmark a/s
Slotsmarken 12
DK 2970 Hørsholm
Danmark
Tel: (+45) 45 16 00 20
Fax: (+45) 45 16 00 40

Novell Finland
Lars Sonckin karri 14
02600 Espoo
Finland
Tel: (358) 9 502 951
Fax: (358) 9 502 95 300

Novell France
Tour Framatome
1, place de la Coupole
92084 Paris La Défense cedex
France
Tel: (33) 1 47 96 60 05
Fax: (33) 1 47 78 94 72

Novell Germany
Monschauer Strasse 12
40549 Düsseldorf
Germany
Tel: (49) 211 5631 0
Fax: (49) 211 5631 250

Novell Hungary
East-West Business Center
Rákóczi út 1-3
1088 Budapest
Hungary
Tel: (36) 1 235 7656
Fax: (36) 1 266 6360

Novell Israel
Ackerstein Building
Medinat Hayehudim St 103
Herzliya 46776
Israel
Tel: (972) 99 51 44 55
Fax: (972) 99 51 44 66

Novell Italia
Piazza Don Mapelli 75
20099 Sesto San Giovanni
Milano
Italy
Tel: (39) 02 26295.1
Fax: (39) 02 26295 800

Novell Nederland
Barbizonlaan 25
2908 MB Capelle a/d Usseel
PO Box 85024
3009 MA Rotterdam
The Netherlands
Tel: (31) 10 286 44 44
Fax: (31) 10 286 40 10

Novell Norge AS
Østensjøveien 34
P.O. Box 6555 Etterstad
0606 Oslo
Norway
Tel: +47 23 37 77 70
Fax: +47 23 37 77 71

Novell Polska
ul. Wspólna 47/49
00-684 Warszawa
Poland
Tel: (48) 22 537 5000
Fax: (48) 22 537 5099

Novell Portugal
Centro Empresarial Torres
de Lisboa
Rua Tomás da Fonseca,
Torre G
1600-209 Lisboa
Portugal
Tel: (351) 21 723 06 30
Fax: (351) 21 722 35 33

Novell Russia and CIS
Suite 524, Business Center
Radisson-Slavjanskaya Hotel
2, Berezhkovskaya
Naberezhnaya
121059 Moscow, Russia
Tel: +7 095 941 8075/8073
Fax: +7 095 941 8066

Novell South Africa
Morning View Office Park
214 Rivonia road, morningside
P.O. Box 1840
Rivonia 2128 Johannesburg
Republic of South Africa
Tel: (27) 11 322 8300
Fax: (27) 11 322 8400

Novell Spain, S.A. (Madrid)
Paseo de la Castellana, 95
Planta 27
Edificio Torre
Europa
28046 Madrid
Spain
Tel: (34) 91 555 65 67
Fax: (34) 91 555 29 15

Novell Sweden
Kronborgsgränd 1
164 87 Kista
Sweden
Tel: +46 (8) 477 41 00
Toll-free: +46 (20) 35 30 30
Fax: +46 (8) 477 41 01

Novell (Schweiz) AG
Leutschenbachstrasse 41
8050 Zürich
Switzerland
Tel: (41) 1 308 47 47
Fax: (41) 1 302 04 01

Novell United Kingdom Ltd.
Novell House
1 Arlington Square
Downshire Way Bracknell
Berkshire RG12 1WA
United Kingdom
Tel: +44 (0)1344 724000
Fax: +44 (0)1344 724001

ASIA PACIFIC REGION

Novell Pty Ltd
Level 18, 201 Miller Street
North Sydney NSW 2060
Australia
Tel: +61 2 9925 3000
Fax: +61 2 9922 2113

Novell New Zealand Limited
L12, 44 - 52 Wellesley Street
Auckland 1
New Zealand
Tel: +64 9 308 1400
Fax: +64 9 308 1409

Novell China
Floor 11 Canway Building
No. 66 Nan Li Shi Road
Beijing 100045, China
Tel: (86) 10 68028855
Fax: (86) 10 68028720

Novell Hong Kong
Room 4601-5
China Resources Building
26 Harbour Road
Wanchai
Hong Kong, China
Tel: (852) 2 588 5288
Fax: (852) 2 827 6555

**Onward Novell
Software (I) Ltd.**
62 MIDC, 13th Street
Andheri (East)
Mumbai 400 093
India
Tel: +91 (022) 8342244
Fax: +91 (022) 8342223

Novell Japan Ltd.
Toei Mishuku Bldg.
1-13-1 Mishuku
Setagaya-Ku
Tokyo 154-8561
Japan
Tel: (81) 3 5481 1294
Fax: (81) 3 5481 1934

**Novell Corporation (Malaysia)
Sdn Bhd**
Unit 501, Level 5, Uptown 1
1 Jalan SS21/58
Damansara Uptown
47400 Petaling Jaya
Selangor Darul Ehsan
Malaysia
Tel: (60) 3 7722 6100
Fax: (60) 3 7722 6155

Novell Philippines, Inc.
28th Floor, Tower 2,
The Enterprise Center
6766 Ayala Avenue,
Paseo de Roxas
1226 Makati City, Philippines
Tel: (632) 849 3878
Fax: (632) 849 3861

Novell Singapore Pte Ltd
8 Temasek Boulevard
#32-01/02 Suntec Tower Three
Singapore 038988
Tel: (65) 395 6888
Fax: (65) 395 6777

**Novell Software
(Thailand) Ltd.**
16th Fl., TISCO Tower
48 North Sathorn Rd.
Silom, Bangrak,
Bangkok 10500
Thailand
Tel: (662) 638 0310
Fax: (662) 638 0311

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