

AT-WR4500 Series

How To | Upgrade RouterOS firmware

Introduction

This “How To” guide explains how to upgrade RouterOS firmware on AT-WR4500 Series of Wireless outdoor routers.
 Before upgrading please carefully read AT-WR4500 RouterOS release notes for latest information on firmware features, caveats and warnings.

Which products and software version does it apply to?

This How To note applies to the entire AT-WR4500 series family of Wireless Outdoor Routers that feature RouterOS version 3.

Related Guides and Notes

- You also may find the following documents useful:
- *AT-WR4500 Series RouterOS v3.xx Release Notes*
 - *AT-WR45xx Quick Installation Guide*

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Upgrading through WinBox

Logging into the AT-WR4500 Router

There are many options for accessing your AT-WR4500 Router command facility:

- Accessing the router Command Line Interface either via Telnet or SSH using any text-mode Telnet or SSH client software
- Accessing the Web based Graphical User Interface via HTTP using a Web browser
- Running the MS Windows based WinBox graphical menu based configuration utility.

Every AT-WR4500 Wireless Router is factory configured with the static IP address **192.168.1.1/24** (netmask 255.255.255.0) and both CLI and Web GUI can be accessed through this IP address.

Should the router come with a different IP address or if you do not want to change the IP address of your PC or Workstation then it is possible to access the Router using the discovery facility of the WinBox utility. Since WinBox can open a Layer 2 connection to the equipments, no change to the PC IP address is needed. Please refer to the following section for instructions on how to get and use WinBox.

Downloading WinBox loader

The MS Windows based utility WinBox can be downloaded from the Allied Telesis web site accessing <http://www.alliedtelesis.com/>. Select your country; access the “Software and Documentation” section under the “Service/Support” menu; select “Wireless” in the “Product Category” drop down menu and “AT-WR4561” in the “Product” drop down menu.

Scroll down the page and select the “AT-WR4500 WinBox loader” from the list of available Software.

Accessing the WR4500 through WinBox

Launch the WinBox loader utility that you have just downloaded.

If the equipment to be upgraded is already installed in a network and not directly connected to your PC, just type in the equipment IP address into the “Connect To” field and click on “Connect”. As soon as the WinBox main window shown in Figure 2 will appear jump to next paragraph.

Otherwise, if the equipment has not been yet installed, connect the AT-WR4500 router with a LAN cable to your PC.

Please make sure that the only LAN port enabled on your PC is the one connected to the WR4500 Router. Any other LAN port, either wired or wireless, shall be disabled.

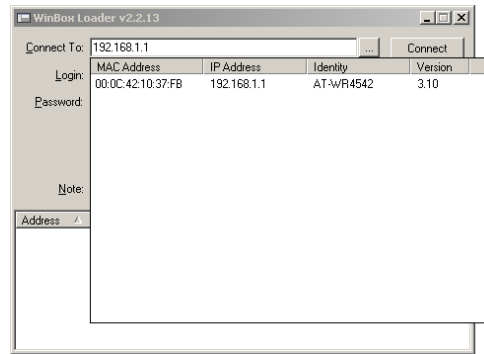


Figure 1: WinBox Loader discovering


When the WinBox loader startup window appears click on the  button placed besides the “Connect To:” field and wait for some seconds. A list of AT-WR4500 connected equipments (at least one) will appear (see Figure 1). Select the one you want to access (clicking on the IP or on the MAC address) for copying the IP or MAC address into the “Connect To” field and then click on the “Connect” button. Every AT-WR4500 router is configured in factory with “admin” as the login user with no password set. The first time that you use it, the WinBox Loader will start downloading the rest of the WinBox application from the WR4500 router. Wait until the entire application has been downloaded (usually about one minute for directly connected equipment on your PC Ethernet port) and the WinBox main window will appear.



Figure 2: WinBox main window

Displaying user files

Select from the menu bar located in the leftmost part of the window the “Files” menu and a window will appear showing user files stored into equipment flash memory. A typical result is shown in Figure 3 or Figure 4.

Upgrading through WinBox

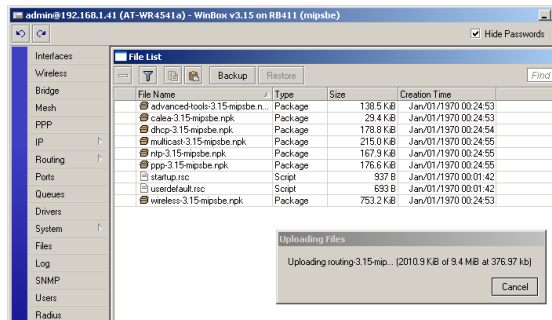


Figure 7: Uploading files to AT-WR4500 Router

Wait until all packages have been transferred to the equipment, make sure that no error message has been displayed and verify that the file list in your local folder matches the list displayed in WinBox.

Please note that file name and size shall match while file creation dates will be different because the copy process will not preserve this attribute.

Optional script upgrade

If you want to upgrade ATI provided “startup.rsc” and “userdefault.rsc” scripts, just repeat the same procedure opening the relevant scripts folder and dragging and dropping the script files into the same WinBox files window.

If you want to save your script files, please copy both to your local disk.

At the end of this process, the WinBox files window should appear like in Figure 8.

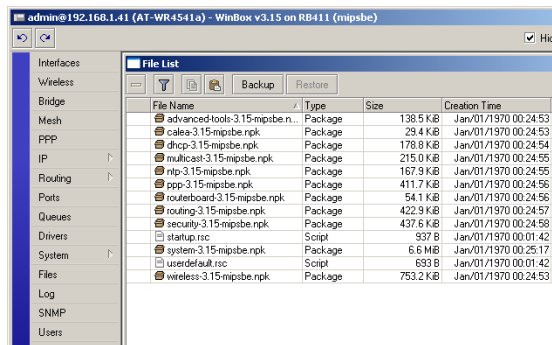


Figure 8: Files ready for upgrade

Starting Upgrade process

Now your router is ready to be actually upgraded.

Please ensure that PoE connection is steady since a power interruption during the upgrade process can damage your equipment's file system requiring a repair action to be made in factory or in ATI repairing labs.

In order to start the upgrade process just reboot the equipment selecting “system” on the left bar and then “reboot”.

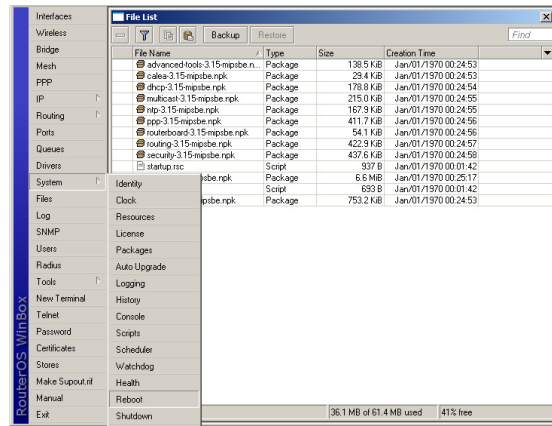



Figure 9: System Reboot

Answer yes to the confirmation request and wait until the equipment fully reboots.

During reboot WinBox will be disconnected. Click on OK and restart WinBox Loader application from your PC disk.

Connecting again to the upgraded equipment

Click again on the  button placed besides the “Connect To:” field and wait until your equipment appears again into the list.

Please DO NOT POWER OFF the equipment for any reason since the upgrade process may take about 2-3 minutes with two reboots and a power interruption may damage your equipment's flash memory requiring a lab repair.

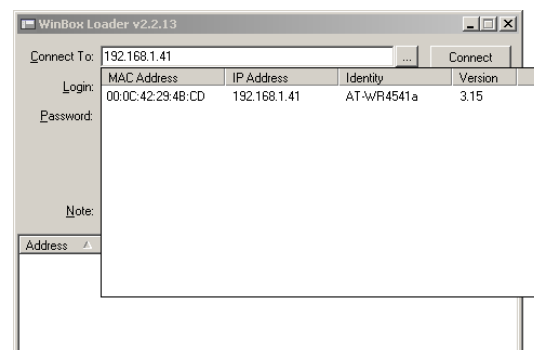


Figure 10: Equipment discovered with new firmware

After upgrade process has been completed the equipment will appear again in WinBox loader showing a new firmware release as shown in Figure 10.

If your PC is not directly connected to the equipment being upgraded, WinBox loader will not discover the equipment and you will have to manually enter the equipment IP address and try to connect until the equipment will be up again.

Select its IP address and click on Connect.

If this is the first time that you connect to an equipment with the new firmware release, WinBox

loader will download the new WinBox application from the equipment. This process may take some minutes depending on the available network bandwidth between your PC and the equipment. Once WinBox has connected to the equipment, click on “files” button and verify that the uploaded packages have been removed from the file list as shown in Figure 11.

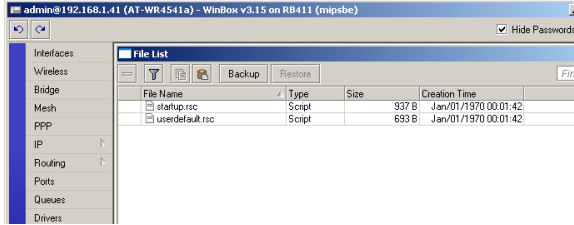


Figure 11: Files window after upgrade

Verify that the equipment has kept the original configuration and disconnect WinBox clicking on “Exit” located in the left bottom corner of WinBox window.

Downgrading to a previous firmware release

RouterOS will make some security checks on firmware packages before actually upgrading in order to limit potential issues. A condition for actually loading the new firmware is that its release number be greater than the installed one.

If you want to install an older firmware version you shall explicitly ask to downgrade. In order to downgrade you shall perform the same procedure already described except that, instead of simply clicking on “System” “Reboot”, you shall open the “packages” window in WinBox (select “System” and “Packages”) and then click on “Downgrade”.

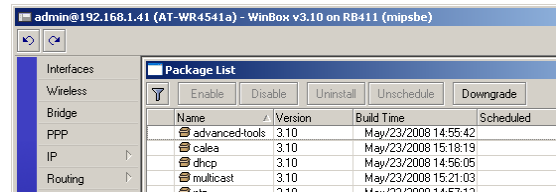


Figure 12: Package List window with Downgrade button

All the remaining process will be the same as upgrading.

Upgrading through Telnet/SSH

Accessing the CLI

When logging into the router via terminal console in telnet or SSH, you will be presented with the RouterOS login prompt. Use 'admin' and no password (hit [Enter]) for logging into the router for the first time.

```
AT-WR4500 3.10
AT-WR4561 Login: admin
Password:
```

Notice that the system id and the command prompt are set to the model name. The password can be changed with the /password command.

```
[admin@AT-WR4561] > password
old password:
new password: *****
retype new password: *****
[admin@AT-WR4561] >
```

After logging into the router you will be presented with the RouterOS™ Welcome Screen and command prompt, for instance:

```

      AA TTTTTTTTTTTTTTTTTT  ooooo
      AAAAA TTTTTTTTTTTTTTTT  oooooooooo
      AAAAAAAAA TTTTTTTT  I  oooooo
      AAAAAAAAAAAA TTTTTT  IIIIIIIIII
      AAAAAA  AAAAA  TTTT  IIIIIIIIII
      AAAAAA  AAAAA  T  IIIIIIIIII
      AT-WR4500 RouterOS 3.10 (c) 1999-2008
      http://www.alliedtelesis.com/

```

```
Terminal xterm detected, using multiline input mode
[admin@AT-WR4561] >
```

The command prompt shows the identity name of the router and the current menu level, for instance:

```
[admin@AT-WR4561] >interface
[admin@AT-WR4561] interface>
[admin@AT-WR4561] >ip address
[admin@AT-WR4561] ip address>
```

Upgrading through Telnet/SSH

The list of available commands at any menu level can be obtained by entering the question mark '?',

```
[admin@AT-WR4561] >?
blink --
certificate -- Certificate management
driver -- Driver management
file -- Local router file storage.
import --
interface -- Interface configuration
ip -- IP options
log -- System logs
password -- Change password
ping -- Send ICMP Echo packets
port -- Serial ports
ppp -- Point to Point Protocol
queue -- Bandwidth management
quit -- Quit console
radius -- Radius client settings
redo -- Redo previously undone action
routing --
setup -- Do basic setup of system
snmp -- SNMP settings
special-login -- Special login users
system --
tool --
undo -- Undo previous action
user -- User management
export -- Print or save an export script that can be
used to restore configuration

[admin@AT-WR4561] >
```

For further and more detailed information and for the full command set, please refer to the AT-WR4500 Series RouterOS manual available online at <http://www.alliedtelesis.com/support/>.

Displaying user files

The “file print” command will display the list of user defined files.

```
[admin@AT-WR4541a] > file print
# NAME          TYPE  SIZE  CREATION-TIME
1 userdefault.rsc script 693  jan/01/1970 00:01:42
2 startup.rsc   script 937  jan/01/1970 00:01:42
[admin@AT-WR4541a] >
```

Transferring new firmware packages and scripts

Create a directory on your local disk (C:\WR4500) and extract from the RouterOS zip file the content of the “pkgs” folder and the script files.

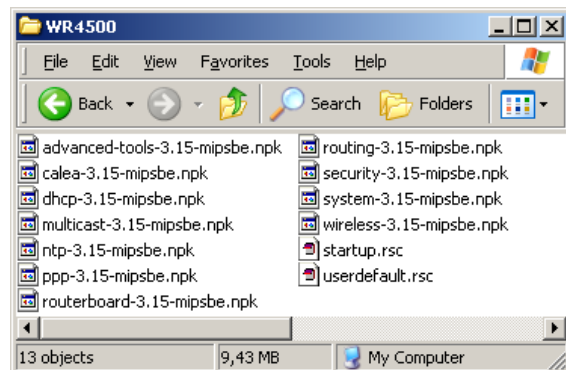


Figure 13: Local folder with packages and scripts to be uploaded

Open an FTP or SSH client application and upload files to the equipment. The following screenshots have been generated with Microsoft FTP client provided with Windows.

First of all launch the ftp client with the equipment IP address, provide username (admin) and password.

```
C:\>ftp 192.168.1.1
Connected to 192.168.1.1.
220 AT-WR4541a FTP server (AT-WR4500 3.10) ready
User (192.168.1.1:(none)): admin
331 Password required for admin
Password:
230 User admin logged in
ftp>
```

List available files

```
ftp> ls
200 PORT command successful
150 Opening data connection
.
..
startup.rsc
userdefault.rsc
226 Transfer complete
ftp: 37 bytes received in 0,00Seconds
37000,00Kbytes/sec.
ftp>
```

Set file transfer type to binary

```
ftp> type binary
200 Type set to I
ftp>
```

Start file transfer from C:\WR4500 to the equipment with mput C:\WR4500*. * command.

The FTP client will ask confirmation for every single item in the C:\WR4500 folder. Answer “n” followed by a Carriage return to the first two requests that refer to C:\WR4500\ and C:\WR4500\.. special reference then answer yes to all the remaining file transfers.

```
ftp> mput C:\WR4500\*. *
mput C:\WR4500\.? n
mput C:\WR4500\..? n
mput C:\WR4500\advanced-tools-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/advanced-tools-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 141361 bytes sent in 0,25Seconds
565,44Kbytes/sec.
mput C:\WR4500\calea-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/calea-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 30019 bytes sent in 0,08Seconds 384,86Kbytes/sec.
mput C:\WR4500\dhcp-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/dhcp-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 182409 bytes sent in 0,30Seconds
614,17Kbytes/sec.
mput C:\WR4500\multicast-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/multicast-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 220338 bytes sent in 0,42Seconds
522,13Kbytes/sec.
mput C:\WR4500\ntp-3.15-mipsbe.npk? y
200 PORT command successful
```

```

150 Opening BINARY mode data connection for
'/ntp-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 171288 bytes sent in 0,28Seconds
609,57Kbytes/sec.
mput C:\WR4500\ppp-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/ppp-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 420994 bytes sent in 0,94Seconds
448,82Kbytes/sec.
mput C:\WR4500\routerboard-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/routerboard-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 56241 bytes sent in 0,09Seconds 598,31Kbytes/sec.
mput C:\WR4500\routing-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/routing-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 432378 bytes sent in 0,97Seconds
446,21Kbytes/sec.
mput C:\WR4500\security-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/security-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 448409 bytes sent in 0,95Seconds
470,52Kbytes/sec.
mput C:\WR4500\startup.rsc? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/startup.rsc'
226 BINARY transfer complete
ftp: 1115 bytes sent in 0,09Seconds 11,86Kbytes/sec.
mput C:\WR4500\system-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/system-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 7015090 bytes sent in 17,94Seconds
391,07Kbytes/sec.
mput C:\WR4500\userdefault.rsc? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/userdefault.rsc'
226 BINARY transfer complete
ftp: 693 bytes sent in 0,09Seconds 7,45Kbytes/sec.
mput C:\WR4500>wireless-3.15-mipsbe.npk? y
200 PORT command successful
150 Opening BINARY mode data connection for
'/wireless-3.15-mipsbe.npk'
226 BINARY transfer complete
ftp: 771357 bytes sent in 1,81Seconds
425,46Kbytes/sec.
ftp>

```

List the transferred files and verify that the list is complete.

```

ftp> ls
.
..
wireless-3.15-mipsbe.npk
system-3.15-mipsbe.npk
security-3.15-mipsbe.npk
routing-3.15-mipsbe.npk
routerboard-3.15-mipsbe.npk
ppp-3.15-mipsbe.npk
ntp-3.15-mipsbe.npk
multicast-3.15-mipsbe.npk
dhcp-3.15-mipsbe.npk
calea-3.15-mipsbe.npk
advanced-tools-3.15-mipsbe.npk
startup.rsc
userdefault.rsc
ftp>

```

Starting Upgrade process

Close the FTP connection and quit the FTP client.

```

ftp> close
221 Closing
ftp> quit

C:\>

```

Go back to the telnet client, force equipment reboot and answer “y” to the confirmation request

```

[admin@AT-WR4541a] > system reboot
Reboot, yes? [y/N]:
y
system will reboot shortly

```

The telnet session will end and the equipment will start the firmware upgrade process rebooting twice.

Connecting again to the upgraded equipment

Start again your telnet client application with the IP address of the upgraded equipment

```

AT-WR4500 v3.15
Login: admin
Password:

```

The command prompt will show the new firmware release. Login as usual entering “admin” as username and the password (by default there is no password set).

```

      AA TTTTTTTTTTTTTTTTTT ooooo
      AAAAA TTTTTTTTTTTTTT  ooooooooo
      AAAAAAAA TTTTTTT  I  oooooo
      AAAAAAAAAAAA TTTTTT  IIIIIIIII
      AAAAAA  AAAAA  TTTT  IIIIIIIIII
      AAAAAA  AAAAA  T  IIIIIIIIII
AT-WR4500 RouterOS 3.15 (c) 1999-2008
http://www.alliedtelesis.com/

```

```
[admin@AT-WR4541a] >
```

Verify that the new firmware version is displayed, then list user files in order to verify that no firmware package has been left behind.

```

[admin@AT-WR4541a] > file print
# NAME          TYPE  SIZE  CREATION-TIME
1 userdefault.rsc  script  693  jan/01/1970 00:01:42
2 startup.rsc    script  937  jan/01/1970 00:01:42
[admin@AT-WR4541a] >

```

Now your equipment has been upgraded. You can verify that the original configuration has not been modified and that your equipment works as expected and then logout with “quit” command.

Support Information

For further and more detailed information and for the full command set, please refer to the AT-WR4500 Series RouterOS manual available online at <http://www.alliedtelesis.com/support/>.

Where to Find Web-based Guides

The installation and user guides for all Allied Telesis products are available in portable document format (PDF) on our web site at <http://www.alliedtelesis.com>. You can view the documents online or download them onto a local workstation or server.

Contacting Allied Telesis

This section provides Allied Telesis contact information for technical support as well as sales and corporate information.

Online Support

You can request technical support online by accessing the Allied Telesis Knowledge Base: <http://www.alliedtelesis.com/kb/>. You can use the Knowledge Base to submit questions to our technical support staff and review answers to previously asked questions.

Email and Telephone Support

For Technical Support via email or telephone, refer to the Support & Services section of the Allied Telesis web site: <http://www.alliedtelesis.com/support/>.

Warranty

For product registration and warranty conditions please visit Allied Telesis website: <http://www.alliedtelesis.com/support/warranty/>

Returning Products

Products for return or repair must first be assigned a return materials authorization (RMA) number. A product sent to Allied Telesis without an RMA number will be returned to the sender at the sender's expense. To obtain an RMA number, contact Allied Telesis Technical Support through our web site: <http://www.alliedtelesis.com/support/>.

Sales or Corporate Information

You can contact Allied Telesis for sales or corporate information through our web site: <http://www.alliedtelesis.com/>. To find the contact information for your country, select Contact Us -> Worldwide Contacts.

Management Software Updates

New releases of software for our managed products are available from either of the following Internet sites:

- Allied Telesis web site: <http://www.alliedtelesis.com/support/software/>
- Allied Telesis FTP server: <ftp://ftp.alliedtelesis.com/>

If you prefer to download new software from the Allied Telesis FTP server from your workstation's command prompt, you will need FTP client software and you must log in to the server. Enter "anonymous" for the user name and your email address for the password.

Tell Us What You Think

If you have any comments or suggestions on how we might improve this or other Allied Telesis documents, please contact us at <http://www.alliedtelesis.com>.

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613-000xxx Rev.A