

Fax Machine Integration Server Installation Guide

AudioCodes MP202

8.6

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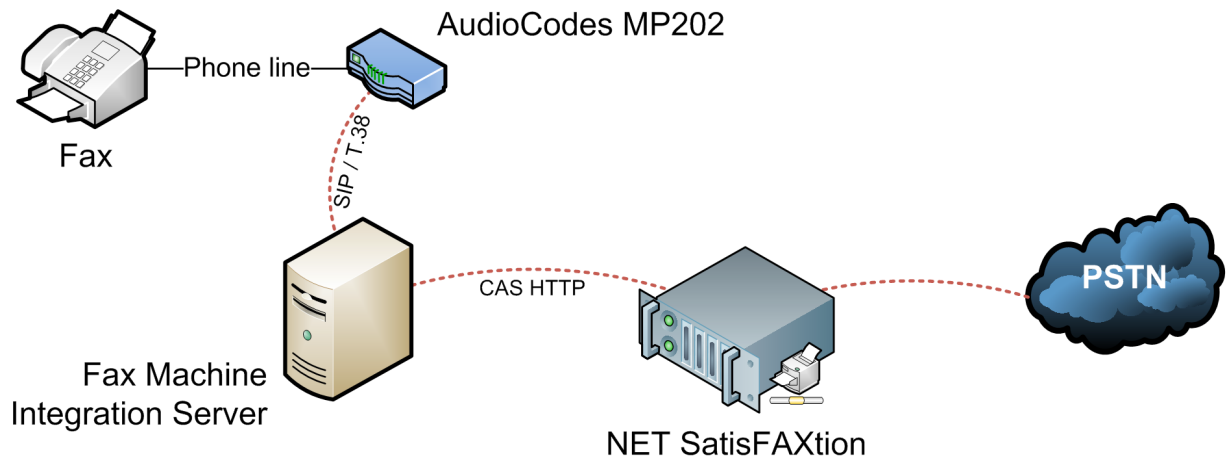
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Overview

The NET SatisFAXtion Fax Machine Integration Server (FMIS) allows an existing traditional fax machine to send and receive faxes via the NET SatisFAXtion server. This allows the fax machine to operate without the need of a dedicated phone line. Instead, the fax machine is connected to an ATA device that converts the call to Voice-over-IP using the SIP and T.38 protocols, which is relayed through the network to the FMIS software that then communicates with the NET SatisFAXtion server.

NET SatisFAXtion – Fax Machine Client



The FMIS operates in a store-and-forward manner. The ATA connects to the FMIS server as if it were another SIP media gateway, and sends the fax via T.38. The FMIS then logs into the NET SatisFAXtion server as the user it's configured for, and submits the fax via HTTP for sending. The NET SatisFAXtion server sends the fax normally, treating the fax just as though it were submitted from another client, and stores the status of the fax in its queue. The FMIS logs in to the NET SatisFAXtion server again, retrieves the status from queue, and faxes that back to the ATA device as a confirmation page.

The FMIS is intended to be installed on a customer's LAN to service one or more ATA devices. The FMIS will use a unique NET SatisFAXtion user account for each fax machine. For outbound faxes, the FMIS software can accommodate any number of ATA devices since it will record the sender's phone number and IP address. For inbound faxes the FMIS can support up to 24 ATAs.

This document only covers configuring the AudioCodes MP202 ATA device. FaxBack recommends using the AudioCodes MP202 with the FMIS but it works with any ATA that supports SIP and T.38. To configure other ATA devices, please refer to the manufacturer's documentation.

System Requirements

The FMIS software must be installed on a machine that will be running whenever the attached fax machine will be used. It is recommended the machine be a server rather than a workstation so that the FMIS service runs at all times. The ATA and the FMIS software should be on the same 100Mbit or Gigabit Ethernet LAN because the T.30 fax protocol is relatively intolerant of latency.

IMPORTANT: The Fax Machine Client cannot run on the NET SatisFAXtion Fax Server since it requires the standard SIP UDP port 5060, as well as an instance of the IP_FAX driver.

32-bit Microsoft Operating System:

- Windows XP Professional SP2 or SP3
- Windows Vista SP1 Home, Business, Enterprise or Ultimate
- Windows Server 2003 SP1 or SP2
- Windows Server 2008

Software Requirements:

- Microsoft Installer 3.1
- Microsoft .NET Framework 2.0 SP1
- Microsoft .NET Framework 3.0 SP1
- Microsoft .NET Framework 3.5 SP1

ATA Requirements:

- Must support SIP and T.38.
- AudioCodes MP202 is recommended.

Before you Begin

This guide assumes you have the NET SatisFAXtion Fax Server installed and functioning properly. If you wish to receive inbound faxes to your fax machines, it also assumes DID collection is functioning properly.

Each fax machine in the network is uniquely identified by a NET SatisFAXtion user account, a DID, an ATA IP address and a physical ATA FXS port. Please print and fill out the Fax Machine Configuration Worksheet found at the end of this document, it will ensure you have all the necessary information readily available.

Here is an explanation of each part of the worksheet, and how you can determine the information.

NET SatisFAXtion Server Domain: This is the internal domain name that uniquely identifies your fax server. Typically this is `\\NETSATISFAXTION\SERVERNAME`, where `SERVERNAME` is the fax server's machine name. Note that this must be in ALL CAPS, lower case or mixed case will not work. If you are unsure what this is, run the Administration program on the fax server. The login dialog will display the Server Domain at the bottom of the window, labeled "Server:"

NET SatisFAXtion URL: This is the HTTP URL by which the FMIS will communicate with the fax server. Enter a domain name or IP address that can be reached from the FMIS machine. You can test this by entering the full URL in a web browser on the FMIS machine. You should see a web page that says "The URL `http://...` is an XML interface that client applications use to access this server."

Number of DID Digits: The number of digits of DID/DNIS you are receiving on inbound calls. This is typically 4, 5 or 10 digits. If you are unsure of the number of digits, please contact your service provider or PBX administrator, depending on how calls are reaching the fax server. The number of digits you configure for the DIDs below will be determined by the number of digits you receive.

Fax Machine Integration Server IP Address: Enter the IP address of the machine you will be installing the FMIS software on.

User Name: The unique user name that you will create and associate with the fax machine.

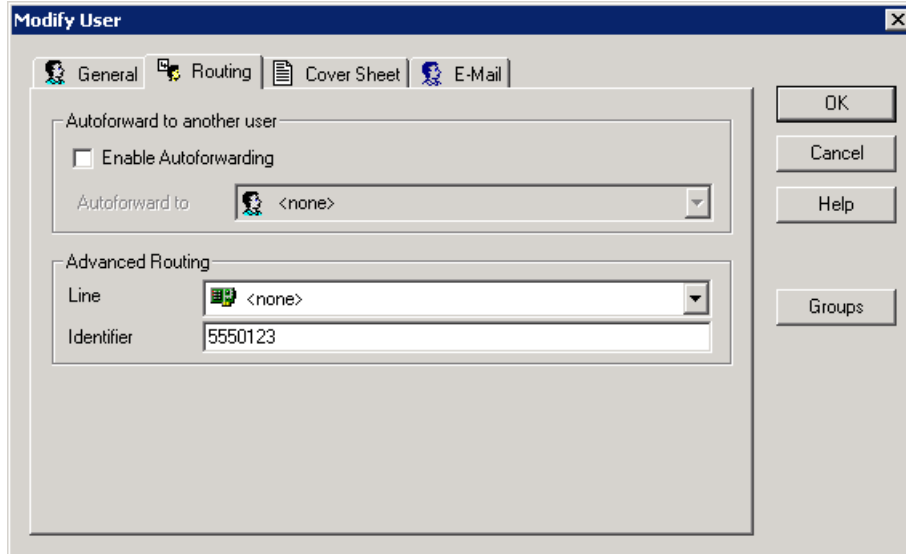
DID: The phone number that will be assigned to the fax machine. Only enter the same number of digits you receive on inbound calls. If you do not need to receive faxes on the fax machines (send only), it is safe to simply invent a number. The range reserved for invented numbers in North America (NANP) is 5550100 – 5550199.

ATA IP Address: The static IP address that will be assigned to the ATA the fax machine will be connected to.

ATA FXS Port: The physical jack the fax machine will be connected to.

Creating the Fax Machine User Accounts

The first step is to create the required user accounts for each fax machine on the NET SatisFAXtion Server. Log in to the Administration program, and create the required users. Assign the User Name from the worksheet to the “User Name” field on the General tab, and the DID from the worksheet to the “Identifier” field on the Routing tab as seen below. It is not required to enter any other information.

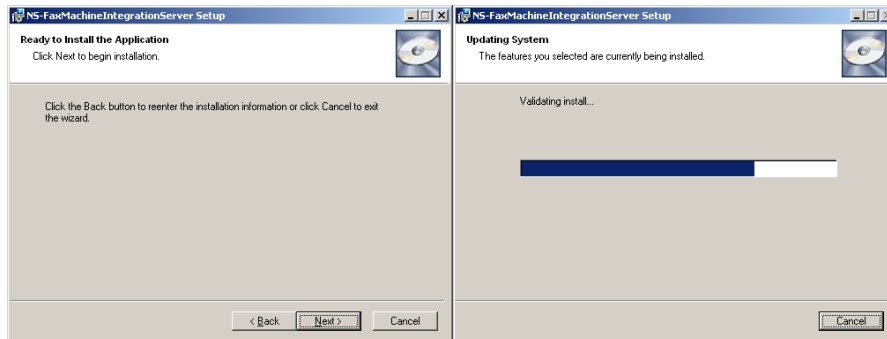
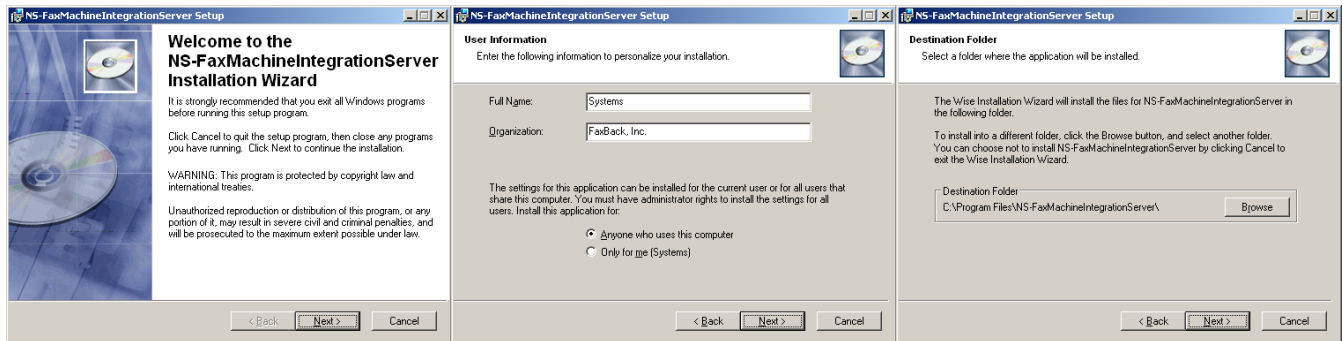


Once all users are created, it is now possible to install the FMIS software on the fax machine server.

Installing the Fax Machine Integration Server

Connect to the server that will host the FMIS software, and run NS-FaxMachineIntegrationServer.msi. Be sure to log in as a user with local Administrative privileges.

The standard MSI install wizard will run:



When the MSI install wizard completes, the FMIS configuration wizard will run. By default it will have three example users, so you can see how they are configured.

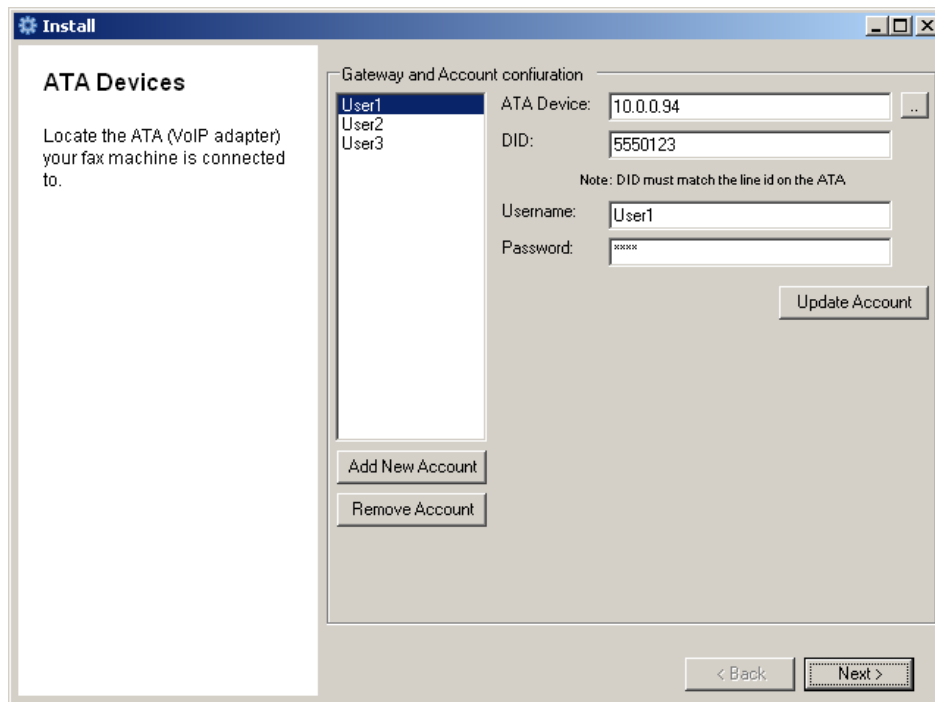
Remove the three accounts using the Remove Account button below the account list.

To add your own accounts, click the “Add New Account”

From the worksheet, assign the ATA IP Address to the “ATA Device” field, assign the DID to the “DID” field, and assign the User Name to the “Username” field. It is not necessary to enter a password unless you configured a password on the NET SatisFAXtion fax server for that account.

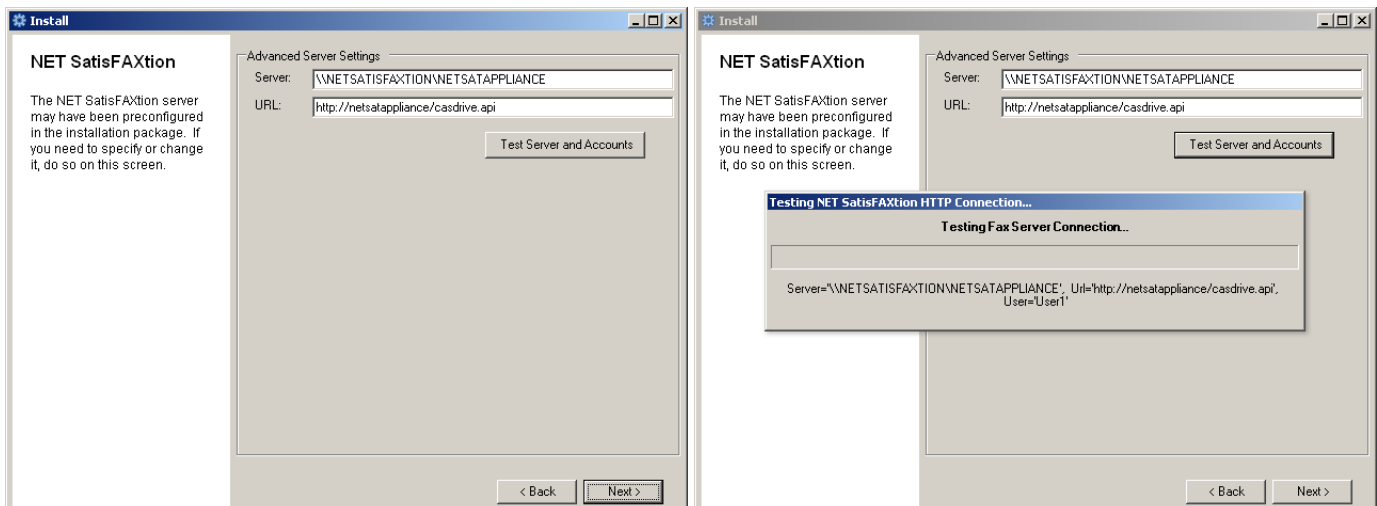
Important! Be sure to click the “Update Account” button or your changes to this account will not be saved.

When you have configured all your accounts, click next.



Enter the NET SatisFAXtion Server Domain from the worksheet in the “Server” field, and the NET SatisFAXtion URL in the “URL” field.

Click the “Test Server and Accounts” button and the FMIS configuration wizard will attempt to contact the NET SatisFAXtion fax server using the first account you created on the previous wizard page. Be sure this test completes successfully before proceeding.



When the test completes successfully, click next.

This page allows you to configure a variety of options.

Print fax success notifications: If you do not want the FMIS to fax back successful fax confirmations, uncheck this box. Either way, notifications of failures will always be faxed back.

Archive received faxes: This allows for local archiving of faxes received by fax machines connected to this FMIS. If you need global archiving of all faxes received by the NET SatisFAXtion server, enable the Export module there.

Archive sent faxes: As above, for faxes sent by connected fax machines.

LogLevel: If you or a support engineer requires debug logging, increase the log level here. Otherwise, leave at the lowest “Error” level, which will only log errors. Other logging levels generate significant amounts of information, and can quickly fill up the hard drive.

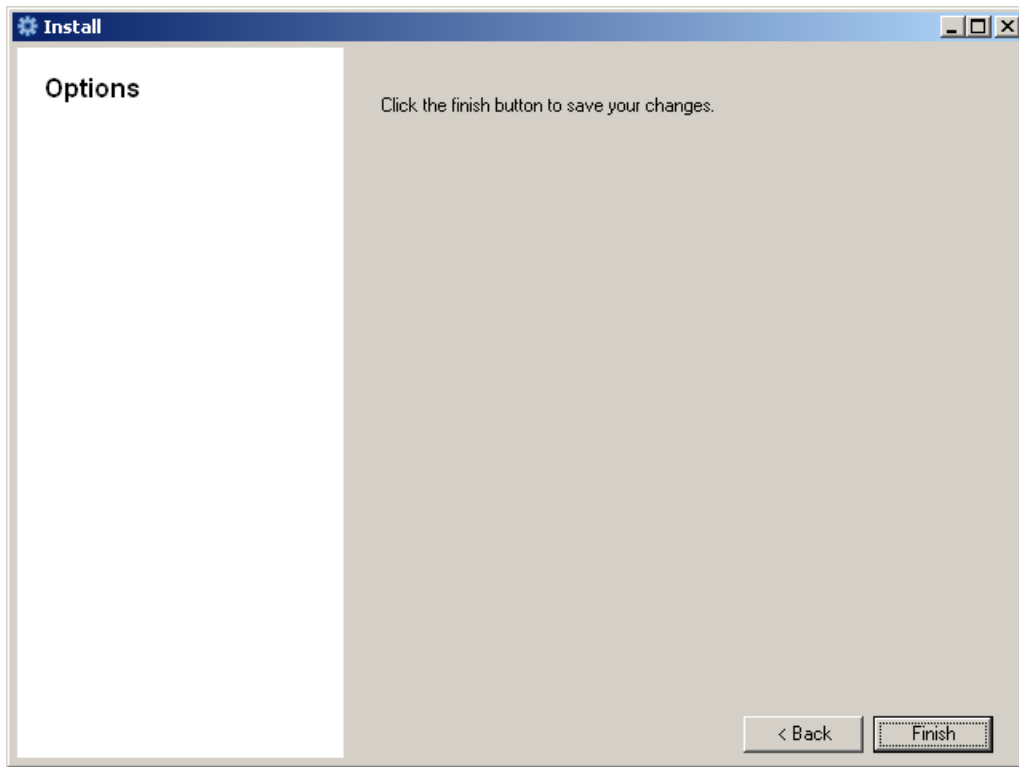
When you have the options configured appropriately, click next.

The screenshot shows the 'Install' window with the following configuration:

- Options:**
 - Print fax success notifications
 - Archive received faxes
 - Archive sent faxes
- Archive Destination Settings:**
 - Received: C:\Archive\
 - Sent: C:\Archive\
- Other:**
 - LogLevel: Error

Navigation buttons: < Back, Next >

The configuration of the FMIS is complete. All that remains is to configure the ATA devices. Click finish.

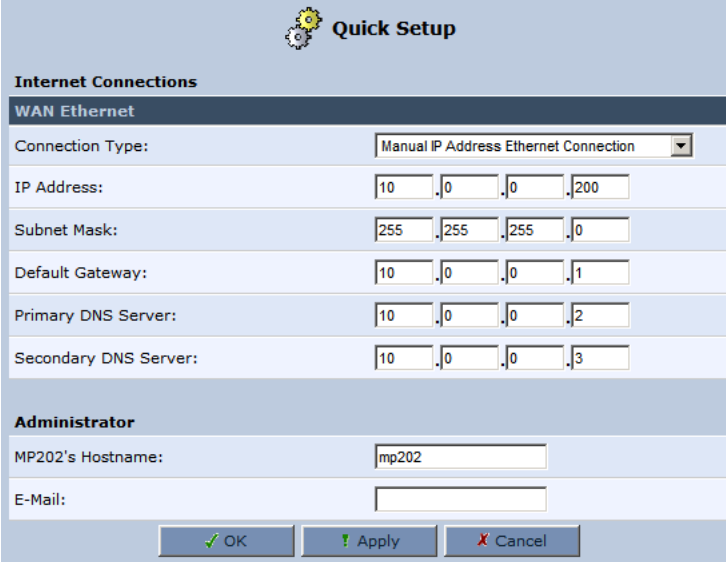


Configuring an AudioCodes MP202

To configure an MP202, you will need a computer whose network interface is configured for DHCP. Also have the latest MP202 firmware file downloaded and available on the computer.

First, connect the computer's Ethernet cable to the MP202's LAN port on the back of the device. Also connect the power. When the computer has received a DHCP lease, open a web browser and go to <http://192.168.2.1/>. The device will prompt for you to configure the default language and to set an initial user name and password. Please note that both the user name and the password are case-sensitive. Record the user name and password you have assigned for later use.

Once you have assigned a user name and password, you will see the Quick Setup page. Change the "Connection Type" to "Manual IP Address Ethernet Connection."



The screenshot shows the "Quick Setup" page for the MP202. It is divided into two main sections: "Internet Connections" and "Administrator".

Internet Connections

WAN Ethernet

Connection Type: Manual IP Address Ethernet Connection

IP Address: 10 . 0 . 0 . 200

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 10 . 0 . 0 . 1

Primary DNS Server: 10 . 0 . 0 . 2

Secondary DNS Server: 10 . 0 . 0 . 3

Administrator

MP202's Hostname: mp202

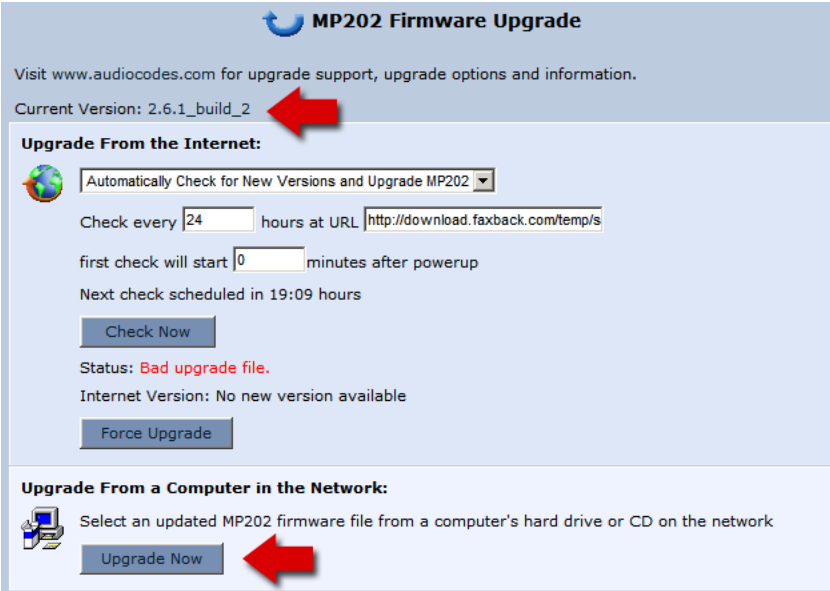
E-Mail: [Empty field]

Buttons: OK, Apply, Cancel

Enter the ATA IP Address from the worksheet into the "IP Address" field, and configure the remaining fields appropriately for the network. When you are done, click OK.

Firmware Upgrade

Click the "Advanced" link on the left side of the page and then click on "MP202 Firmware Upgrade." The current firmware version will be listed near the top of the page. If this is older than 2.6.1_build_2, then a firmware upgrade is necessary. Click "Upgrade Now."



The screenshot shows the "MP202 Firmware Upgrade" page. It includes instructions to visit www.audiocodes.com for support. The current version is listed as 2.6.1_build_2, with a red arrow pointing to it. There are two main upgrade options: "Upgrade From the Internet" and "Upgrade From a Computer in the Network".

Upgrade From the Internet:

Automatically Check for New Versions and Upgrade MP202

Check every 24 hours at URL <http://download.faxback.com/temp/s>

first check will start 0 minutes after powerup

Next check scheduled in 19:09 hours

Check Now

Status: Bad upgrade file.

Internet Version: No new version available

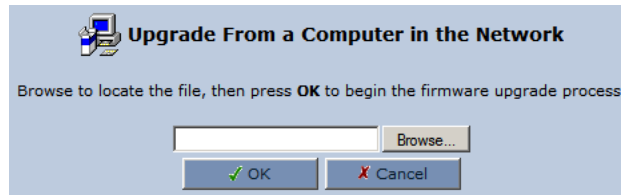
Force Upgrade

Upgrade From a Computer in the Network:

Select an updated MP202 firmware file from a computer's hard drive or CD on the network

Upgrade Now

Click the “Browse” button, and locate the firmware file on the computer. Click OK. Nothing will appear to happen, but the firmware is being uploaded to the MP202. You may see your browser’s progress bar slowly increment. When the upload is complete you will be prompted to confirm the upgrade. Click OK again.



The MP202 will now reboot. This may take up to several minutes, and you may see the computer’s network connection go down.

Configuring Lines and Fax Behavior

Click the “Voice Over IP” link on the left side of the page. On the “Signaling Protocol” tab, check the “Use SIP Proxy” box. From the worksheet, enter the Fax Machine Integration Server IP Address in the “Proxy IP Address or Host Name” field. Uncheck the “Use SIP Proxy IP and Port for Registration” box. Click “Apply”.

A screenshot of the "Voice Over IP" configuration page. At the top, there's a "Voice Over IP" header with a telephone icon. Below it is a navigation bar with tabs: "Signaling Protocol" (selected), "Dialing", "Media Streaming", "Voice and Fax", "Services", "Line Settings", "Speed Dial", and "Telephone Interface". The main content area is titled "Signaling Protocol" and shows "Signaling Protocol: SIP". Below that is the "SIP Proxy and Registrar" section with the following fields:

- Use SIP Proxy
- Proxy IP Address or Host Name: 10.0.0.162
- Proxy Port: 5060
- Maximum Number of Authentication Retries: 4
- Use SIP Proxy IP and Port for Registration
- Sip Security: Allow All SIP traffic (dropdown menu)
- Use SIP Registrar

At the bottom, there are four buttons: "OK" (green checkmark), "Apply" (green exclamation mark), "Cancel" (red X), and "Advanced >>".

Next, on the “Voice and Fax” tab, click the “Advanced” button at the bottom. Set “Fax Transport Mode” to “T.38 Relay”, “Modem Transport Mode” to “Transparent,” and check the “Switch To Fax Only By The Answering Side” box. Click “Apply”.

Voice Over IP

Signaling Protocol | Dialing | Media Streaming | **Voice and Fax** | Services | Line Settings | Speed Dial | Telephone Interface

Gain Control
 Enable Automatic Gain Control

Jitter Buffer
 Minimum Delay (10 to 150 milliseconds): milliseconds
 Optimization Factor (1 to 13):

Silence Compression
 Enable Silence Compression

Echo Cancellation
 Enable Echo Cancellation

Fax and Modem Settings

Fax Transport Mode:

Max Rate:

Max Buffer:

Max Datagram:

Image Data Redundancy Level:

T30 Control Data Redundancy Level:

Fax Relay Jitter Buffer Delay:

Error Correction Mode

Modem Transport Mode:

Fax/Modem Bypass Codec:

Enable CNG Detection

Switch To Fax Only By The Answering Side

OK Apply Cancel Basic <<

Next, on the “Line Settings” tab, you will see a table listing the two ports on the MP202. Under the “Action” column, click the edit icon on the port you want to edit.

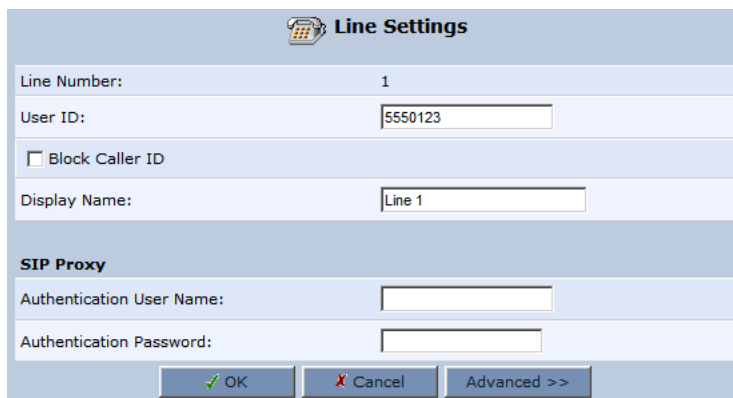
Voice Over IP

Signaling Protocol | Dialing | Media Streaming | Voice and Fax | **Line Settings** | Speed Dial | Telephone Interface

Line	User ID	Display Name	Action
<input checked="" type="checkbox"/> 1	5550123	Line 1	
<input checked="" type="checkbox"/> 2	5550124	Line 2	

OK Apply Cancel

Enter the DID from the worksheet that corresponds to this port in the “User ID” field. Optionally, set the display name (it is useful to set this to the User Name from the worksheet for future reference).



The image shows a 'Line Settings' window with the following fields and options:

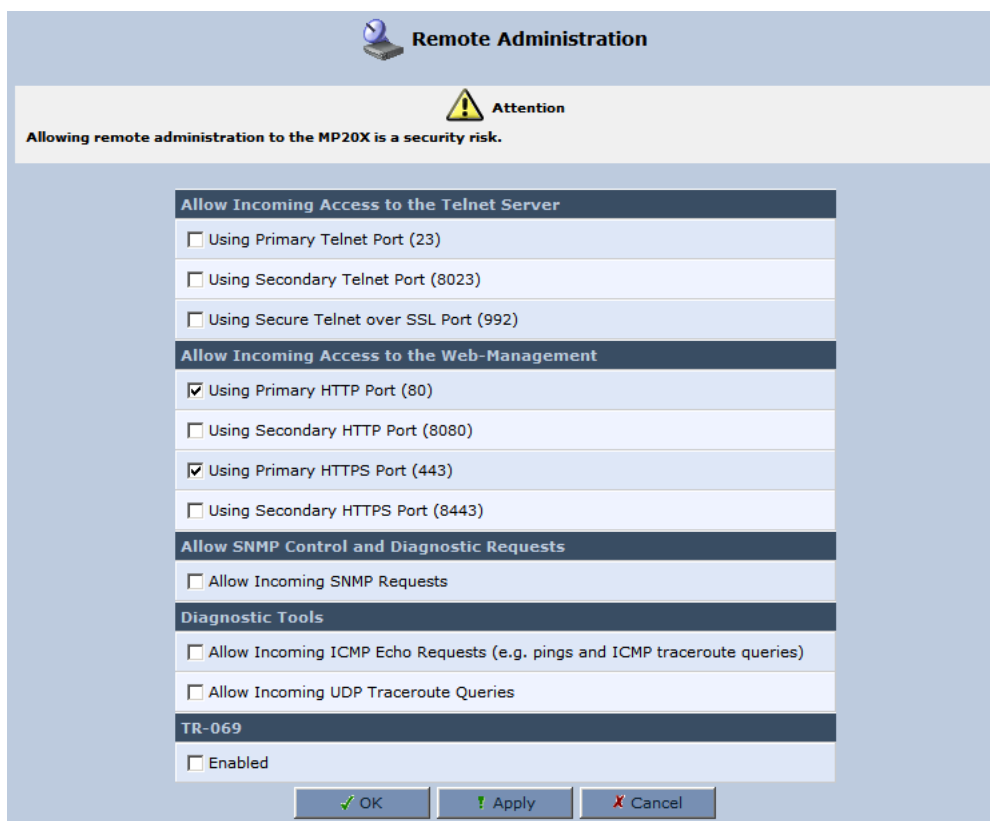
- Line Number: 1
- User ID: 5550123
- Block Caller ID
- Display Name: Line 1
- SIP Proxy**
 - Authentication User Name: [empty field]
 - Authentication Password: [empty field]

Buttons at the bottom:

Click OK. This will take you back to the Line Settings tab, above. Repeat the process to configure the other line, if it will be used.

Enabling Remote Management

By default, the MP202 can only be managed from the LAN port, and most implementations do not have anything attached to the LAN port. To enable WAN port management, click the “Advanced” link on the left side of the page and then click on “Remote Administration.” Under the “Allow Incoming Access to the Web-Management” section, check the “Using Primary HTTP Port (80)” box. Optionally, you can enable “Using Primary HTTPS Port” in addition or instead of the Primary HTTP Port, to enable management via HTTPS.



The image shows a 'Remote Administration' window with the following sections and options:

- Attention**: Allowing remote administration to the MP20X is a security risk.
- Allow Incoming Access to the Telnet Server**
 - Using Primary Telnet Port (23)
 - Using Secondary Telnet Port (8023)
 - Using Secure Telnet over SSL Port (992)
- Allow Incoming Access to the Web-Management**
 - Using Primary HTTP Port (80)
 - Using Secondary HTTP Port (8080)
 - Using Primary HTTPS Port (443)
 - Using Secondary HTTPS Port (8443)
- Allow SNMP Control and Diagnostic Requests**
 - Allow Incoming SNMP Requests
- Diagnostic Tools**
 - Allow Incoming ICMP Echo Requests (e.g. pings and ICMP traceroute queries)
 - Allow Incoming UDP Traceroute Queries
- TR-069**
 - Enabled

Buttons at the bottom:

Click OK. You can now unplug the computer from the LAN port, and plug the normal network into the WAN port. Insure you can connect to the MP202’s web interface via its IP address.

Troubleshooting

In the event the FMIS does not work, the first thing to do is to trace the fax through the system to see at which stage it fails.

Outbound Fax

Link 1: Fax Machine to ATA to FMIS

Connect an analog telephone to the fax machine's port. Is there dial tone? **No dial tone:** The ATA is not powered on. If you hear dial tone, then this link is working.

Link 2: ATA to FMIS

With the analog telephone still attached, dial a number. Does it ring and answer? **No answer:** The ATA's "Proxy IP Address" is incorrect or the FMIS service is not running.

If you are able to dial a number, if it is answered and you hear fax tones then this link is working. Disconnect the telephone and plug the fax machine back in.

Link 3: FMIS to NET SatisFAXtion

On the FMIS machine, run the "Fax Administration" console (you can find it in the Start menu). This will show the activity and queues of the FMIS. With the Port Activity view open (View menu > Port Activity), send a fax from the fax machine. You will see a port change to "Answering". This will likely be the bottom-most port in the view; you may need to scroll down to see it. When the fax is received from the fax machine, you will see it briefly in the Received Queue (View menu > Received Queue).

Fax remains in Received Queue: The FMIS workflow is not running. Run the "Workflow Designer" (you can find it in the Start menu). Expand the nodes to the left, until you see the FaxMachineIntegrationServer workflow. If there is a green arrow over its icon, then the workflow is running. If not, then that is the problem. Right click on the workflow and confirm "Autorun" is checked (if not, check it). Click "Start Workflow". If the workflow stops again, check the FMIS logs for more details.

Fax remains in Received Queue but workflow is running: If the FMIS software cannot communicate with the NET SatisFAXtion server, then the fax will remain in the Received Queue. In the "Workflow Designer" right-click the FaxMachineIntegrationServer workflow, and choose "Configure Workflow." Go to the NET SatisFAXtion tab and verify the server and URL are correct. Click "Test Server and Accounts" to test communication and verify the accounts exist.

Link 4: NET SatisFAXtion and beyond

At this point, you should see the fax in the NET SatisFAXtion queue, either in the Scheduled queue or the Active queue. Confirm that the fax is sent successfully (NET SatisFAXtion's Reports tool is useful for this), and that it does not remain in the Outbox. From there, the fax is returned to the ATA as a notification (if delivery notifications are enabled), much like an inbound fax. Refer to inbound fax below for following the notification back to the ATA.

Inbound Fax

Link 1: NET SatisFAXtion to FMIS

When a fax is received by NET SatisFAXtion, it is placed in the Inbox briefly until the FMIS workflow picks it up from there.

Fax remains in Inbox: Either the FMIS workflow isn't running, it cannot connect to the fax server, or it is not configured to check the account the fax was routed to.

In the NET SatisFAXtion Inbox, verify the user name in the "User" column matches a user that is configured on the FMIS. Also verify the DID string matches exactly with how it is configured on the FMIS.

On the FMIS machine, run the "Workflow Designer" (you can find it in the Start menu). Expand the nodes to the left, until you see the FaxMachineIntegrationServer workflow. If there is a green arrow over its icon, then the workflow is running. If not, then that is the problem. Right click on the workflow and confirm "Autorun" is checked (if not, check it). Click "Start Workflow". If the workflow stops again, check the FMIS logs for more details.

Right-click the FaxMachineIntegrationServer workflow, and choose "Configure Workflow." Go to the NET SatisFAXtion tab and verify the server and URL are correct. Click "Test Server and Accounts" to test communication and verify the accounts exist.

Link 2: FMIS to ATA

On the FMIS machine, run the "Fax Administration" console (you can find it in the Start menu). This will show the activity and queues of the FMIS. With the Port Activity view open (View menu > Port Activity), send a fax to the fax machine. You will see a port change to "Dialing". This will likely be the bottom-most port in the view; you may need to scroll down to see it. If you do not hear the fax machine ringing, or the fax goes directly to the Sent Queue with an error, then the ATA may have the line's DID misconfigured, or the fax machine isn't plugged in.

Fax Machine Configuration Worksheet

NET SatisFAXtion Server Domain: \\NETSATISFAXTION_____

NET SatisFAXtion URL: http://_____/casdrive.api

Number of DID Digits: _____

Fax Machine Integration Server IP Address: _____. _____. _____. _____

	User Name	DID	ATA IP Address	ATA FXS Port
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				