



56K Microcom Modem FAQs

Are all the modulations supported in the V.34 modems also supported in the 56K modems?

No, the currently released modem firmware does not support V.FC. V.FC support will be provided in the next firmware version (Version 3.2.x scheduled for December 1997).

Does the old firmware (versions 1.0.40, 2.1.9, and 2.2.8) work on the new 56K hardware?

No, only version 3.x.x firmware works on the new 56K 12-port modem modules.

Is the new 56K modem code downloaded in the same way as the previous V.34 modem code?

No, changes have been made to the download process, and the process varies with the Cisco IOS release level.

For a Cisco AS5200 running Cisco IOS Release 11.2(9)P and lower, you need to download two code files (one for the modem controller firmware and one for the DSP controller software). The firmware is stored in the modem Flash memory, and the DSP software is stored in modem RAM. Using the standard copy command, you download the DSP software first to the boot Flash memory, and then to the modems. Note that the DSP download is a two-step process. For more information about how the modem code is downloaded in the Cisco AS5200, see the section "Downloading 56K Modem Firmware and DSP Software" in the *Installing 56K 12-Port Modules in Cisco AS5200 Universal Access Servers* publication.

Note that for Cisco AS5200 running the Cisco IOS releases 11.2.(10)P, 11.3(2)T, or later, the firmware will be bundled with the Cisco IOS software.

Note When Cisco IOS Release 11.2(10)P is available for the Cisco AS5200, the access server will use a single-file format for both the DSP software and the modem firmware. A single-file download is currently used by the Cisco AS5300 and is described next.

Corporate Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA

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For the Cisco AS5300, which runs Cisco IOS Release 11.2(9)XA, 11.2(10)P, or higher, the 56K 12-port module uses two modem code images (modem firmware and DSP software) in a single-file format. Modem code also resides on the Cisco AS5300: one version is bundled with Cisco IOS software, and other versions can exist in system Flash memory. After power on, Cisco IOS software uses its bundled modem code file or the existing modem code file in system Flash memory to automatically update the DSP software on each Microcom modem. For more information about how the modem code is downloaded in the Cisco AS5300, see the section “Modem Code” in the *Installing 56K 12-Port Modem Modules in Cisco AS5300 Universal Access Servers* publication.

Why do we need two image files to get K56flex modulation speeds?

The Rockwell DSP chip includes all the previously supported modulations, except V.FC, in DSP ROM code. This means that if only the firmware is downloaded, the modem will only work up to and including V.34 at 33.6Kbps. The second image is needed to support K56flex modulation and will soon also be required to support V.FC.

Although these two images are currently stored as separate files for Cisco AS5200 Access Servers, they are stored as a single, combined file for Cisco AS5300 Access Servers.

Future Cisco IOS releases for the Cisco AS5200, namely (11.2(10)P), will support a single modem code file so customers can easily ensure that only compatible firmware and DSP software are downloaded to each modem.

For the Cisco AS5300, Cisco IOS Release 11.2.(9).XA already supports a single-file format. Refer to the *Installing 56K 12-Port Modem Modules in Cisco AS5300 Universal Access Servers* publication for details.

Which releases can be used with the new 56K modems?

Currently only 11.2(8)P or later releases fully support K56flex and can be used with the new hardware. Version 11.1(14)AA can also support the 56K hardware, but only up to V.34 (33.6 Kbps) modulations speeds since it will be running the DSP ROM code.

Also, note that Cisco IOS Release 11.2(9)XA, 11.2(10)P, and 11.3(2)T will support single-file formatted modem code.

Do you plan to support the 3Com/USR X2 protocol?

No.

Do you plan to support the ITU 56k standard when it is released? Will it run on the same hardware?

Yes. The current 56k hardware is designed to support the ITU 56k modem standard when ratified.

Why can't I make K56flex calls when I first plug in a 56K modem?

For Cisco AS5200 access servers, this could be because the DSP code has not been downloaded to the modems. When upgrading the existing system from V.34 to 56K modems, the DSP code must be downloaded to boot flash and then to the modem as described in the *Installing 56K 12-Port Modules in Cisco AS5200 Universal Access Servers* publication before K56flex connections are possible.

With the new Cisco IOS code for the AS5200 (that is, Cisco IOS Release 11.2(10)P), the Cisco IOS software will automatically detect a 56K modem and if the DSP is not downloaded. The Cisco IOS will then download the firmware and DSP software directly from the Cisco IOS embedded default. Details about this process are provided in the AS5300 documentation (see the section “Modem Code” in the *Installing 56K 12-Port Modem Modules in Cisco AS5300 Universal Access Servers* publication).

Also, if you are using autoconfig, make sure that none of the V.34 specific AT commands are interfering with K56flex operation. See the *AT Command Set and Register Summary for V.34 and 56K 12-Port Modules* publication for details.

Can I actually get 56 Kbps connections with this new technology?

The ability to get K56flex connections depends on a number of factors, including:

- Only one analog loop (line) is allowed in the call path in order to achieve a K56flex connection at any speed.
- Assuming the line is clean enough to get a K56flex connection, which is more likely than a 33.6K V.34 connection, the actual speed varies depending on line conditions.
- The WAN connection used to connect the router to the PSTN (PRI or CT1/E1) and the type of client modem used.
- The call cannot cross international borders that results in a -law to A-law conversion or vice versa.
- Due to FCC limitations, speeds in the United States are less than 56 Kbps.

See the section “%Ln (Speed Matching)” in the *AT Command Set and Register Summary for V.34 and 56K 12-Port Modules* publication for details.

Why can't I connect at the maximum speed?

Connecting at top speed connections can be inhibited by the following:

- **Impairments on the calling user's local loop.** This is the most common problem in the United States since only 5% of the local loops in the United States are capable of making maximum speed connections. Other problems include long wire runs to the central office, old wires, interference from electrical appliances, crosstalk on the residential or local loop wiring, or the use of line multiplexing gear.
- **Impairments in the transmission network.** Problems include robbed-bit trunks, old phone switches, aging or misconfigured gear in the telco network, voice compressors, a-law to u-law conversion (needed for most international calls), and trunks with timing problems.
- **Impairments at the terminating telephone switch.** Problems include improper switch settings, incorrect attenuation levels, and trunk timing problems.
- **Bugs in the modem software.** Make sure the calling modem has the latest software from its vendor as the standards evolve. Contact your modem vendor or visit <http://www.k56flex.com> for upgrade information on K56 modems.

Correcting these problems can get complicated and frequently requires the assistance of a trained telco professional. The conditions can sometimes be improved with the cooperation from the telephone.

Will the reload or power-up behavior of the router be the same with the new 56K modem hardware?

Apart from seeing the modem DSP code downloaded automatically from the router flash memory, all other behavior is the same.

Can a server K56flex modem call another K56flex server?

No, only client and server K56flex modems can interact. (Both Rockwell and Lucent are debating the possibility of K56flex to K56flex calls.) Client-client and server-server connections will use V.34 modulation speeds. See the section “%Ln (Speed Matching)” in the *AT Command Set and Register Summary for V.34 and 56K 12-Port Modules* publication for details.

Note that if the line is PRI, the servers can call each other using ISDN at 65 Kbps.

Is it possible to differentiate between Microcom and MICA modems?

Yes, the Cisco IOS code can check the cookie for the modems modules and display the modem type in the output of **show modem version** or **show modem s/p** commands. The Cisco IOS code behaves differently based on this information when appropriate (for example, during firmware or portware downloads).

Which client modems support K56flex modulations?

A large number of client modems support K56flex modulations. For a current list, please see <http://www.k56.com/modems.html>.

Are all the digital pad settings on the teleco switches supported?

Rockwell modems (K56PLUS and K56flex) support 0, 3, and 6 dB Trunk-to-Line (towards the client) digital pads. Lucent modems can detect and handle 0, 1, 3, 4, 5, 6, and 7 dB digital pads.