Rose technical support

Serial device support in the UltraMatrix

What is it ?
The serial emulation feature on the UltraMatrix multi-platform products allows you to connect the standard keyboard, mouse, and VGA on the switch to an RS232 serial device such as a serial port on a Unix or Sun computer, a communication device, or any device with a serial port. The serial device is connected to the UltraMatrix DB25 computer port with a serial cable. No changes are made to the KVM side of the switch. The switch is configured for any port to be a serial port with the desired baud rate. When you switch to that port you are connected to the serial port and can access it as you normally would.

How does it work ?
Well, it's pretty cool. The UltraMatrix multi-platform units have always had serial communication chips present on each computer port, so its no problem for the switch to transmit to and receive from serial devices. On the KVM side the UltraMatrix OSD (on-screen-display) is so powerful that it is actually a complete color terminal. We have modified its firmware to implement VT100 emulation, scrolling, a hardware cursor, cursor controls, and other necessary elements to convert and format serial data to color VGA signals. In the other direction the PS/2 or Sun keyboard signals are converted to serial data and transmitted back to the serial device.

What products is it available on ?
This new feature is only available on UltraMatrix multi-platform products. This includes the entire UltraMatrix X-series and part of the UltraMatrix E-series. The feature will not work on E-series products whose part numbers begin with EP2- or EP4-. These are PC only switches and lack the serial communication chips on each computer port. The feature works great on multi-platform E-series products, whose part numbers begin with EE2- and EE4-.

Can I upgrade my current UltraMatrix switch to support this feature ?
Yes, if it is a multi-platform version, but you must follow the these two conditions:

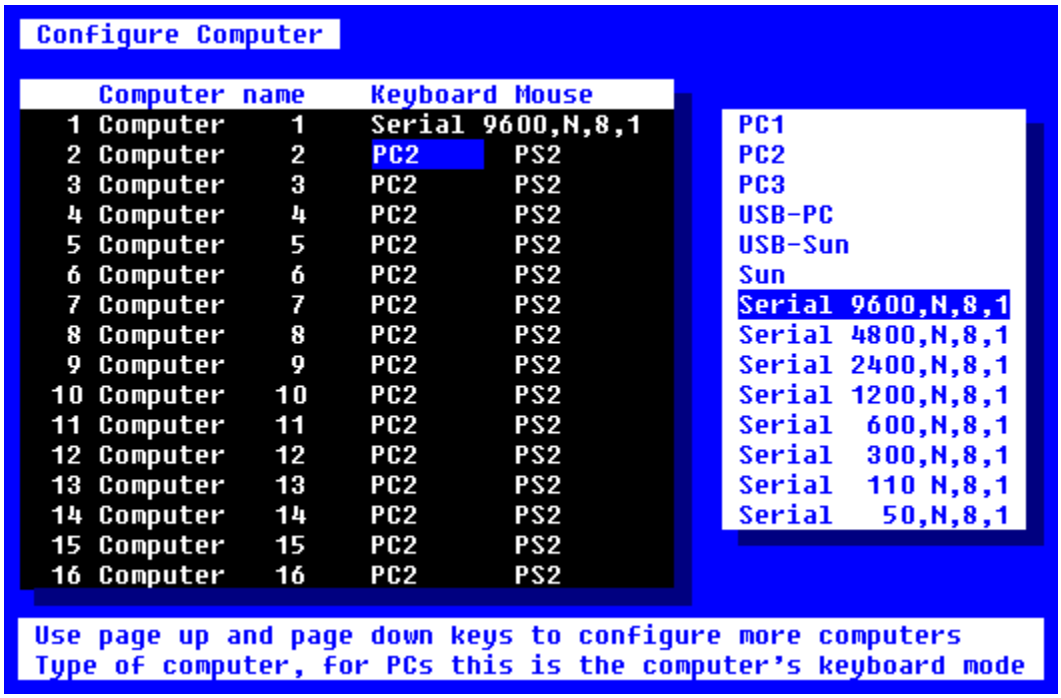
- **The correct revision of OSD (on-screen-display) chips, revision 5.0 or greater must be installed.**
  The chips are not flash upgradeable and they must be physically replaced if you have a lower revision. The chips are socketed so it can be done in the field.
- **The correct kernel and program switch firmware must be installed**. This firmware is free and is available from the UltraMatrix firmware download page. You must upgrade both the program and the kernel. The initial release of code is MXP21A.HEX for the program and MXK19C.HEX for the kernel, but always use the latest firmware.

If you have an old set of OSD chips, the feature will not work and you will get a connection message of *OSD 5.x required* in the connection status. The part number is ICK-O52 and this includes two chips with part numbers ICE-89C51/O52 and ICE-1441/A22. This only needs to be done for each KVM port that will be accessing a serial device.

Tell me more about the cabling.
We list the most common cables below. If you need to connect to a device not listed, please contact us. We are a full service manufacturer and very knowledgeable about serial devices, so we can build a cable to match any device you have. Due to the confusing nature of serial devices, we don't recommend that you build your own cable.

Rose part number	Serial device	Connector on cable
CAB-USDTD9FC	PC DB9 or compatible	DB9F
CAB-USDTD25FC	PC DB25 or compatible	DB9F
CAB-USDCD9MC	Modem DB9 or compatible	DB9M
CAB-USDCD25MC	Modem DB25 or compatible	DB25F
CAB-USSNMD8MC	Old Sun serial port	MD8M

Tell me how to configure the UltraMatrix.
It's pretty easy. Go to the Configure Computer page which you reach by keying in Ctrl-F12-down-enter. Use the arrow keys to go to the keyboard field of the computer you want to configure and hit enter. The computer keyboard type selection box pops up. Use the arrow keys and enter to select serial with the baud rate desired. In the example below computer 1 has already been set to serial 9600 baud. The example shows the keyboard selection box popped up with serial 9600 baud about to be entered. The baud rate choices are 9600, 4800, 2400, 1200, 600, 300, 110, and 50. At this time only no parity, 8 bits, 1 stop is available.



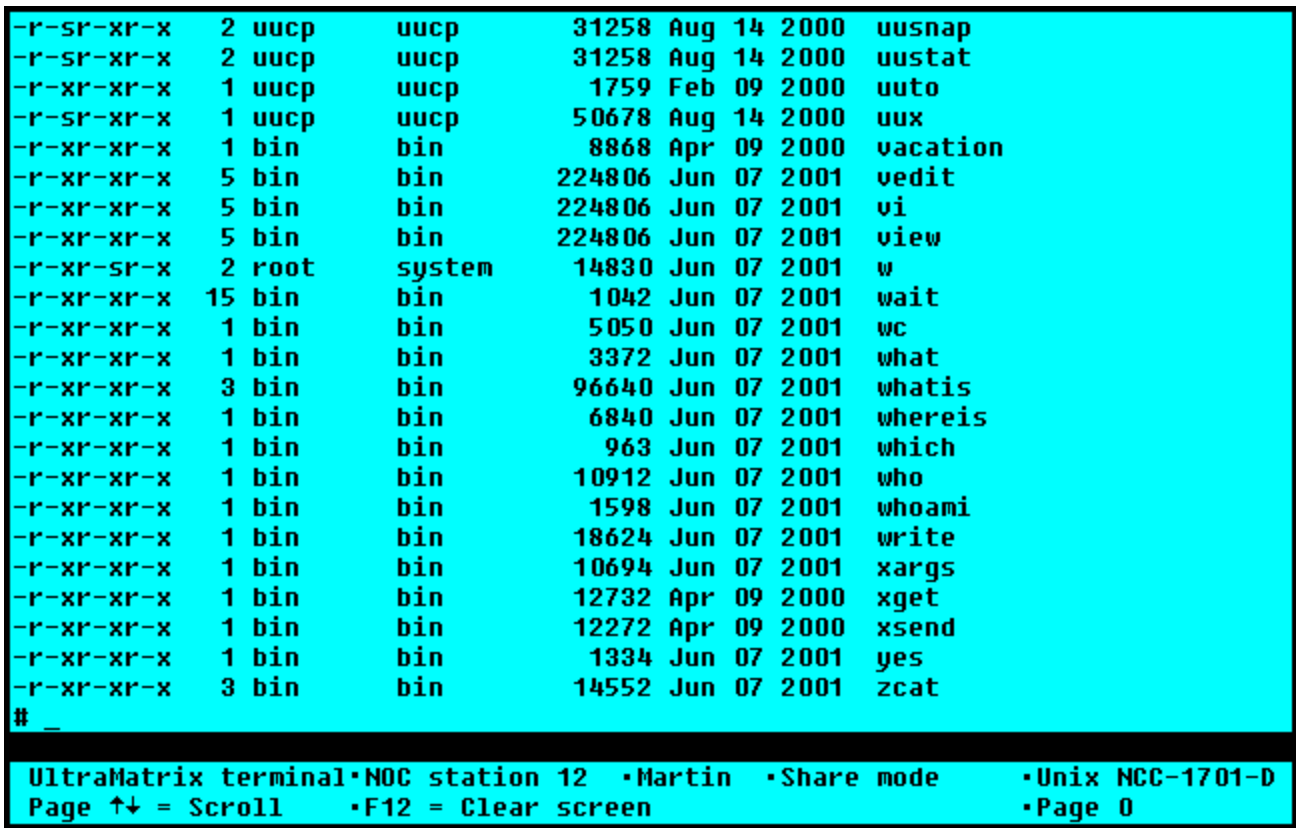
What type of features does it have ?
It implements the industry standard VT100 terminal emulation. You can also use it in standard TTY mode and it will automatically scroll incoming data. The example below shows a typical screen from a Unix computer. The serial data from the computer is shown in the standard 24x80 area. Below the data are two status lines. The first line shows the current KVM station name (NOC station 12), user name (Martin) , connect mode (Share mode), and

computer name (Unix NCC-1701-D) that are currently in use. These fields all come from the UltraMatrix current state.

The original OSD hardware upgrade was version 51. The latest is version 52. The table below shows the differences.

Feature	**Revision 51**	**Revision 52**
Serial break	Yes*	Yes*
ISO8859-1 characters	Yes*	Yes*
Clear screen	Yes	Yes
Clear buffer	Yes*	Yes*
Two line status	Yes	Yes
Scroll buffer	8-page/2-color	4-page/8-color
Reverse video	No	Yes
VI support	Limited	Full
VT102 commands	No	Insert/delete line insert/delete character
VT220 commands	No	F5-F12 keys
Ansi color	No	Yes
Tabs	No	Yes
Serial break	Yes*	Yes*
* Requires firmware revision MXP22 or later		

Also implemented is a four or eight page scroll buffer. View up the previous data using the page up and down keys as shown in the second status line. Use the F12 key to clear the screen. The current page to which you are scrolled is shown at the right of the second status line. The two-color screen is programmable as configured from the background and text fields on the Configure System page.



Why do I get a rapidly changing screen when I switch to a serial port ?
The first time you connect to a serial port with no data in the buffer you will get a blank screen with the cursor in the upper left hand corner. As you interact with the computer the screen fills up with data. This data is stored in the UltraMatrix in a buffer for each computer port. When you disconnect and later reconnect to this serial port, the data that is in the buffer is sent to the KVM station. So you will see a replay of the data as it is loaded from the buffer to the KVM station.

Is hardware handshaking supported ?
Not at this time, but we may decide to implement it in the future.

Can I connect the KVM on a PC platform switch to the serial device on a multi-platform switch ?
Yes, you can. The requirement for serial port connectivity is that the switch to which the serial device is attached must be multi-platform. The switch that is attached to the KVM station must have the correct switch firmware and OSD firmware but doesn't have to be multi-platform.