

BMXdigital Server

The BMXdigital Server is part of the Session module. It's a single-board computer with a FLASH solid state disk system to store the operating system and user files. User files, called sessions, store information about the console's control surface settings (e.g., which buttons are lit, which input sources are selected, etc.) when the Session module's Save button is pressed.

In addition to storing session and system files, the BMXdigital Server also functions as an FTP (File Transfer Protocol) server. This allows the BMXdigital Server, when connected to a Local Area Network (LAN), to transfer system and session files to/from any networked computer.

Session files, which use a .ses suffix, and system files, which use a .ini suffix, can be transferred to any networked computer for editing using a text-only editor (like Notepad), before being transferred back to the BMXdigital Server. Thus only one networked computer is required to maintain the files on any number of BMXdigital consoles—as long as the BMXdigital Servers are configured properly for communicating with the LAN.

LAN CONFIGURATION & CONNECTION

To take advantage of the power of session files, the BMXdigital must be configured for, and connected to, a LAN. Connecting and configuring the BMXdigital Server involves these steps:

- 1 Connecting the BMXdigital Server to a network (see below).
- 2 Configuring the BMXdigital Server to communicate with this network by assigning a fixed IP address and a unique name to the BMXdigital Server (see page 4-2).
- 3 Restarting the BMXdigital Server to incorporate the new settings.
- 4 Testing the configuration (see page 4-4).

Configuration Requirements

To initially configure the BMXdigital Server, the following items are required:

- Windows 98/NT/2000 computer with a 10Base-T Ethernet port.
- Crossover CAT-5 cable—required only if the BMXdigital Server connects directly to the Windows computer, or a standard RJ-45 network cable—when connecting the BMXdigital Server to a network hub.
- A fixed IP address that can be assigned to the BMXdigital Server. See page 4-2 for more information on configuring the BMXdigital Server and assigning an IP address.

Connecting to A Network

The method used to connect the BMXdigital Server to a network depends upon how the network is configured. If unsure of how the network is configured, check with a network administra-

tor. The BMXdigital Server can connect directly to a computer or to a network hub.

Connecting Directly to a Computer

To connect the BMXdigital Server directly to a Windows computer:

- 1 Connect one end of a crossover CAT-5 cable to the DATA connector (10Base-T Ethernet port) on the Session module.
- 2 Connect the other end of the cable to the 10Base-T Ethernet port on the Windows computer.

Connecting Through a Network Hub

To connect the BMXdigital Server to a local computer through a network hub:

- 1 Connect one end of a standard RJ-45 network cable to the DATA connector (10Base-T Ethernet port) on the Session module.
- 2 Connect the other end of the cable to the network hub.

CONFIGURING THE BMXdigital SERVER

Configuring the BMXdigital Server involves assigning a fixed IP address and a unique name to the BMXdigital Server. It also involves specifying the IP address of the computer being used to first access the BMXdigital Server.

These settings are saved in the console configuration file, NQX.INI, which is stored at the top level of the Server's Storage Card.

Before the BMXdigital Server can be accessed by a networked or local computer, that computer's IP address must be changed so it is inside the local subnet mask being used by the BMXdigital Server. The default IP address for the console (as shipped from the factory) is 192.168.100.22 with a default subnet mask of 255.255.255.0.

When accessing the BMXdigital Server for the first time, set the local computer's IP address to 192.168.100.11 (after noting its current IP ad-

dress since it will be returned to this setting after this procedure). This is the default IP address for the TFTP Server, which is used for software updates (see page 4-10).

After modifying the NQX.INI file to be consistent with the local network's addressing scheme, the local computer's IP address can be changed back to its original setting. For more information on changing the local computer's IP address, check with a network administrator.

Although the following steps describe how to use Internet Explorer to access and configure the BMXdigital Server, any FTP client can be used with the BMXdigital Server. Page 4-4 has information on configuring Internet Explorer for working with the BMXdigital Server.

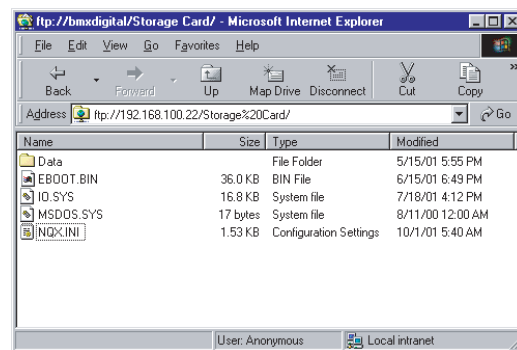
BMXdigital Server Configuration

To configure the BMXdigital Server to work with a LAN or local computer:

- 1 Open Internet Explorer or another FTP program on a computer on the LAN.
- 2 In the Address field, type the following:

`ftp://192.168.100.22/Storage Card`

The BMXdigital Server's FTP site will respond with the contents of the Storage Card:



Note: The following address could also be used to access the BMXdigital Server:

`ftp://bmxdigital/Storage Card`

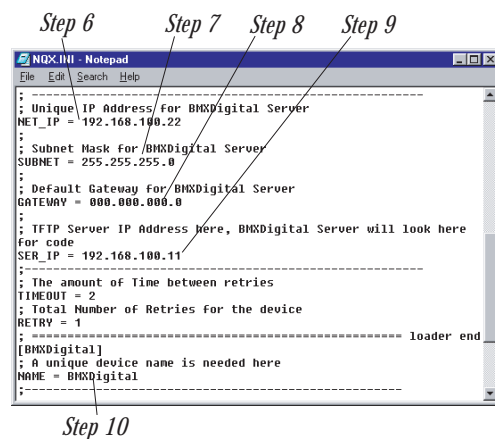
The default name for the BMXdigital Server

is bmxdigital; the default IP address is 192.168.100.22

- 3 Copy the NQX.INI file to a folder on the local computer.

It is recommended that a dedicated folder be created on the local computer to hold files for editing that are copied from the BMXdigital Server. Then use standard Windows copy and paste functions, or drag and drop, to copy the files from the BMXdigital Server's FTP site to the folder on the local computer.

- 4 Use Notepad to open the local copy of the NQX.INI file. Save this file, before doing any changes, as NQX.original.INI, into the same folder. Reopen NQX.INI, which can now be edited and saved.
- 5 Scroll down to the Unique IP Address for BMXdigital section of the file:



- 6 Assign a new fixed IP address to the BMXdigital Server by changing the default NET_IP= address from 192.168.100.22.

The IP address chosen must be within the same subnet mask area as the rest of the network. Confirm the IP address choice with a network administrator.

- 7 Specify a new subnet mask for the BMXdigital Server, if necessary, by changing the default SUBNET= address.

The default subnet mask is 255.255.255.0. Check with a network administrator before changing the subnet mask.

- 8 Specify a default gateway address for the BMXdigital Server, if necessary, by adding a GATEWAY= address. Again, check with a network administrator before adding a default gateway.
- 9 Specify the IP address of the local computer used for software updates by changing the default SER_IP= address.

When updating software, this computer must be able to run a TFTP Server application. For additional information on software updates, see page 4-10.

- 10 Assign a unique name to the BMXdigital Server by changing the default NAME = BMXDIGITAL. The name chosen can have a maximum of ten alphanumeric characters, but **cannot contain spaces or any special characters**.

It is highly recommended that the default name (bmxdigital) be changed to a unique name, especially if multiple BMXdigital consoles are on the same network.

- 11 Save the modified NQX.INI file to the folder on the local computer. This modified NQX.INI file contains the new IP address and unique name for the BMXdigital Server. Once this file is uploaded to the BMXdigital Server, replacing the original NQX.INI file, these new settings will be used as soon as the BMXdigital Server is restarted.

Keep a copy of the modified NQX.INI in a safe, accessible location. If this file is lost, or if the changed IP address and Server name are forgotten, then a hardware intervention (see Appendix B-16) is required to recover this information.

- 12 Copy the file NQX.INI from the local computer to the Storage Card folder on the

BMXdigital Server. In the dialog box that asks about replacing the existing file, click **Yes**. If the BMXdigital Server's FTP site is not open, repeat steps 1 and 2 to open it. Copy the file using standard Windows copy and paste, or drag and drop functions.

- 13 Restart the BMXdigital Server (by either unplugging and replugging the Session module or cycling the power to the console) and test the configuration, as outlined next.

Testing the Configuration

Open Internet Explorer (or other FTP application) on a local computer networked to the BMXdigital Server and enter the following address: `ftp://<BMXdigital Server IP address>/Storage Card`

Substitute the new IP address entered into the NQX.INI file (in step 6 on page 4-3) for `<BMXdigital Server IP address>`. For example, if the new IP address is: 192.168.100.99, then enter: `ftp://192.168.100.99/Storage Card` into the Internet Explorer address field.

Alternately, the unique name chosen for the BMXdigital Server during configuration (in step 10 on page 4-3) could be used. For example, if the new name is: CONSOLE1, then enter: `ftp://CONSOLE1/Storage Card` in the Internet Explorer Address field.

The BMXdigital Server will return the contents of the Storage Card, as shown on page 4-2, if the IP address or name were entered correctly.

INTERNET EXPLORER SETTINGS

If the BMXdigital Server FTP site is not shown, be sure the IP address or server name entered matches the IP address or name specified in the NQX.INI file. If these are correct, then check the Internet Explorer FTP setting since it can affect accessing the BMXdigital Server.

Windows 2000/NT/Me

To check the Internet Explorer FTP setting:

- 1 From the Internet Explorer **Tools** menu, choose **Internet Options**.
- 2 Click the **Advanced** tab.
- 3 Make sure **Enable folder view for FTP sites** is selected (checked).
- 4 Click **OK**.

Windows 98

To check the Internet Explorer FTP setting:

- 1 From the Internet Explorer **Tools** menu, choose **Internet Options**.
- 2 Click the **Advanced** tab.
- 3 Make sure **Use Web Based FTP** is deselected (unchecked).
- 4 Click **OK**.

Using Session Files

A Session file is a text file with the suffix `.ses`. Session files are stored on the BMXdigital Server (storage card/DATA/SesFiles/). Any number of session files could be stored in this folder, although in normal usage, only those sessions that are regularly loaded should be kept in this folder. This makes it easier for board operators to quickly select a particular session file for loading.

Session files are initially created after first setting up all the console's assignment buttons to reflect a particular console function (e.g., a morning show, a midday program, an interview show, spot production, etc.). The button settings are then saved to a new session file by simply pressing the Save button on the Session module.

Each time the Save button is pressed, all of the current input module button settings and source names are saved to a new session file. If no session was loaded, the name default file: `undefined.ses` is used along with a numeric suffix (e.g.,

undefine01.ses, undefine02.ses, etc., since a session name is limited to 10 characters and no spaces). If a session file was loaded, then the name used is the current session file name, again with a numbered suffix added on.

EDITING SESSION FILES

Once a session file is saved, any LAN computer can retrieve and edit the .ses file. A text-only editor (Windows Notepad or Wordpad) is used to add or update the session file settings as required (e.g., creating or changing channel input source labels, adding button lockout information, etc.).

This same computer could be used to perform other session management duties like renaming or deleting session files.

MAKING A TEMPLATE SESSION FILE

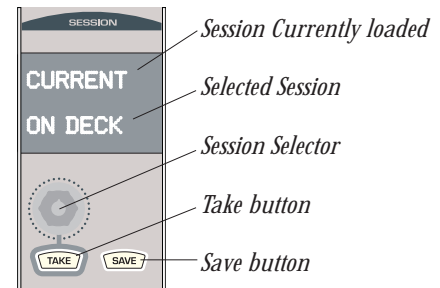
To simplify creating new session files, it is recommended that one session file be created with the most common settings used on the console. This session file can then be loaded and used as a template for creating additional session files.

This template session file should include all of the standard settings, including the channel labels and button lockouts, for all of the modules in the console. To create the template, it is easiest to first recall an existing session file. The next sections cover recalling and loading a session file, saving a session file, downloading it for editing to a local computer and uploading it back to the BMXdigital Server for use in the console.

Recalling and Loading a Session File

The Session Selector control on the Session module is used to find session files previously saved in the SesFiles folder on the Storage Card. Rotate the control until the desired session file name is shown in the bottom row of the two-line display. To load this session file, press the Take button.

Session Module, Session File Controls



To recall and load the undefined session, which is a session file shipped with the BMXdigital:

- 1 Use the Session Selector to find and display the UNDEFI NED session.
- 2 With UNDEFI NED shown in the bottom line of the display, press the Take button to load this session.

Note: When a session is loaded using the Take button, any channels currently On are not immediately affected by the new session information. Instead, those channels' On buttons flash to indicate changes to that channel are pending. When a channel is then turned off, the changes from the new session file are loaded and immediately take effect.

Changing Console Settings and Saving the Template Session File

- 1 Load the undefined session, following Recalling and Loading a Session File, above.
- 2 Change the settings on the BMXdigital console as needed.

Note: Session files include all console button settings, but rotary knob and fader settings are not saved in the session.

- 3 Press the Save button on the Session module. The new session file is named undefine01 and is saved to the BMXdigital Server. This file will be used as the template session file.

Note: The new template session file is automatically given a name based on the name of

the session that was loaded when the Save button was pressed.

Downloading Session Files

The template session file (undefine01.ses) contains the standard console surface settings. To add channel label and lockout information, and to rename this file, it must first be downloaded from the BMXdigital Server to a local computer for editing.

Note: Make sure the BMXdigital Server is properly connected to and configured for your network before attempting to download the template session file. For more information on LAN connection and configuration, see pages 4-1 to 4-4.

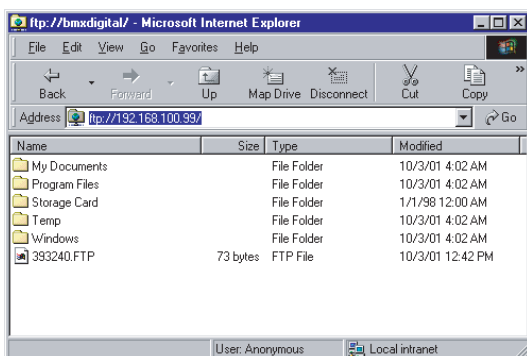
Before downloading the template session file, create a folder on the local computer specifically for holding the session files while editing and uploading them back to the BMXdigital Server.

To download a session file from the BMXdigital Server to a local computer, perform the following steps:

- 1 Open Internet Explorer. In the Address field, enter the following: `ftp://<BMXdigital Server IP address>`

Note: <BMXdigital Server IP address> is the IP address you assigned to the BMXdigital Server when the system was configured (step 6 on page 4-3). Alternately, the BMXdigital Server's name can be used in lieu of the IP address.

The BMXdigital Server's FTP site will return:



- 2 Open the Storage Card folder (its contents are shown on page 4-2).

- 3 Inside the Storage Card folder, open the Data folder.

- 4 Inside the Data folder, open the SesFiles folder. The SesFiles folder contains all of the session files. These are small text files using the extension .ses.

Note: To go directly to the SesFiles folder, enter `ftp://<BMXdigital Server IP address>/Storage Card/Data/SesFiles` in the Internet Explorer Address field. For quick access, create a shortcut to this address and place it on the desktop.

- 5 Copy the template session file (undefine01.ses) to the folder set up to hold session files on the local computer.

Editing and Renaming the Undefine01.ses Session File

After downloading the undefine01.ses file, use Notepad or Wordpad to add the channel labels to identify each module's input sources, and to add any channel button lockouts (to prevent one or more module buttons from being changed by the operator). After editing this file, use Save As... to give it a new, more descriptive, name (e.g. template.ses).

Note: Session files can also be renamed using the standard Windows functions (right-click the file name and choose **Rename**) or click, pause, click on the name to highlight it. This can be done using Windows Explorer on the local computer, or while viewing the BMXdigital Server's FTP site using Internet Explorer.

To edit and rename the new template session file:

- 1 Use Notepad or Wordpad to open the local copy of undefine01.ses.
- 2 Edit the file (add channel labels and lockout information).

Note: See Session File Sections (page 4-7)

for more information on what is included in session files and how to edit them.

- 3 Save the file with a new name, such as `template.ses`. This name (minus the `.ses` extension) is what appears in the Session module's bottom display as the Source Selector is used to find a session file to load.

Note: The file name can have up to ten alphanumeric characters, but cannot contain spaces or special characters. Upper and lower case letters can be used to name the file, but all file names appear in upper case letters in the Session module's display. The file name must have the extension `.ses` added to the name in order to be recognized as a session file.

- 4 Upload the renamed file to the BMXdigital Server following the steps in the next section.

Uploading Sessions

To use an edited session file, it must be uploaded to the BMXdigital Server's FTP site. The new template file (`template.ses`) that was created can be uploaded and then used as the basis for creating new session files. The template session file must be uploaded into the `SesFiles` folder on the BMXdigital Server's FTP site. It must have the file extension `.ses`. To upload the template session file to the BMXdigital Server:

- 1 Open the BMXdigital Server's FTP site, if it is not already open, and navigate to the `SesFiles` folder.
- 2 Copy the `template.ses` file from the local computer to the `SesFiles` folder on the BMXdigital Server's FTP site.
- 3 Dial up and take the `TEMPLATE` session to load it into the BMXdigital console and confirm that all of the settings and input source names are set correctly before using it as a template for creating other sessions.

Session File Sections

Each session file has the following sections:

- General File Information
- Input Source Labels
- Channel Button Settings
- Channel Button Lockouts
- Module Mapping

CHANNEL NUMBERS

Because there can be seven "types" of Input modules (see the Channel Number Assignments table below), rather than referring to modules by name, each type is assigned a specific number based on its position in the mainframe (for the Universal Inputs and RLSes) or on its Telco number (for the Telco modules). The following table lists the channel numbers assigned to the different types of modules:

Channel Number Assignments

<i>Module Type</i>	<i>Channel #</i>	<i>Assignment Method</i>
Universal Input	1 - 63	As installed, left to right
Telco 1 - 6 (Direct)	65 - 70	As configured by DIP switches
Telco 1 - 6 (Router)	81 - 86	As configured by DIP switches
Telco 1 - 6 (Ext. RLS)	97 - 102	As configured by DIP switches
RLS (Direct)	113 - 127	As installed, left to right
RLS (Router)	129 - 143	As installed, left to right
RLS (Ext. RLS)	145 - 159	As installed, left to right

See page 2-25 on how to set the Telco number and whether the Telco is Direct, Router, or Ext. RLS. See page 2-29 for how to set the RLS as Direct, Router, or Ext. RLS.

INFORMATION SECTION

The information section begins with

[Information]

It contains a channel number chart (like that show above) and a brief default description of the file. This should be changed to describe how or why the modified session file was created (e.g.,

“Sets console for prerecording satellite and network feeds.”

To change the file description, scroll down to the line that begins with `Description=`. Erase and replace the existing description.

The description is limited to a single line. If additional notes are required, these can be added onto any line that starts with a ; (semicolon). Any number of lines could then be added to further clarify why the session file was created.

LABELS SECTION

Each Universal Input module has two labels that identify the module's A and B input sources. On the Telco and RLS modules, with only one input, typically the source name is listed in the top row with a couple dashes in the bottom row. Both lines could be used to further identify the source. These labels are what are shown in the two lines in the input source display when the Session is loaded.

There are two Labels sections—one for the A input names and one for the B input names.

The A input labels section begins with:

```
[Labels_A]
```

The B input labels section begins with:

```
[Labels_B]
```

Labels (e.g., `Label_1=1 A`, `Label_145=RLS 1`, etc.) use the Channel Number Assignments (shown on page 4-7) to specifically identify each module.

Labels can be up to ten alphanumeric characters long—including standard punctuation and spaces. Although the labels can be entered using upper and lower case letters, the labels are always shown in upper case, centered in the module's display.

Adding Channel Labels

- 1 Scroll through the session file to the Labels section for the input to edit (A or B).
- 2 Highlight and replace the default or existing

labels (e.g., `Label_1=1 A`, `Label_2=2 A`) with more descriptive labels for the inputs. For example, if the input to the first Universal Input module (the left most module in the console) is the output of Mic Preamp 1, then the new label could be entered as:
`Label_1=MIC PRE 1.`

CHANNEL BUTTON SETTINGS

Each session file has the following sections to set the state of each button on the console surface when the session file loads. The default setting in the UNDEFINED.SES session is off for all on/off settings.

Although these settings can be manually edited, it's generally easier to simply set the buttons to their desired states (on or off) then use the BMXdigital Session module Save button to save all the button states at one time to a new session file. This file can then be used as a template for creating other session files.

The only section that has to be manually edited is the [ON] section. When set true (e.g., `Channel_1=1`) that module is forced On when the session file loads. The sections include:

- [On]—This section sets whether any module is forced On when the session file loads.
- [Source]—This section sets whether the A input or the B input is the selected source for the module.
- [Mode]—This section sets each module's default mode (Stereo, Left, Right, or Mono Sum).
- [Cue]—This section sets whether cue is on or off for each module.
- [Send_1, Send_2]—These sections set whether the module is assigned to one or both send buses.
- [Utl_1, Utl_2, Utl_3, Utl_4]—These sections set whether the module is assigned to any of the Utility buses.

- [Prog_1, Prog_2, Prog_3, Prog_4]—These sections set whether the module is assigned to any of the Program buses.
- [Offline_1, Offline_2]—These sections set whether the module is assigned to either of the Off-line buses.
- [Send_1_PF, Send_2_PF]—These sections describe whether the module's send is pre-fader or post-fader (default).
- [Send_1_PS, Send_2_PS]—These sections set whether the module's send is pre-switch or post-switch (default).
- [UTL_1_PF, UTL_2_PF, UTL_3_PF, UTL_4_PF]—These sections set whether the module's Utility bus feed is pre-fader or post-fader (default).
- [UTL_1_PS, UTL_2_PS, UTL_3_PS, UTL_4_PS]—These sections set whether the module's Utility bus feed is pre-switch or post-switch (default).
- [PanBalance]—This section sets whether the module's pan/balance control is on or off.
- [Solo]—This section sets whether solo is on or off for each module.
- [TelcoAuto]—This section sets whether the Auto Foldback feature is on or off on the Telco modules.
- [TelcoRecord]—This section sets whether the Telco to Record feature is on or off for the Telco modules.
- [TelcoMonitor]—This section sets whether the Telco to Monitor feature is on or off for the Telco modules.

CHANNEL LOCKOUT SECTION

This section sets whether any button on any channel is locked, preventing any change to its status by the board operator. The channel lockout section begins with [ChannelLockout_0].

Setting Channel Lockouts

- 1 Copy the entire channel lockout section of the session file. The channel lockout section begins with ChannelLockout_0 and ends with PanBalance=0.
- 2 Paste the copied channel lockout section back into the session file. Although it can be pasted anywhere in the file, it is recommended that all of the channel lockout sections be kept together in one area of the session file.
- 3 Change the heading (ChannelLockout_0) of the pasted section to the channel number to which the lockout information is being added. Refer to the Channel Number Assignments table on page 4-7 for what number to use for each channel.

For example, to add lockout information for the left most Universal Input module, change Channel Lockout_0 to ChannelLockout_1. To add button lockout information for the Telco 2 module, when used with a router, then Channel Lockout_0 would be changed to ChannelLockout_82.

- 4 Edit the channel lockout section as needed. Each button is locked separately. To allow the button to be changed by the operator, leave the setting for the button as 0. To lockout that button, change the setting to 1.
- 5 Repeat steps 1 - 4 for each channel that needs any buttons locked out.

MAPPING SECTION

The mapping section describes the physical configuration of the BMXdigital modules at the time the session was saved. It begins with [Mapping]. This section is maintained by the BMXdigital Server and should NOT be edited manually.

Software Updates

Harris Corporation may periodically issue software revision changes for the BMXdigital Server at no charge. New feature enhancements may also be offered for a nominal fee. In either case, changing the operating software on the BMXdigital Server is quick and easy since a TFTP Server program is included with each software release.

INSTALLING AND CONFIGURING THE TFTP SERVER

TFTP stands for Trivial File Transfer Protocol. TFTP Servers transfer and update software for routers, hubs, and other network devices like the BMXdigital Server.

The following steps describe how to install and configure the 3C Daemon TFTP Server, included on the CD-ROM with the new files, although any TFTP Server can be used to update the BMXdigital Server software.

To install and configure the TFTP Server:

- 1 Install the TFTP Server on a local Windows computer following the instructions included with the software update.
- 2 From the TFTP Server's **File** menu, choose **Configure Selected Service**.
- 3 On the TFTP **Upload/Download Directory** tab, select the folder on the CD-ROM that contains the new BMXdigital files.
- 4 Click **OK**.

UPDATING THE SOFTWARE

Once the TFTP Server is installed on a local computer, and configured to point to the folder holding the new software, the update is performed automatically after the BMXdigital console is power cycled. The BMXdigital must be taken off-air during this procedure.

To update the BMXdigital software:

- 1 Configure the TFTP Server to point to the folder on the CD-ROM that contains the updated software following the instructions in the previous procedure.
- 2 Make sure the TFTP Server computer is properly communicating with the BMXdigital Server.
- 3 Turn off the BMXdigital console. Wait at least 10 seconds, then turn it back on. The TFTP Server will begin to download and update the BMXdigital Server software after the Single Board Computer boots up (this takes about 30 seconds).
- 4 Once the update has finished loading, quit the TFTP Server.
- 5 To use the new software, turn off the BMXdigital console. Wait at least 10 seconds, then turn it back on.