TELESTREAM

FlipFactory®

USING FLIPFACTORY WITH SEACHANGE® BMLE SERVERS

This App Note applies to FlipFactory version 5.0 & Later

Introduction

FlipFactory® users can configure FlipFactory to connect to SeaChange® Broadcast MediaLibrary™ (BMLe) Platform for establishing a variety of digital media workflows.

This app note provides information about configuring and validating connections with BMLe servers as a source or destination, and playing out media with inband closed captioning correctly in certain circumstances. The app note also describes how to use the EXD utility to locate files.

Connectivity to a BMLe server is established via the BMLe's service network or via the File System Interface (FSI) card. The choice to use the service network or FSI network is primarily based on your volume requirements. Service network connections may be satisfactory for low-volume workflows. For higher-volume workflows, the FSI network connection is recommended. Jumbo Frames *must be enabled* to most efficiently interface to the FSI network

Note: *You should only consider using the service network when all FSI cards are utilized – contact SeaChange or Telestream for assistance.*

You can configure FlipFactory factories to use a BMLe server as a destination for encoded media files, and you can also configure factories to use a BMLe server as a monitor (source system) when ingesting file-based media for processing. When used as a monitor, you can set up FlipFactory to automatically ingest media files stored in a directory. Alternatively, you can manually submit jobs by browsing to the target directory and selecting the media you want to submit.

When playing out media from the BMLe server that has been direct-converted by FlipFactory, in certain circumstances, you may have to modify the BMLe server settings to play out inband closed-captioning on line 21.

This app note provides information and steps required to connect with the BMLe server as a source or destination. Not all the steps described may be necessary in your situation, but they are included for completeness.

Communication between FlipFactory and SeaChange servers is affected by your choice of operating system, your network configuration, and your security requirements.

FlipFactory and BMLe Versions

Functionality described in this app note can be implemented using FlipFactory Version 5.0 with update BMLe Transport Plugin Update 5024474 (included in FlipFactory Update Pack 1, published 8/24/06 at www.telestream.net for registered users), or in FlipFactory Version 5.1 or later.

Note: *The use of user names and passwords to access BMLe servers as a destination with Directory Server installed is not supported in Version 5.1, but may be supported in future versions of FlipFactory.*

You should only connect FlipFactory with SeaChange Broadcast System Version 3.1 or later. If you are not using a permitted version, please contact SeaChange customer service to upgrade, before integrating with FlipFactory.

Connecting FlipFactory & BMLe via FSI

To connect FlipFactory with a BMLe server's FSI network via an FS port, perform these tasks:

Networking Options

To establish network connectivity, you can change the IP address of the FSI port cards or the IP address of the FlipFactory server. To change the IP address of the BMLe FSI ports, contact SeaChange Customer Service for specific addresses.

You can also install and configure a second Ethernet interface card in the FlipFactory server with a valid IP address in the required subnet.

Alternatively, establish a direct connection for optimal network traffic. For a single FlipFactory server on a sparse system (with few decoders) a direct connection performs well. If the network is dense, it is best to use a switch. For redundant installations with two (or more) FlipFactory servers, use two switches connected to FSI ports located on separate BMLe nodes. For example: FSI 3 on Node 0 (primary), FSI3 on Node 2 (backup).

Ensure Connectivity using GbE with Jumbo Frames Enabled

Make certain that your FlipFactory server has a Gigabit Ethernet card. Ideally, the FlipFactory network interface is connected directly to the BMLe server, or both servers are connected to a single GbE switch. Your FlipFactory server may require a second Ethernet NIC to accommodate the IP addresses on the FSI card, and the IP address and subnet mask must be set correctly.

Note: *You can connect with 10/100MB Ethernet as well, but performance is impaired. In this situation, set the FSI card to not use jumbo frames for best performance.*

You should also have jumbo frames enabled (Advanced settings). FSI cards are optimized for jumbo frames set at 9000 bytes. If jumbo frames are not enabled on all equipment along the route, transfer performance is significantly reduced – often performing more slowly than the 100MB Ethernet connection.

Identify the BMLe Server FSI Port

Each node (BMLe) has four FSI cards (numbered port 0 to 3). Identify the FSI port on the node to use for transferring media between the FlipFactory server and the BMLe server. Typically, you'll use port 3 (card 4), because cards 1, 2, and 3 are reserved for playout. Card 4 (port 3) is usually reserved for other uses such as FlipFactory connectivity.

Note: *File transfers with FlipFactory should not be conducted on the same card where one port is dedicated to a codec. For best performance, don't mix video encoding with file transfers. Any FSI card used for video I/O to a MediaClient™ (MCL) may NOT be used for file transfers to and from FlipFactory or other third-party devices.*

Obtain the IP address of the FSI port you plan to use, plus the CIFS card name, for use throughout the configuration process *(Appendix B – Finding the CIFS NAME on page 9)*. If you are unsure of which FSI port to use, contact SeaChange Customer Service (Page 11).

Ping the SeaChange Server

Before configuring FlipFactory, you should verify network connectivity between the FlipFactory server and the BMLe server by using PING. Verify that you can ping the FSI card from the FlipFactory server using its IP address before continuing.

Configure the FlipFactory Server Hosts File

Telestream recommends against using a host name to identify the BMLe server via DNS. If you plan to use the IP address to connect to the BMLe server, skip this step.

If you plan to use the CIFS card name in FlipFactory, you should update the hosts file on the FlipFactory server with the IP address and card name to identify the BMLe server locally.

Note: *To obtain the host name, find the FSI card CIFS name using Seaview, which runs on the SeaChange BOSS computer (*Appendix B – Finding the CIFS NAME on page 9*). Use this CIFS card name and IP address to update the hosts file.*

Update the FlipFactory server's hosts file with the CIFS card name and IP address for the target BMLe node FSI card. (A hosts file is a text file which contains entries that map host names to IP addresses without using DNS.)

Use Notepad (or other text processor) to open the hosts file in either operating system:

Windows 2000 / 2003 Server. <System Drive>:\WINNT\SYSTEM32\DRIVERS\ETC\HOSTS

Windows XP. <System Drive>:\WINDOWS\SYSTEM32\DRIVERS\ETC\HOSTS

Figure 1. Configure your hosts file with a BMLe FSI Port entry
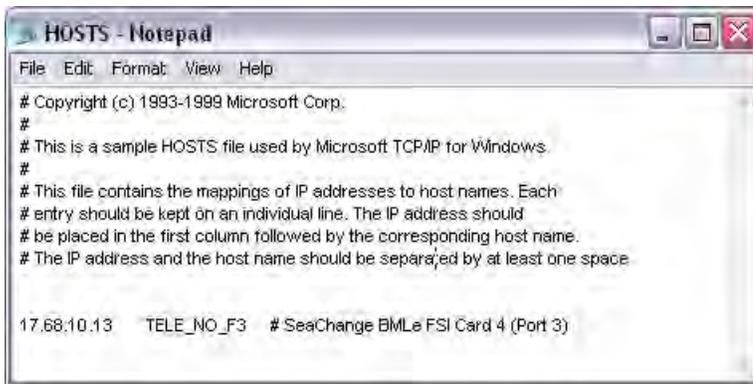
Add an entry for each node's FSI port in the form: <IP Address> <BMLe FSI card name>. (An entry for the SeaChange BOSS computer is not required.)

Note: *You can also use the entries in the hosts file on the SeaChange nodes as a guideline, because it should have the system's current IP configuration.*

Verifying FTP Connectivity

Verify that you can connect to the BMLe server via FTP and display the directory on the server. Open a DOS window on the FlipFactory server and enter FTP <IPADDR|NAME>, where <IPADDR|NAME> is the IP address (or BMLe FSI card name or computer name if you added an entry to the hosts file).

Logging in via FSI

When you're connected to the data network via FSI, enter *anonymous* and press Enter when prompted for the username and just press enter when prompted for the password.

Logging in via FSI with Directory Server Enabled

If your BMLe server has an optional Directory Server attached, username and password security may be enabled. When you log on, you'll need to supply the username and password for the directory you're accessing.

Displaying the Directory

Next, type *DIR* and press Enter to display the directory contents. If the directory displays, FTP connectivity is established. If not, determine what is wrong and retry.

Playing Out Direct-Convert Media with Inband Closed Caption

SeaChange MediaClient encodes Closed Caption (CC) data from the SDI signal's line 21 and the MediaClient decoders replace the CC data onto line 21 of the output SDI video signal. The MediaClients should be set to decode CC on line 21, not line 22.

In the legacy BMC product however, materials provided by certain program providers as a file transfer (for example, PathFire or any other Pinnacle-encoded video materials) will create video files containing CC data that plays out of the SeaChange legacy Genesis decoder with SDI signals with CC on line 22. This erroneous placement of CC data on line 22 is due to a mismatch between the source system's encoder chipset and the legacy BMC decoder chipset.

Customers should use FlipFactory to transcode PathFire content into SeaChange Legacy BMC Genesis content. In the case of MediaClient, SeaChange prefers customers to use transcoding to conform all the disjoint MPEG non-conforming GOPs created by the PathFire spot insertion workflow.

For the MediaClient codec, you need to re-wrap the media in FlipFactory (which takes much less time; about 12 minutes per half-hour program). Transcoding takes longer time; about 60 minutes for a half-hour program.

When you set up a factory to direct-convert (by re-wrapping the essence in a different file format, without decoding and re-encoding the essence) media with in-band closed captioning, the inband closed captioning is by default on line 21. When you deliver this media to a BMLe server, you must modify the BMLe server to play out the media correctly, because by default, BMLe servers read closed captioning from line 22 during playout.

There are two solutions for this problem.

Continue direct-converting from FlipFactory and modify BMLe registry settings to play out closed captioning on line 21

–or–

Set up a factory to decode and re-encode your media, enabling the crop and mask filter on the output product to shift in-band closed caption on line 21 to line 22.

Note: *When you modify the SeaChange BMLe server's registry settings recommended below, closed captioning plays out on line 21 for all media on the BMLe. This includes any previous media which has closed captioning on line 22, causing their playout to fail. You should only modify the registry to support closed caption playout on line 21 when all of the media with closed caption content stores it on line 21.*

If you have media with closed captioning on line 22, you can add another node on the BMLe server, dedicated to direct-convert media from FlipFactory. Only store line-21 closed caption media on this server, and modify the registry to play out the media with line 21 for closed caption.

Set up a factory to decode and re-encode media with closed captioning on line 22, using crop and mask filters.

This is handled in the registry by setting this value per input and/or output port. Each port is configured separately.

For example, for a 4012 product (2-out/1-in) you should have the following keys:

HKEY_LOCAL_MACHINE\SOFTWARE\Ligos Corporation\Media Client\0\VideoStartLine - output port 1

HKEY_LOCAL_MACHINE\SOFTWARE\Ligos Corporation\Media Client\1\VideoStartLine - output port 2

HKEY_LOCAL_MACHINE\SOFTWARE\Ligos Corporation\Media Client\2\VideoStartLine - input port 1

The BMC Genesis decoder card default is 6 for NTSC and 9 for PAL. This is the first line to capture from or output to (as appropriate) if the file has 32 extra lines of video (512 for NTSC or 608 for PAL). If the file has 16 extra lines, then this value+8 would be the first output line. This variable has no effect of no extra lines are captured.

Note that the encoding and decoding registry settings must be in agreement among all MediaClient encoders and decoders across the server, otherwise line offsets will occur.

If a BMC with Beowulf encoding cards and Genesis decoder cards is also used in the system, the MediaClient encoder and decoder settings should be set to correspond with CC data appearing on line 21. If a BMC is in place and a MediaLibrary platform system is added to the BMC, the MediaClient settings must correspond to the BMC encoders and decoders.

Appendix A – Using EXD to Locate Files

To use the EXDutil program to locate files on the SeaChange server or to determine that delivery of media from FlipFactory via FTP was successful after processing a job, use the KVM to switch to display the SeaChange BOSS computer.

On the BOSS computer, locate the EXDutil icon and double-click to launch the application.

Figure 2. Use EXDutil to locate files on the SeaChange server

Connect to the MCL on the BMLe server. Next, select the inventory tab and click Refresh.

Figure 3. On the Inventory tab, select a file from inventory
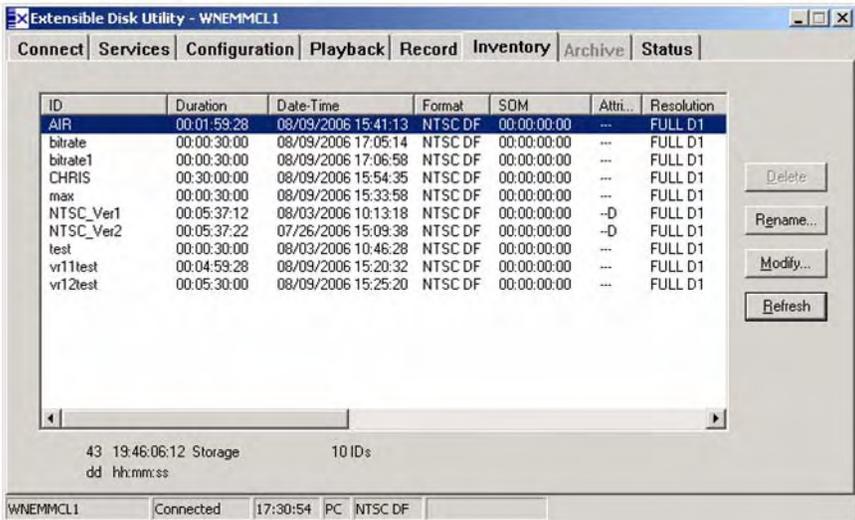
Use the slider to move through the inventory to locate the file you delivered.

Appendix B – Finding the CIFS NAME

You can use Seaview to locate the CIFS name of an FSI card located on the BOSS computer of the BMLe server. Use the attached KVM to switch to the BOSS computer. Double-click the Seaview Icon on the desktop to launch Seaview.

Figure 4. Double-click the Seaview shortcut on the desktop to launch Seaview.

Seaview connects to the BMLe server and displays this window (sample shown).

Figure 5. Use Seaview to view the BMLe server.
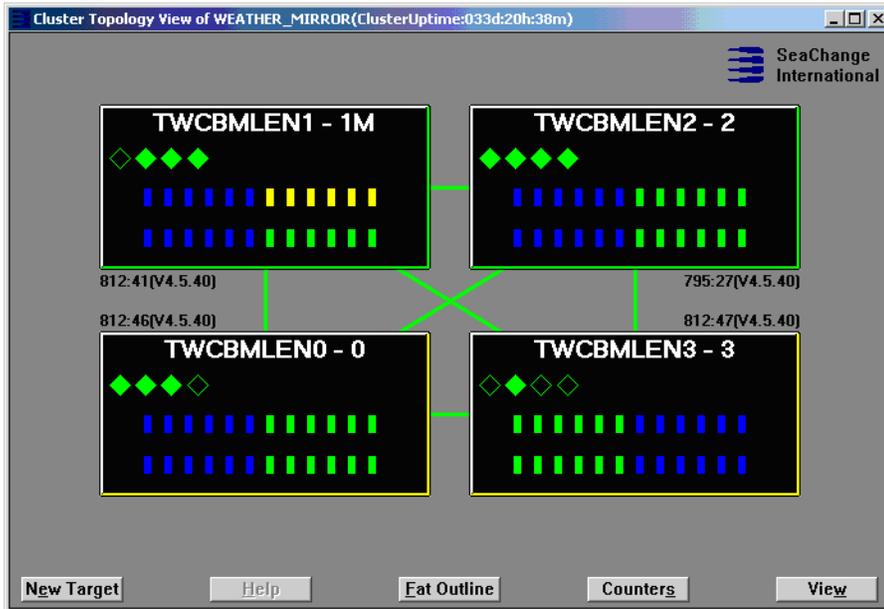
Click on the node that has the target FSI card to display the System View window:

Figure 6. Seaview displays a system view of the node.
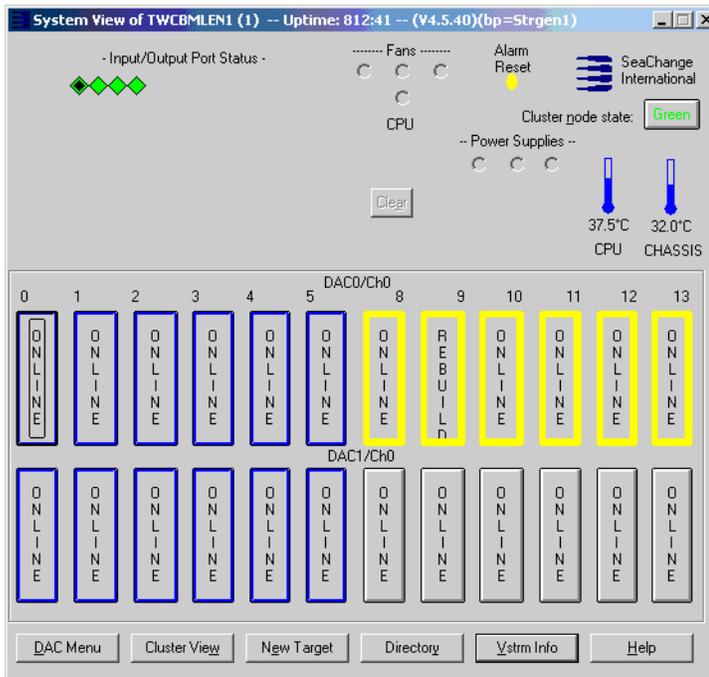
FSI cards are indicated by diamond icons in the upper left corner of the window, numbered (left to right) as FSI0, FSI1, FSI2, and FSI3. Click the target FSI card to display the details window:

Figure 7. Seaview displays a system view of the node.
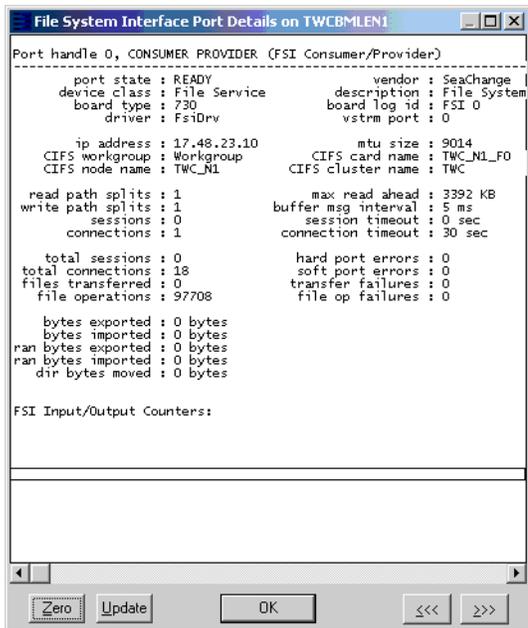
Identify the IP address of this FSI card top field in second group of details on left). Verify that this IP address is the same as the IP address you have noted earlier. If not, select another FSI port.

Locate the CIFS card name (second field in the second group of details on the right). Note the hostname of the card with your IP address for use when configuring FlipFactory to identify the BMLe server.

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Dial 1-978-897-0100 and follow the prompts: 1 (Technical Support) > 4 (Broadcast & OEM). This connects you to SeaChange Broadcast Customer Service Department, which is staffed continually, and is based in Greenville, NH.

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Specifications subject to change without notice.