

Using Telestream Playback Service for Avid Interplay Transfer V3.0.5

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Synopsis

This application note focuses on setting up and implementing Vantage media processing workflows for use with Avid's Media Composer/NewsCutter and Interplay Transfer.

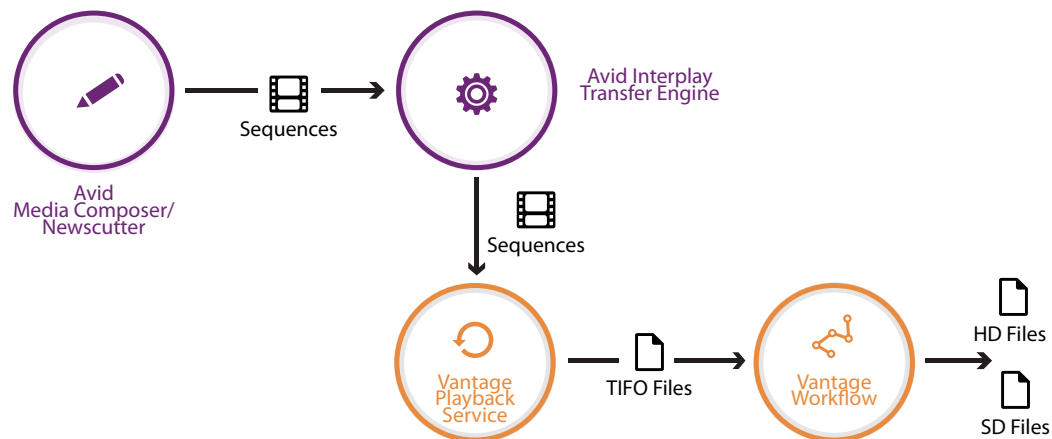
- [Overview](#)
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Note: When you are installing software or modifying Avid programs or systems, always confer and coordinate with your Avid systems administrator or manager to make these changes, including restarting any services. Always refer to Avid documentation if you have questions about the use of their products.

Overview

Telestream's Playback Service for Avid Interplay Transfer V3.0.5 enables editors using Avid Media Composer/NewsCutter with the Interplay Transfer Engine to easily save sequences as [Telestream Intermediary Format \(TIFO\)](#) files. This enables open file workflows—where the files can be transcoded as they are being written, allowing you to create one or more encoded output files in real-time, significantly reducing overall workflow time.

Figure 1. Logical Avid-Vantage Media Processing Workflow using Send to Playback



In practice, an Avid operator sends a sequence from Media Composer/NewsCutter to a playback device. The Interplay Transfer Engine transparently uses the Telestream Playback service to save the media as a TIFO file and store it in a share monitored by a Vantage workflow. When a new file is identified by the Vantage workflow, a job is started, and Vantage processes the media file, transcoding the media to suit your requirements.

You can install the Playback service in any supported Avid configuration (see [Implementing Avid-Telestream Media Processing Workflows](#)) and on as many Interplay Transfer Engine servers as required, and you can create multiple playback devices and Vantage workflows to suit your media processing requirements.

When you have completed the implementation steps outlined in [Setting up an Avid-Ingest Vantage Workflow](#), please proceed to [Transferring Sequences to Vantage](#) to learn how to utilize your Avid-Telestream media processing system. If you have problems with your system, review the [Troubleshooting](#) topic for assistance.

Version Requirements

The following versions are required:

- Vantage 4.0 or later
- Telestream Playback Service version 3.0.5
- Avid Interplay Transfer version 3.0.5
- Microsoft .Net Framework 4.0
- Avid Media Composer 7.0 or later or Newscutter 10.0 or later

Send to Playback & QuickTime Export Options

Understanding your workflow requirements and choosing the right process for the job at hand is an important aspect in assessing which approach is best for your facility.

You can implement either Send to Playback transfers or QuickTime exports, depending on your workflow requirements. Workflows with large numbers of transcodes targeting different drop locations are good candidates for Send To Playback transfers. In this case, you are already sending media to video servers or archives, or you require process automation. Large-scale broadcasters tend to favor this method. Conversely, smaller broadcasters/content producers with fewer targets (drop locations) with manual workflows may benefit from QuickTime exports.

In Media Composer/NewsCutter, you can use the Send To Playback command to transfer sequences to Vantage for transcoding. This eliminates the need to perform a QuickTime export and is simpler, in that you don't need to check export settings, for example. Send to Playback transfers preserve the composition timecode and support up to 8 audio channels.

The process is slightly different in Avid Assist, the viewing and logging application. In Avid Assist, you can directly select a single clip and then use the Send to Playback command to transfer the clip to Vantage. (In the background, the selected clip is added a sequence before the transfer occurs.)

Implementing Avid-Telestream Media Processing Workflows

Before you can submit media to Vantage workflows for processing, you need to make sure your Avid system is operational, install Telestream software, perform some configuration tasks, and create and activate a Vantage workflow.

Avid Interplay Transfer Configurations

Avid Interplay Transfer version 3.0.5 supports the following configurations (as described in the Avid 3.0.5 ReadMe):

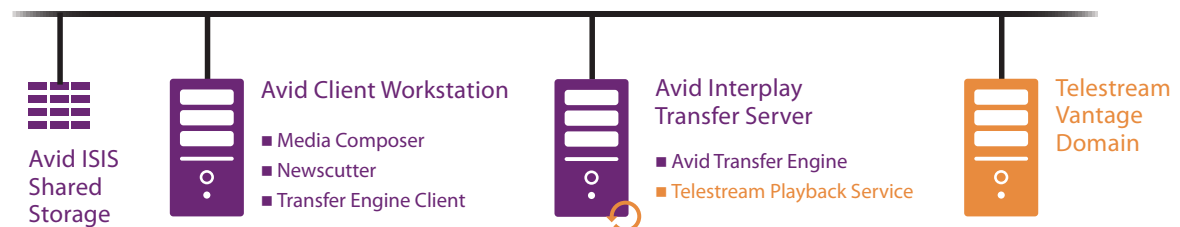
- A dedicated Interplay Transfer server connected to an Interplay environment that includes an Avid ISIS shared storage system (see [Figure 2](#) below).
- Standalone Interplay Transfer software installed on an Avid editing system, connected to Avid shared storage without an Avid Interplay Engine. Each client must install both Interplay Transfer Engine and Interplay Transfer client software (see [Figure 3](#), next page).
- Standalone Interplay Transfer software installed on an Avid editing system with local storage (see [Figure 4](#), next page).

The following diagrams depict these Avid systems, including key software components.

Avid Client & Transfer Engine on Dedicated Computers in Interplay ISIS Workgroup

In this configuration, the Interplay Transfer Engine is hosted on a dedicated computer, separate from Media Composer or Newscutter client computers.

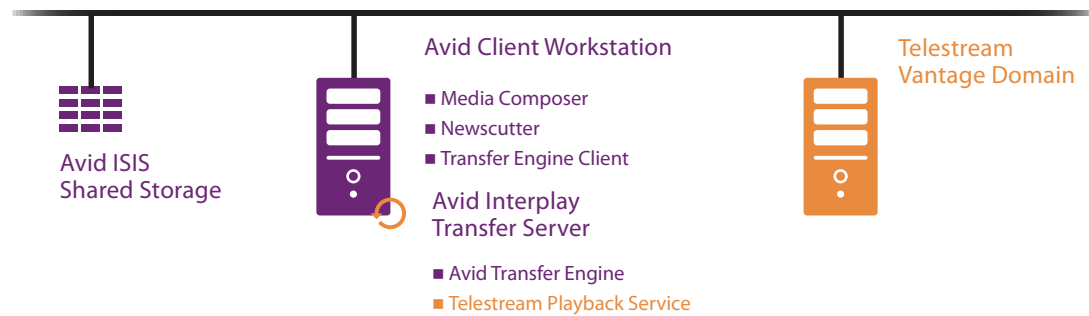
Figure 2. Avid Client & Transfer Components on Dedicated Computers



Avid Client & Transfer Engine on One Computer—ISIS Shared Storage

In this configuration, Avid clients—Media Composer or Newscutter—are on a computer that also hosts Interplay Transfer Engine, utilizing Avid ISIS shared storage.

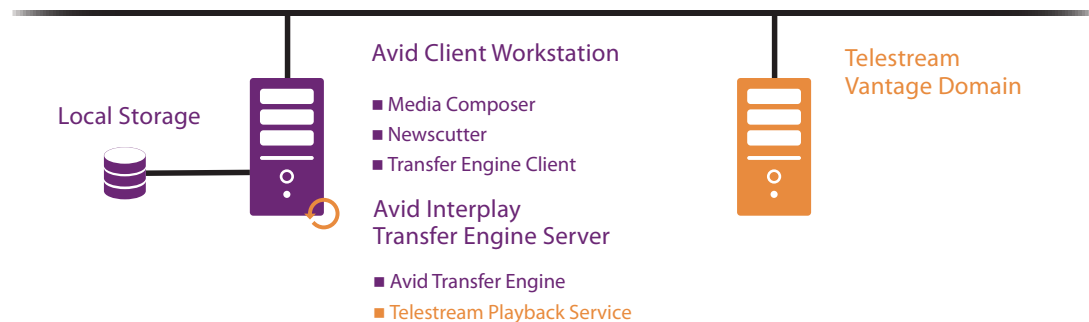
Figure 3. Avid Client & Transfer Components on an Edit Workstation with ISIS



Avid Client & Transfer Engine on One Computer—Local Storage

In this configuration, Avid clients—Media Composer or Newscutter—are on a computer that also hosts Interplay Transfer Engine, utilizing only local storage.

Figure 4. Avid Client & Transfer Engine Components on an Edit Workstation—Local Storage



Installation Tasks for All Configurations

Note: This set of steps assumes that your Avid system is already installed and is fully operational. If your Avid Interplay Transfer Engine and/or Media Composer/Newscutter clients are not installed and operational, complete that task before proceeding with these steps.

Startup steps include:

1. **Stopping AvSony & Pluto PlayServer Services**—Stopping the services and setting them to manual startup prevents interference with Playback service operations.
2. **Installing the Telestream Playback Service**—Installing the Playback service on your Interplay Transfer Engine computer.
3. **Configuring Interplay Transfer Engine**—Configuring the Interplay Transfer Engine to work with the Playback service.
4. **Managing Transfer Engine Playback Devices**—Creating a playback device entry in the Playback service.
5. **Managing The Telestream Playback Service**—Creating a playback device for the Interplay Transfer Engine.
6. **Configuring Avid Media Composer/NewsCutter**—Configuring Media Composer/NewsCutter to work with the Playback service.
7. **Setting up an Avid-Ingest Vantage Workflow**—Creating a Vantage workflow where the Watch action monitors the storage location identified by the playback device entry.

Installing the Telestream Playback Service

Note: Be sure to coordinate with your Avid systems administrator to make these changes or restart any computers.

Use this topic to install the Telestream Playback service V3.0.5 on computers running Interplay Transfer V3.0.5 including Avid components for Avid shared storage support. Microsoft .NET 4.0 must also be installed.

Note: If your system may have an older version of the Playback service on it, please review [Uninstalling Old Versions of the Telestream Playback Service](#) before proceeding with installation.

The Telestream Playback service installer installs 64-bit software for compatibility with the Avid Interplay Transfer Engine V3.0.5. (Previous versions were 32-bit.)

Follow these steps to install the Telestream Playback service:

- [Stopping AvSony & Pluto PlayServer Services](#)
- [Obtaining the Playback Service Installer](#)
- [Installing the Playback Service](#)

Stopping AvSony & Pluto PlayServer Services

If these services are running on an Avid Transfer server where you are installing the Telestream Playback service, you should stop and disable them before using Vantage with Avid systems. They conflict with the Telestream Playback service, preventing it from functioning properly.

1. Open the Services control panel (Control Panel > Administrative Tools > Services).
2. Locate the service in the list.
For each service, follow steps 3, 4, and 5 to stop and modify their startup property:
3. If the service is running, stop it.
4. Right-click on the service and select Properties.
5. Change the Startup type to Manual, click Apply and close the window.

When you're done, close the Services window.

Obtaining the Playback Service Installer

To obtain the Playback Service installer, follow these steps:

1. Go to the [Telestream Web site](#) Vantage Downloads page and log in with your credentials.
2. Click on the Vantage > Downloads link and scroll down to view the tabbed area—click on the Additional Components tab.
3. Click on the Download Now link for the Playback Service for Avid Interplay Transfer Version 3.0.5 installer and download it.
4. Copy the installer to the computer where the Interplay Transfer Engine is installed or to a shared location that the computer can access.

Installing the Playback Service

The Playback service is typically installed on each computer running the Avid Transfer Engine which is going to be used to transfer media to Vantage.

To install the Telestream Playback Service, follow these steps:

- 1.** Start the Playback Service installer—double-click the installer icon on the desktop (or navigate to the location where the installer was saved and double-click it).
- 2.** If an Open File security warning displays, click Run to continue.
- 3.** The installer displays the Welcome panel—click Next.
- 4.** License Agreement panel—Select I Agree (if you do), and click Next.
- 5.** Select Installation Folder—Accept the default folder or select another location and click Next.
- 6.** Confirm Installation—Click Next to start installation.
- 7.** Installing Playback Service—Wait for installation to complete.
- 8.** When the Playback Service Manager window displays—do not enter any information at this time—click Exit to close the window.
- 9.** Installation Complete—Click Close to exit the installer.
- 10.** After installation, double-click the TSInstallPlaybackService icon on the desktop to run the bat file, which deletes temporary files after installation.
- 11.** Restart the computer.

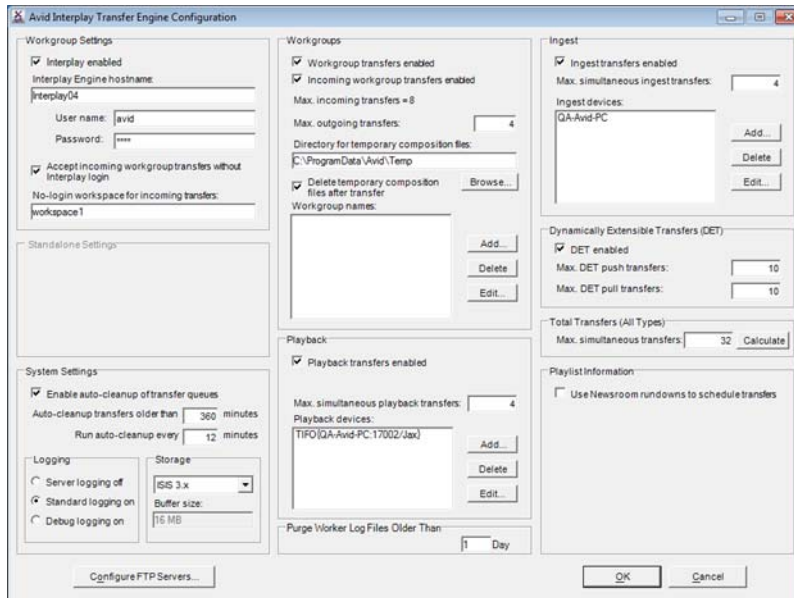
Configuring the Interplay Transfer Engine

Note: Be sure to coordinate with your Avid systems administrator to make these changes.

Some settings in the Interplay Transfer Engine Configuration Manager must be set specifically to support the Telestream Playback service. This is a one-time task.

To verify or update the settings, start the Interplay Transfer Engine Configuration Manager. (Typically at C:\Program Files\Avid\Interplay Transfer Engine\TRANSFERMGRSERVERCONFIG\tmconfig.exe.)

Figure 5. Avid Interplay Transfer Engine Configuration Manager



Update these settings as necessary in the Playback panel (bottom center):

Playback Transfers Enabled. Check this option to enable playback transfers.

Max. Simultaneous Playback Transfers. Enter the value 4.

If you plan to add a playback device now, go to next topic [Managing Transfer Engine Playback Devices](#), below. Otherwise Click OK to save the changes and close the program.

Managing Transfer Engine Playback Devices

Note: Be sure to coordinate with your Avid systems administrator to make these changes or restart any computers.

For each destination folder you intend to use in your Avid-Telestream media processing workflows, you must update the Interplay Transfer Engine to provide a dedicated playback device. (You typically have one destination folder for each workflow.) Each playback device must have a unique name and use a dedicated port number.

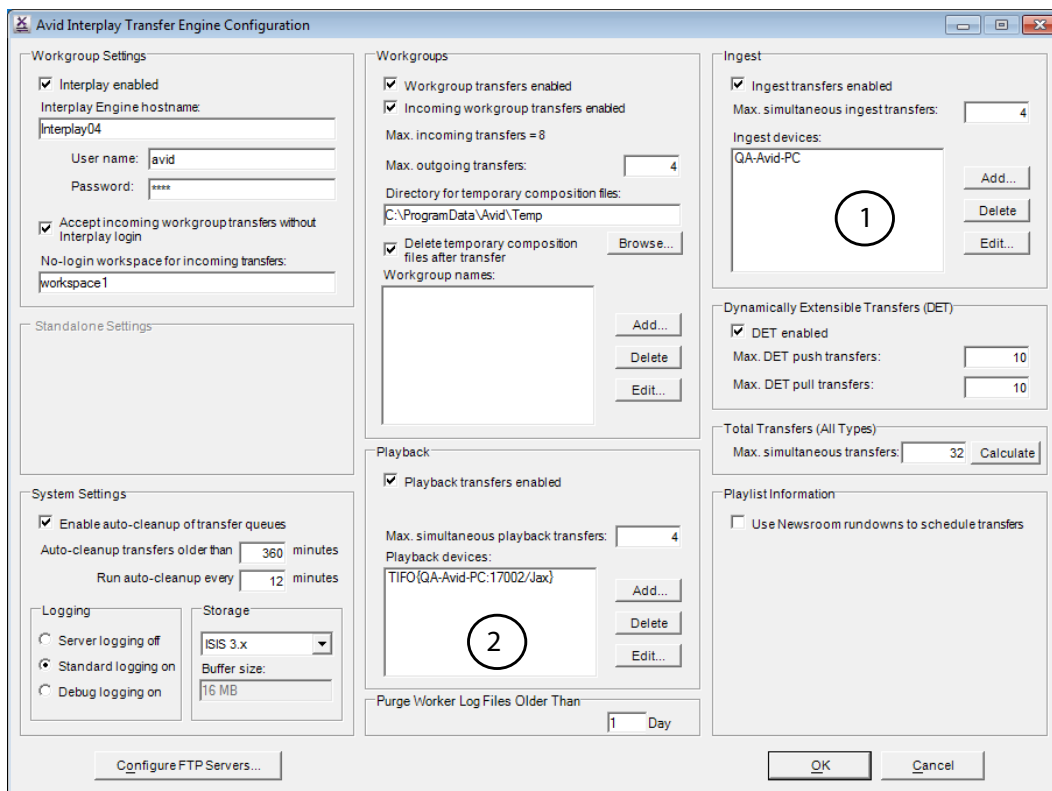
Note: You'll set up at least one playback device initially, then add or modify devices as your workflow requirements change. For each playback device you have, you need to create a corresponding playback device entry in the Telestream Playback Service Manager. Always restart the Playback service after making changes.

- [Adding or Editing Playback Devices](#)
- [Deleting Playback Devices](#)
- [Restarting the Interplay Transfer Engine](#)

Adding or Editing Playback Devices

To manage playback devices, start the Interplay Transfer Engine Configuration Manager. (Typically at C:\Program Files\Avid\Interplay Transfer Engine\TRANSFERMGRSERVERCONFIG\tmconfig.exe.)

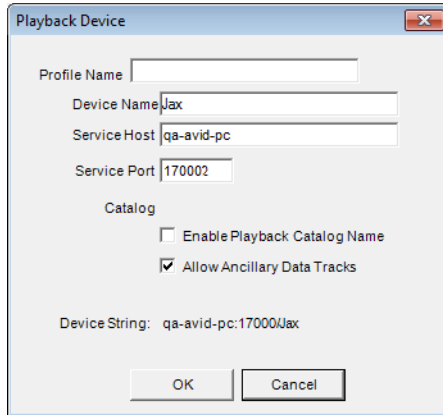
Figure 6. Interplay Transfer Engine Configuration Manager Window



Note: In the main panel, note the ingest device list (circle 1) in the top right Ingest panel and the playback device list (circle 2) in the bottom center (Playback) panel.

In the Playback panel (bottom center), click Add, or select a playback device and click Edit to display this dialog:

Figure 7. Adding Playback Devices in the Interplay Transfer Engine Configuration Manager



Enter/update the following settings:

Profile Name. A descriptive phrase. For example, the destination share name or the media format for this workflow.

Device Name. The name of the device. This name should describe the purpose of the playback device or the workflow in which it is utilized. It cannot contain spaces.

Service Host. The name of the computer where the Transfer Engine and the Telestream Playback service is running.

Service Port. The port number to be used for this file destination. Suggested ports: 8001-65535. This port number must match the port entered in the Playback Device entry in the Telestream Playback Service Manager ([Adding or Editing Playback Device Entries](#)). This is the parameter that ties the two entries together.

Catalog. Check these two options as appropriate for your requirements:

Click OK to save the playback device and close the dialog.

When you have created the playback device entry, the name is auto-generated and listed in the Playback panel's Playback devices list (item 2, above: *<Profile Name>{<ingest service computer:port/<device name>}*).

Deleting Playback Devices

Select the playback device you want to remove from the list in the Playback Devices list, and click Delete to permanently remove the playback device.

Save and close the configuration program.

Be sure to delete the corresponding playback device entry in the Playback Service manager.

Restart both the Interplay Transfer Engine and the Playback service.

Restarting the Interplay Transfer Engine

Each time you make changes to your playback device list, you need to re-start the Interplay Transfer Engine to obtain and publish the new list of Avid playback devices and ports.

Managing The Telestream Playback Service

Note: Be sure to coordinate with your Avid systems administrator to make these changes or restart any computers.

You use the Playback Service Manager (also referred to as the *Playback Service Configuration Utility*) to manage playback device entries—providing one playback device entry for each playback device you have in the Interplay Transfer Engine.

You'll typically set up at least one playback device entry initially, then add or modify entries in the Playback Service Manager as your playback device and workflow requirements change. Recall that for each playback device you have, you need to create a corresponding playback device entry in the Interplay Transfer Engine Configuration Manager. The Playback Service Manager publishes these device entries for use by the Playback service under control of the Interplay Transfer Engine.

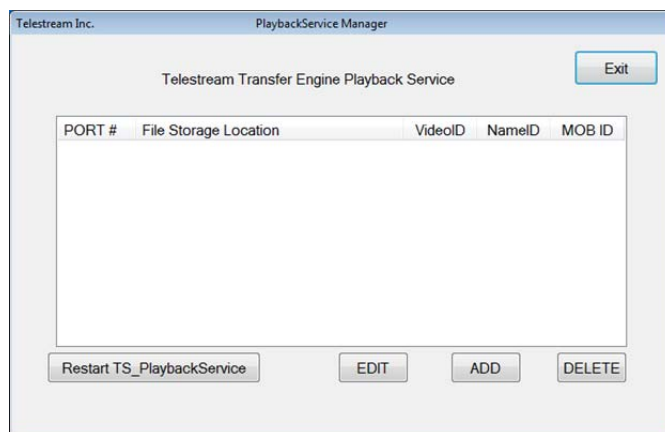
Note: Each time you add, delete, or modify playback device entries, you need to restart the Playback service in order to obtain the current set of device entries. (See [Restarting the Playback Service](#)).

- [Starting the Playback Service Manager](#)
- [Adding or Editing Playback Device Entries](#)
- [Deleting a Playback Device Entry](#)
- [Restarting the Playback Service](#)

Starting the Playback Service Manager

Double-click the TSPlaybackService_IF icon on the desktop, or navigate to the installation folder and start TSPlaybackService_IF.exe from there. When it starts, this window displays:

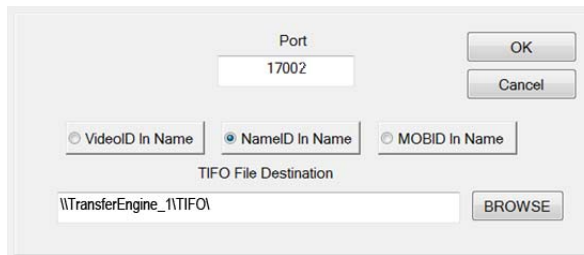
Figure 8. Playback Service Manager Window



Adding or Editing Playback Device Entries

Click ADD or select an entry and click EDIT—the Playback Service Manager displays this dialog:

Figure 9. Playback Device Entry Dialog



Update the following settings:

Port. The unique port number to be used for this destination path. Suggested ports: 8001-65535. This port number must match the port entered in the Playback Device entry in the Interplay Transfer Engine Configuration Manager ([Adding or Editing Playback Devices](#)). This is the parameter that ties the two entries—playback device and destination path—together.

Note: While you're unlikely to select a port already in use and create a conflict, you can open a command window (Start > Run, enter `cmd` and press OK) and run `netstat -a` to obtain a list of ports in use on this computer.

Select one or more of these Name choices (at least one must be selected) to use these values when composing the file name for all files sent to this destination:

VideoID in Name. Unique material identifier specified in TapeID or VideoID attributes in the Interplay environment.

NameID in Name. Display name of the associated sequence in the Interplay environment.

MobID in Name. The internal system identifier used by Interplay to track the video sequence.

TIFO File Destination. Click Browse to navigate and select a server and folder or manually enter a fully-qualified path where the files are to be stored for retrieval by the target Vantage workflow, which monitors the destination path when the workflow is activated. The path may be a local path—although it is unlikely that all systems (Avid and Vantage) are running on the same computer—or a network server path. It should be a share with full read/write privileges, so that Vantage can access the media.

This path must be the same path configured in the Watch action of your target Vantage workflow ([Setting up an Avid-Ingest Vantage Workflow](#)).

When you're done, click OK.

Deleting a Playback Device Entry

If you delete an Interplay Transfer Engine playback device, you should also delete the associated playback device entry in the Playback Service Manager.

Restarting the Playback Service

After modifying playback device entries in the Playback Service Manager, you must restart the Playback service to pick up the current set of entries for use by the Interplay Transfer Engine.

To restart the Telestream Playback service, choose one of these options:

- In the Playback Service Manager, click the Restart TS_PlaybackService button.

—OR—

- Open the Windows Services (Control Panel > Administrative Tools > Services) panel, locate the TS_PlaybackService service, and click Restart.

Note: If you attempt to exit the Playback Service Manager after making changes to playback device entries, the program will display a restart dialog to remind you. Click Yes to confirm that you want to restart the service.

Configuring Avid Media Composer/NewsCutter

Note: Be sure to coordinate with your Avid systems administrator to make these changes or restart any computers.

To set up Avid Media Composer or NewsCutter to use the Playback service, follow these general steps:

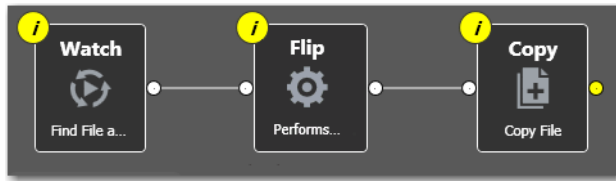
1. Run Avid Media Composer or NewsCutter and display the Settings tab in the Bin window.
2. Double-click the Transfer item to display the Transfer Settings dialog.
3. In the Settings tab, select Direct Channel Output. Other settings may be configured per your requirements.
4. In the TMClient.ini tab, make sure that the settings are appropriate for your network environment.
5. Click OK when finished.

Note: For complete details on configuring Avid Media Composer or NewsCutter, see their guides.

Setting up an Avid-Ingest Vantage Workflow

For each playback device you use, you need to create one or more Vantage workflows to monitor the destination folder. When the workflow is activated, it polls the directory and—for each new file delivered—it starts a job to process the media through the workflow.

Figure 10. Playback Device Entry Dialog



Here is a simple, prototype workflow. Yours will be designed and configured to process the media ingested from Media Composer/NewsCutter to suit your media processing requirements.

The only requirement for any workflow you plan to send media to for processing is that it starts with a Watch action. The Watch action should be configured to poll the TIFO file destination path specified in the playback device entry in the Telestream Playback Service Configuration Manager ([Managing The Telestream Playback Service](#)).

Transferring Sequences to Vantage

This topic describes a typical method (among others) of using Media Composer or NewsCutter to send sequences to the Telestream Playback service for processing by a Vantage workflow.

1. In Media Composer or Newscutter, select a sequence from a bin directory.
2. Select Transfer > Send To Playback > <Playback Device> or right-click the sequence and select Send To Playback > <Playback Device>.
3. Provide the sequence with a tape ID (no spaces allowed). The Interplay Transfer Engine won't transfer the sequence without it.
4. Click OK to send the clip.

The sequence is sent to the Interplay Transfer Engine, which sends it to the selected playback device. (If you attempt to send a sequence with the same tape ID as one already in the Transfer Engine an error displays. To overwrite the tape ID name, select the Overwrite option.)

The Interplay Transfer Engine connects with the Playback service to save the media as a TIFO file in the destination path specified by the playback device you selected.

Note: If there are un-rendered effects in the timeline, Media Composer/NewsCutter renders the sequence automatically before the transfer starts.

When the sequence has been transferred, the TIFO file in the target folder is ingested by the Watch action in your workflow for processing.

Troubleshooting

If you are having problems successfully transferring a sequence to a workflow in Vantage, review these tips.

Note: If you are still having problems, contact Telestream Customer Service for assistance.

- Confirm that the target Transfer Engine is running.
- Confirm that the Telestream Playback service is running. (Sometimes you have to start Playback service using the Windows control panel.)
- Confirm to restart the Playback service after adding or modifying a Playback device entry.
- Be sure to enter a Tape ID in a sequence.
- Confirm that Media Composer/NewsCutter is connected to the server (Transfer > Connect to Server).
- Confirm that your Vantage workflow is active in Workflow Designer.
- Confirm that your Vantage workflow's Watch action is monitoring the correct share.
- Confirm that the destination path in your playback devices is a share.
- Confirm that the share has full rights for everyone.
- Confirm that you are not referencing a local drive letter directory instead of a share.
- In the TMClient.ini tab, make sure that the settings are appropriate for your network environment.

Telestream Intermediary Format (TIFO)

Telestream Intermediary Format (TIFO) is a proprietary, intermediate media wrapper format designed by Telestream as a lightweight, uniform, interchangeable file format to ensure interoperability among Telestream's media processing solutions including Vantage, FlipFactory, Episode, and Pipeline.

TIFO provides a low-overhead wrapper that is essence-agnostic, with metadata, timecode, and closed caption support. TIFO improves the ability to move media files between Telestream products with all media essence elements & metadata intact, preserving the widest range of transcoding options.

Workflow Considerations

TIFO format should be used when you are encoding your files with Vantage, FlipFactory or Episode. TIFO files are unique, in that they can be transcoded as they are being written, allowing you to create multiple different output files in real-time. TIFO files can also contain metadata such as closed captions and time code, which can be processed by Vantage, FlipFactory or Episode.

Usage Considerations

TIFO files are a Telestream proprietary format and aren't playable or readable by non-Telestream applications. You should only use TIFO format if your workflow requires transcoding by Telestream workflow automation applications. The maximum length of a TIFO file is 12 hours.

Uninstalling Old Versions of the Telestream Playback Service

Note: Be sure to coordinate with your Avid systems administrator to make these changes.

To determine if an old Telestream Playback service is installed on a Media Composer/ NewsCutter computer, display the Add/Remove Programs | Programs and Features control panel. Locate the Playback service and note the version. Or, locate the PlaybackService_IF.exe file and display its properties to determine the version. Proceed to the appropriate topic for uninstallation below.

Uninstalling Playback Service V2.0 or Earlier

To uninstall the Playback service version 2.0 or earlier, follow these steps:

1. Open a command window and navigate to the folder where the Playback service files are located. Enter `cd <path to files>` and press the Enter key. (For example: `cd C:\Program Files\Telestream\Telestream_Avid_PlaybackService`).
2. Run the command: `TS_PlaybackService.exe -Install /u`. This runs the uninstall function and you should see about thirty lines of text, followed by the phrase *uninstalled successfully*.
3. Delete the following files:
 - TS_PlaybackService.exe
 - PlaybackService_IF.exe
 - TS_AvidPlaybackVC7.dll file
4. To make sure you have removed all the files, in Windows Explorer, run a search on the C drive using the search string: **Playback*.**. Delete any other occurrences of these files.
5. Restart your computer.

Uninstalling Playback Service Version 2.1 or Newer

To uninstall Playback Service v2.1 or later, follow these steps:

1. Close all applications.
2. Locate (typically on the desktop or in C:\Program Files (x86)\Telestream\Telestream_Avid_PlaybackService) and run the TS_UnInstallPlaybackService bat file—double-click the icon to uninstall the Playback service correctly.
3. Locate and run the PlaybackServiceInstaller_TE_x.x_Vxx.x.msi file. If.
4. Select Remove... and click Finish.
5. If you can not locate the file, display the Add/Remove Programs | Programs and Features control panel, locate the program and double-click it. Click Yes to remove the program.
6. When it finishes, restart your computer.

Supported Avid Media Formats

The following media formats can be processed by Vantage via the Telestream Playback service.

Note: 10-bit mastering quality video is processed as Full Quality (8-bit) by Vantage.

Support for ancillary data tracks includes:

- 608/708 captions
- XDS
 - Program Name
 - V-Chip/Content Advisory Information
 - Ratings
- Active Format Description

Media Formats

HD Formats

- [720P Media Formats](#)
- [1080i Media Formats](#)
- [1080p Media Formats](#)

SD Formats

- [480i Formats](#)
- [480p Formats](#)
- [576i Formats](#)
- [576p Formats](#)

Table 1. 720P Media Formats

Format	Rate (fps)	Frame Size
DNxHD 60 MXF	23.976	1280x720
DNxHD 90 MXF	23.976	1280x720
DNxHD 90 X MXF	23.976	1280x720
AVC Intra 100	23.976	1280x720
AVC Intra 50	23.976	960x720
DNxHD 60 MXF	25	1280x720
DNxHD 90 MXF	25	1280x720
DNxHD 90 X MXF	25	1280x720
DVCPRO HD MXF	25	1280x720
AVC Intra 100	25	1280x720
DVCPRO HD MXF	25	960x720

Table 1. 720P Media Formats

Format	Rate (fps)	Frame Size
AVC Intra 50	25	960x720
DNxHD 75 MXF	29.97	1280x720
DNxHD 110 MXF	29.97	1280x720
DNxHD 110 X MXF	29.97	1280x720
DVCPRO HD MXF	29.97	1280x720
AVC Intra 100	29.97	1280x720
DNxHD 120 MXF	50	1280x720
DNxHD 185MXF	50	1280x720
DNxHD 185 X MXF	50	1280x720
DVCPRO HD MXF	50	1280x720
AVC-Intra 100	50	1280x720
DVCPRO HD MXF	50	960x720
AVC Intra 50	50	960x720
DNxHD 145 MXF	59.94	1280x720
DNxHD 220 MXF	59.94	1280x720
DNxHD 220 X MXF	59.94	1280x720
DVCPRO HD MXF	59.94	1280x720
AVC Intra 100	59.94	1280x720
DVCPRO HD MXF	59.94	960x720
AVC Intra 50	59.94	960x720

Table 2. 1080i Media Formats

Format	Rate (fps)	Frame Size
DNxHD 120 MXF	50	1920x1080
DNxHD 185MXF	50	1920x1080
DNxHD 185 X MXF	50	1920x1080
DVCPRO HD MXF	50	1920x1080
AVC Intra 100	50	1920x1080
DNxHD TR 120 MXF	50	1440x1080
DVCPRO HD MXF	50	1440x1080

Table 2. 1080i Media Formats

Format	Rate (fps)	Frame Size
AVC Intra 50	50	1440x1080
DNxHD 145 MXF	59.94	1920x1080
DNxHD 220 MXF	59.94	1920x1080
DNxHD 220 X MXF	59.94	1920x1080
DVCPRO HD MXF	59.94	1920x1080
AVC Intra 100	59.94	1920x1080
DVCPRO HD MXF	59.94	1280x1080
AVC Intra 50	59.94	1440x1080
DNxHD TR 145 MXF	59.94	1440x1080

Table 3. 1080p Media Formats

Format	Rate (fps)	Frame Size
DNxHD 36 MXF	23.976	1920x1080
DNxHD 115 MXF	23.976	1920x1080
DNxHD 175 MXF	23.976	1920x1080
DNxHD 175 X MXF	23.976	1920x1080
AVC Intra 100	23.976	1920x1080
AVC Intra 50	23.976	1440x1080
DNxHD 36 MXF	24	1920x1080
DNxHD 115 MXF	24	1920x1080
DNxHD 175 MXF	24	1920x1080
DNxHD 175 X MXF	24	1920x1080
DNxHD 36 MXF	25	1920x1080
DNxHD 120 MXF	25	1920x1080
DNxHD 185 MXF	25	1920x1080
DNxHD 185 X MXF	25	1920x1080
AVC Intra 100	25	1920x1080
DNxHD 45 MXF	29.97	1920x1080
DNxHD 145 MXF	29.97	1920x1080

Table 3. 1080p Media Formats

Format	Rate (fps)	Frame Size
DNxHD 220 MXF	29.97	1920x1080
DNxHD 220 X MXF	29.97	1920x1080
AVC Intra 100	29.97	1920x1080

Table 4. 480i Formats

Format	Rate (fps)	Frame Size
DV25 411 MXF	30	720x480
DV50 MXF	30	720x480
MPEG 30 (IMX) MXF	30	720x480
MPEG 40 (IMX) MXF	30	720x480
MPEG 50 (IMX) MXF	30	720x480

Table 5. 480p Formats

Format	Rate (fps)	Frame Size
DV25P 411 MXF	23.976	720x480
DV50P MXF	23.976	720x480

Table 6. 576i Formats

Format	Rate (fps)	Frame Size
DV25 420 MXF	25i	720x576
DV25 411 MXF	25i	720x576
DV50 MXF	25i	720x576
MPEG 30 (IMX) MXF	25i	720x576
MPEG 40 (IMX) MXF	25i	720x576
MPEG 50 (IMX) MXF	25i	720x576

Table 7. 576p Formats

Format	Rate (fps)	Frame Size
DV25P 420 MXF	25p	720x576
DV25P 411 MXF	25p	720x576
DV50P MXF	25p	720x576

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