Oracle® DIVArchive Avid Connectivity

User's Guide

Release 7.4

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1 Introduction

1.1 System Overview

Oracle DIVArchive 7.4 enables support for Oracle Linux 7 (*x86_64, 64-bit*) for all core components. Linux-based Actors have some limitations associated with them, and Windows-based Actors must be used for the following:

- Avid Connectivity support
- Transcoding operations
- Tape Reading Utility

Additionally, long path names are now supported on both Windows and Linux.

- Absolute path names are supported on both Windows and Linux to a maximum of 4000 characters.
- Relative path names are limited to 256 characters on Windows systems (only).

Refer to the additional Oracle DIVArchive 7.4 documentation in the *Oracle DIVArchive 7.4 Core Documentation* library for more information about using DIVArchive in a Linux environment.

1.2 Document Conventions

The following conventions in this guide are used with respect to text:

Normal	Standard Text.
Italic	Used to emphasize a term or variable.
Bold	Used to emphasize critical information
6.1	Refers to a section or sub-section in the document.

The following conventions are used with respect to the figures in this guide.

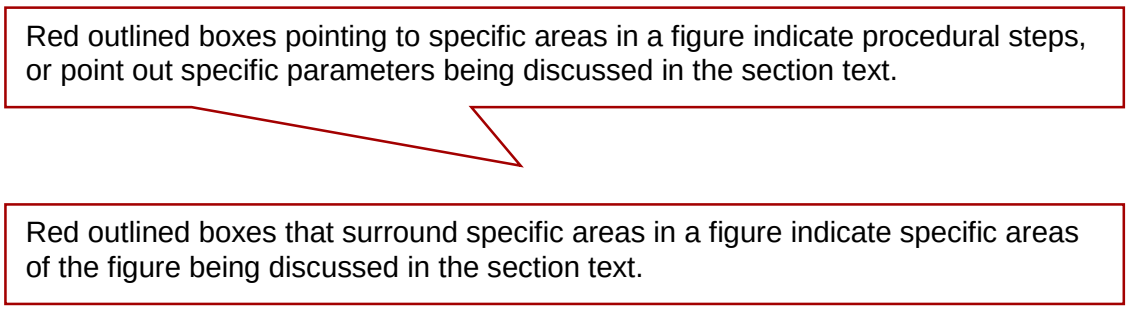


Table 1: System Component Icons for Non-Screenshot Workflows

Icon	Component
	Oracle DIVArchive Actor or Oracle DIVArchive Manager
	Online Storage
	Non-Linear Editors
	Automation and Media Management

1.3 Definitions, Acronyms and Special Terms

Table 2: Definitions, Acronyms and Special Terms

Term	Definition
AAF	Advanced Authoring Format
AE	Archive Engine
AM	Archive Manager
AMC	AM Communicator
API	Application Programming Interface
CIFS	Common Internet File System (*CIFS*): a protocol that allows programs make requests for files and services on remote computers on the Internet. **Note: Linux-based Actors do not support UNC paths for CIFS sources and destinations.**
DET	Dynamically Extensible Transfers
DHM	Data Handling Module
DLL	Dynamically Loadable Library / Dynamic Link Library
DMS	Distributed Media Services

Term	Definition
DNS	Domain Name System
FTP	File Transfer Protocol
GXF	General Exchange Format
IPE	Interplay Engine
ISIS	AVID Storage
LS	LAN Share (*Storage Manager*)
MC	Media Composer
MXF	Material Exchange Format
NIC	Network Interface Card
OMFI	Open Media Framework Interchange
PBP	Play Back Protocol
TM	Transfer Manager
TMC	TM Communicator

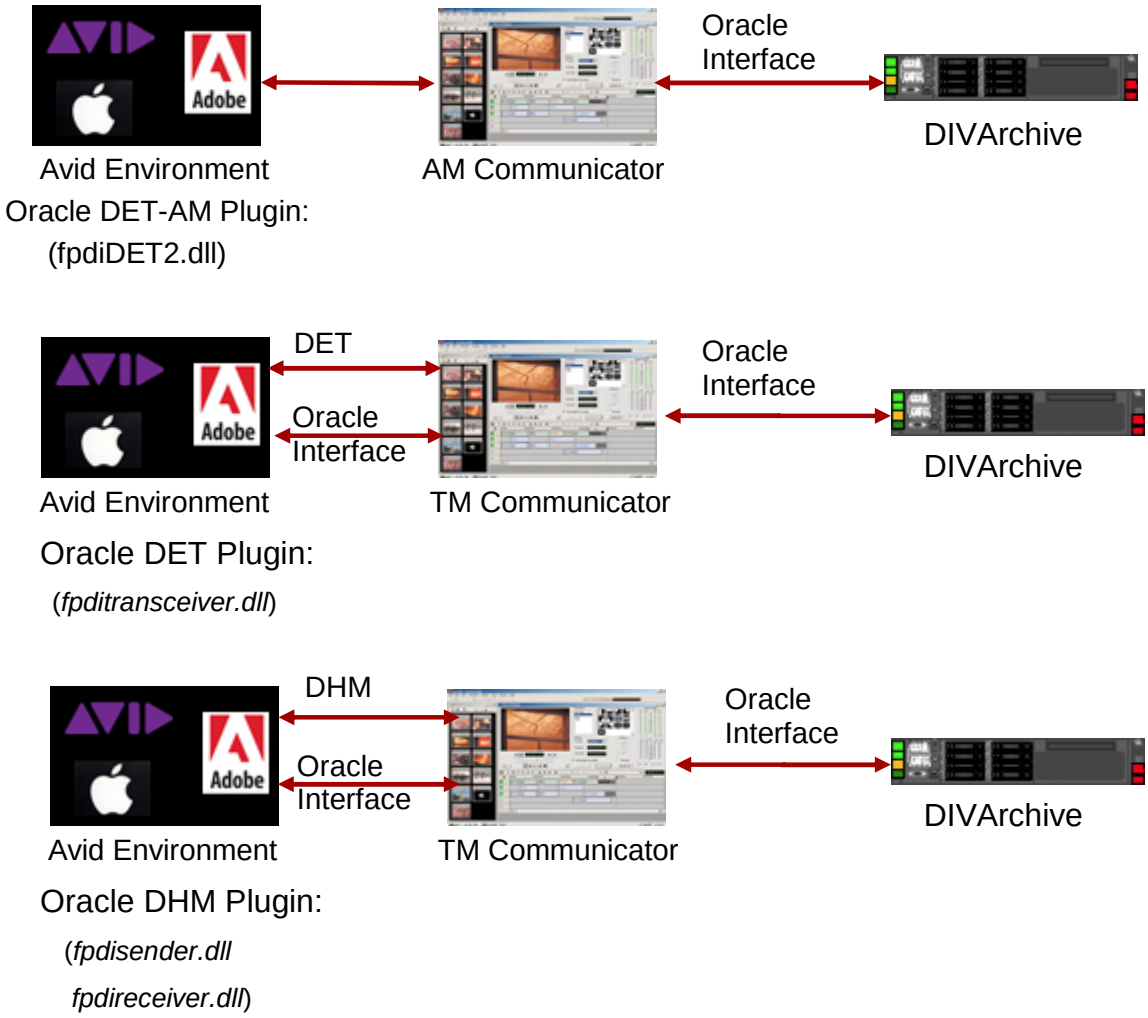
1.4 Avid Connectivity Overview

The purpose of Oracle Avid Connectivity with the Oracle DIVArchive Suite is to transfer archival data to and from Oracle DIVArchive in specific video formats (*specifically GXF and MXF*) and to enable archiving and retrieval of single clips or a sequence of clips. Reference Appendix A1 for information on Avid support. The Avid Media Services manages all requests submitted by the Avid GUI (*Interplay Access or Media Composer*).

The AMC and TMC related components are no longer installed along with the main DIVArchive installation – it is a separate installation process. There are two different packages that can be installed: 1.0 for Legacy Workflows and 2.0 for AVID Direct ISIS Connectivity. Additional installation is also required for certain plugins for both AMC and TMC. This document describes the installation, configuration, and operation of all AVID components.

The figure below represents the overall workflows for Avid Connectivity in each instance:

Figure 1: Avid Connectivity Workflow Overview



1.5 AvidForDIVArchive - DIVArchive Version Compatibility

Avid Interplay is compatible with DIVArchive as follows:

Table 3: AvidForDIVArchive – DIVArchive Version Compatibility

AvidForDIVArchive	DIVArchive Versions
1.x	6.5.3 and later
2.x (*for direct ISIS*)	7.2.1 and later

For additional Interplay and AvidForDIVArchive Version Compatibility information refer to Appendix A1.1 DIVArchive Compatibility (*all versions*).

1.6 AM Communicator Overview

The purpose of the AM Communicator (*AMC*) is to enable interaction between the Avid Archive Manager Solution and DIVArchive. AMC receives Push, Pull, and Remove Requests from the Archive Manager and translates them into DIVArchive API calls.

1.6.1 Legacy AM Communicator

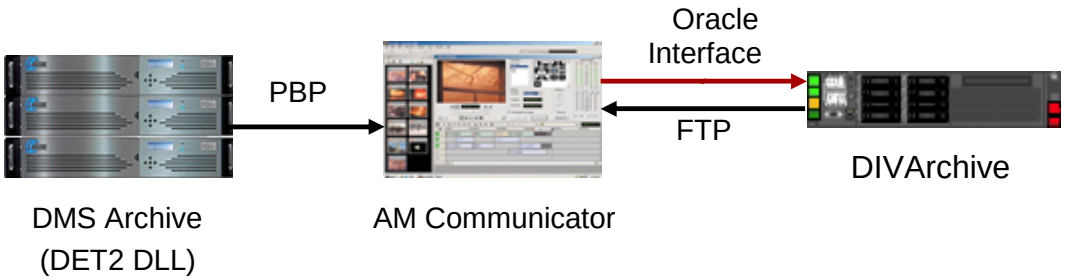
AMC transfers data from DIVArchive to the DMS Archive/Restore Service and vice-versa.

The AM Communicator is based on the following:

- AMC supports the following types of requests initiated by the Avid Archive Manager:
  - Archive (*Push*)
  - Restore/Partial Restore (*Pull*)
  - Delete(*Remove*)
- AMC processes multiple requests simultaneously.
  - Simultaneous requests are configurable in **`amc.conf`**.
- AMC supports Unicode file and clip/sequence names.
- Media received from the Avid DMS Archive is stored as a DIVArchive Object. AMC operates in three different modes.
  - Metadata and media files pertaining to a received clip or sequence are stored either individually (*single file per object*) or as one or more DIVArchive Objects containing multiple files (*multiple files per object*).
  - A special mode has been implemented to migrate from single file per object to multiple files per object mode.
- Destination Tape Group or Disk Array for archive requests is defined using the Partition parameter value in the archive profile.
  - Allows archiving media to different Tape Groups and Disk Arrays without the need to perform AMC reconfiguration and restarting.
- Alternatively, it is possible to setup a configuration where the **`Partition`** parameter value from the archive profile is used as the DIVArchive Source/Destination Name and the Destination Tape Group or Disk Array is specified in AMC configuration file.
- AM Communicator is currently implemented only for Windows.
- *DIVArchive 7.1 and later **does not** support Complex Object processing with AVID AMC*. However, AVID AMC customers may decide to employ Complex Object processing for Source/Destinations other than AVID AMC. In this case, it is recommended that the **Complex Object Threshold** in **`manager.conf`** be configured above 1,000 to a value that will never be reached by an AVID AMC Archive.

The figure below demonstrates the standard workflow for AM Communicator Push Request (*Archive*) Processing.

Figure 2: AM Communicator Push Request Processing Workflow



Refer to Section 4.1 for details on Legacy AMC Workflows.

1.6.2 Direct ISIS Connectivity AM Communicator:

New to the Avid Connectivity is Direct ISIS Connectivity. Using Direct ISIS Connectivity, data is read/written directly from/to the ISIS Server by the Oracle DIVArchive Actor using an **`AVID_DIRECT`** Source/Destination Type. **`AVID_DIRECT`** is built on top of the CIFS Protocol and has similar access mechanisms and therefore only works with **`AVID_DIRECT`** Sources.

Notes:

- **Linux-based Actors do not support UNC paths for CIFS sources and destinations.**
- **Long path names are now supported on both Windows and Linux.**
  - **Absolute path names are supported on both Windows and Linux to a maximum of 4000 characters.**
  - **Relative path names are limited to 256 characters on Windows systems (only).**

The ISIS Client must be installed and configured on each Actor that reads/writes to the ISIS Server; otherwise the Actor will not be able to access the ISIS Server. The configuration must match the Archive Provider (*AP*) configuration and the **`AVID_DIRECT`** Source/Destination must be configured with proper authentication for the ISIS Server.

All Restore Requests from Avid are converted into Oracle DIVArchive Partial File Restores. Therefore AMC never submits full Restore Requests to the Oracle DIVArchive Manager because Actor requires the complete ISIS path for files. If full restore is required, Avid will send a Partial Restore with **`[Begin, End]`** to accommodate the full path requirement.

Metadata Files (*.AAF*) are archived as part of the object (*as in Legacy Mode*) if the **`Allow Metadata Archive`** is set to Yes. This can be configured under:

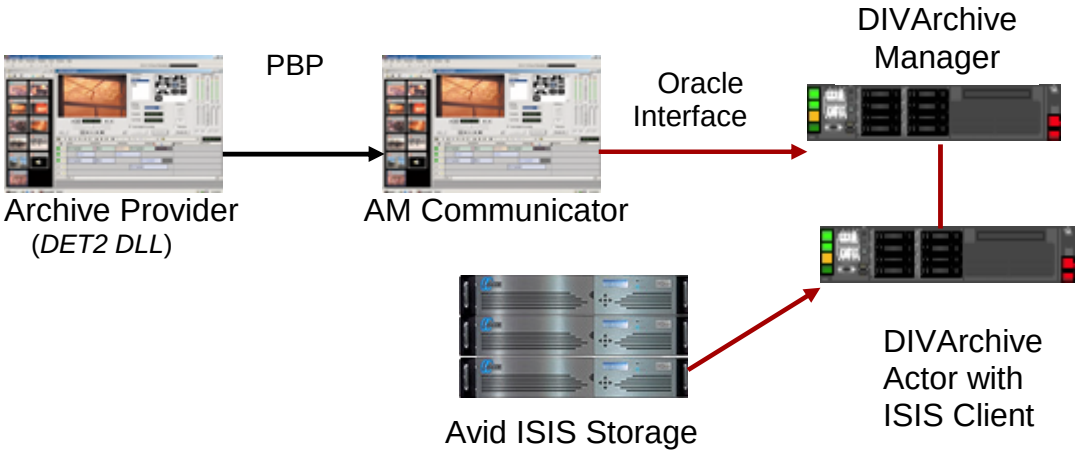
`Interplay Administrator -> Site Settings -> Asset Tracking/Archive Settings`

Throughput can be increased by using dedicated NICs (*Network Interface Cards – Intel Pro for 1Gbps and Myricom for 10 Gbps are recommended*) for the ISIS Server interface on the Actor Machines. Overall throughput can be increased by increasing the number of Actors, and is limited only by the ISIS Server bandwidth. The number of simultaneous requests that can be submitted by Avid are increased greatly (*configurable in **`amc.conf`** – the default setting is 100*) because AMC and fpdiDET2 are only processing commands.

- Data flows through a single path using ISIS compared to the multiple paths used by a Legacy configuration – there are no data bottlenecks.
- The Actor read/writes data to the ISIS Server through the ISIS Client rather than Legacy's **`fpdiDET2`** (*AP*).
- All featured of the Legacy workflows are retained with the exception of the Data Path.
- One Direct ISIS AMC can handle up to 10 Legacy AMC jobs.
- One AMC and one Backup AMC is enough per site.
- AMC can be installed on any machine and does not need to be on an Actor or archive provider machine (*e.g. a Manager machine*).
- ISIS Clients that are installed on all Actors interfacing with ISIS should have separate NIC cards.
- All objects archive using Legacy are compatible with both the new AMC and **`fpdiDET2`**.

The figure below demonstrates the standard workflow for AM Communicator Push Request (*Archive*) Processing using Direct ISIS Connectivity.

Figure 3: AM Communicator Push Request Processing Workflow using Direct ISIS Connectivity



Refer to Section 5.1 for detailed information about the Direct ISIS Connectivity.

1.7 TM Communicator Overview

The purpose of the TM Communicator (*TMC*) to DIVArchive interface is to enable archiving of media from the Avid Unity System to DIVArchive and restoring archived media from DIVArchive to Avid Unity via the Avid Transfer Manager (*renamed to Avid Transfer Engine in Interplay environments*).

The TM Communicator is based on the following:

- DHM and DET archive requests are initiated from the editing station via Avid Media Manager, Media Composer or other Avid editing application **send to playback** and **send to workgroup** commands or corresponding TMC Auto API calls.

- DHM and DET restore requests are initiated via the DIVArchive Control GUI **restore** command or the corresponding DIVArchive API call.
- Media received from Avid Unity is stored as DIVArchive Objects.
  - In the DHM workflow each of these objects contains a single **GXF** or **MXF** file depending on the configuration.
  - In the DET workflow each object contains all media files pertaining to the received clip or sequence along with corresponding Metadata files.
- The DET workflow in TM Communicator supports archiving and restoring of individual clips as well as sequences.
- The DHM workflow in TM Communicator supports restoring and archiving media wrapped in **GXF** and **MXF**.
  - TM Communicator is capable of handling **GXF** and **MXF** clips that contain:
    - **DV**
    - **DV-25**
    - **DV-50**
    - **D10**, **30**, **40** and **50** Mbps essences.
    - Both **PAL** and **NTSC** standards are supported.
- Interplay variants of TM Communicator support archiving and restoring **DNxHD** and **DV-100** content via DHM.
  - These HD formats can be wrapped only in **MXF**.
  - Avid Interplay environment with Transfer Engine 1.2.4 or later is required.
- TM Communicator supports clips with 24-bit and 16-bit audio tracks.
  - An option to perform 24-bit to 16-bit audio conversion during DHM archive and restore has been implemented.
  - TMC for Interplay 2.2 and later supports up to 16 audio tracks while variants for prior releases support up to 8 audio tracks.
- TM Communicator preserves an original clip time code during all archive and restore operations.
- The default format is specified in the configuration as either **GXF** or **MXF** and is used in the event that there is no file extension specified. During DHM restore, any file without a **GXF** or **MXF** extension is considered to be in the configured default format.
- TM Communicator is implemented only for Windows because Avid Technology provides only Windows based implementations of their TM Client software and TM Auto API library.
- TMC does not support Unicode file and clip/sequence names because AVID does not support Unicode for Transfer Manager/Interplay Transfer Engine, TM Client, and TM Auto API. TMC aborts the request if it finds any Unicode characters in the file and clip/sequence names.

- Interplay variants of TM Communicator also support restoring of MXF wrapped XDCAM content via DHM - XDCAM HD422 50Mbps and XDCAM SD IMX 50.
    - Avid Interplay environment with Transfer Engine 1.6 or later is required.
    - Archiving of these formats is not supported as AVID itself doesn't support them.
- TM Communicator supports restoring MXF content with stereo Broadcast WAV Audio (*BWF*). AVID does not support ingest of stereo audio directly, each stereo track is converted into 2 mono audio tracks. No conversion of audio data is performed during this process. Audio data from each sample is read for left channel data and right channel data before assigning to appropriate mono track data (*e.g., stereo track 1 = mono track 1, 2; stereo track 2 = mono track 3, 4 and so on*).
- TM Communicator supports DHM archive of sequences with some of the clips having only video or only audio. In other words, it supports holes in video tracks and audio tracks of AVID sequences. This is applicable to both MXF and GXF wrapped files; except for HD formats which are supported only with MXF. The only restriction is to have all clips of a sequence with the same video and audio formats. Multiple resolutions in the same sequence are not supported.
    - This feature is supported for all the following video and audio formats supported by TMC for DHM archive:
        - Video formats (*both PAL & NTSC*): DV, DV-25, DV-50, D10 30 Mbps, D10 40 Mbps, D10 50 Mbps and HD formats DV-100, DNxHD, XDCAM HD422 and SD(IMX) and AVCIntra 100Mbps.
        - Audio formats (*both 16 and 24 bits*) – PCM & AES3.
- Interplay variants of TM Communicator support archiving and restoring of MXF wrapped AVCIntra content. The Avid Interplay environment with Transfer Engine 2.2 or later is required.

The figure below demonstrates the TM Communicator Archive Workflow.

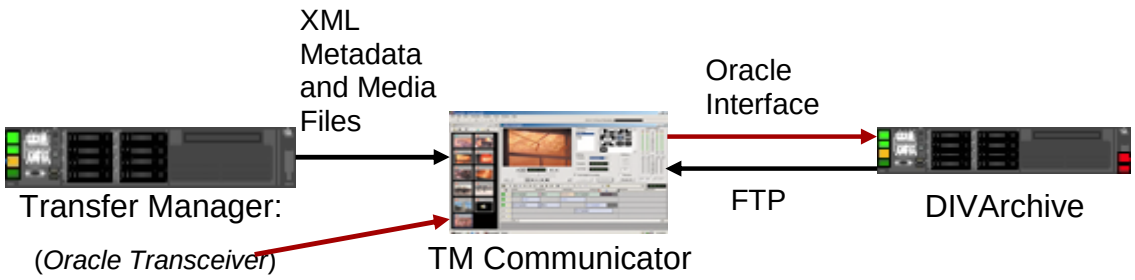
Figure 4: TM Communicator Archive Workflow

The figure below demonstrates the TM Communicator DHM Restore Workflow.

Figure 5: TM Communicator DHM Restore Workflow

The figure below demonstrates the TM Communicator DET Archive Workflow.

Figure 6: TM Communicator DET Archive Workflow



The figure below demonstrates the TM Communicator DET Restore Workflow.

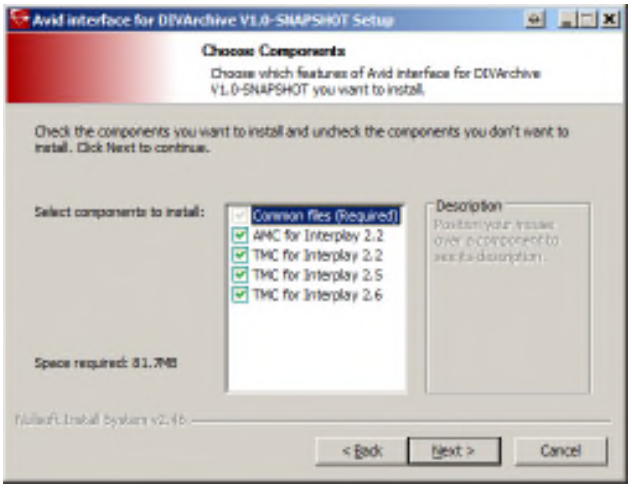
Figure 7: TM Communicator DET Restore Workflow

2 Avid Connectivity Installation

Installation of Avid Connectivity is straightforward and accomplished by using the installation wizard:

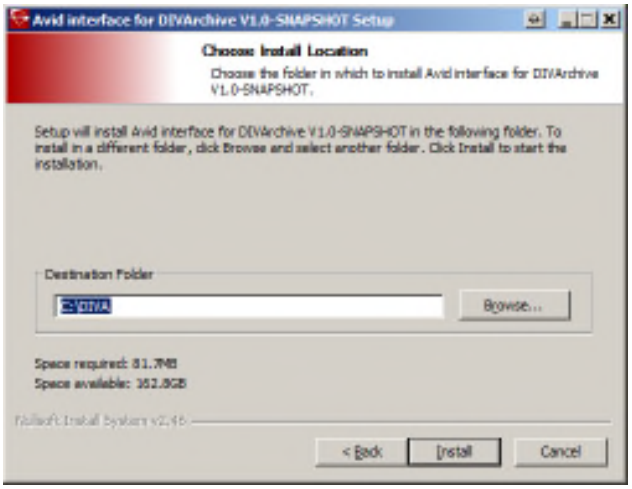
1. Start the Avid Connectivity installation program by double-clicking the executable file provided.
2. The **Choose Components Window** is displayed first. Confirm that all checkboxes are marked (*not empty*) and select the **Next Button**.

Figure 8: Choose components Window



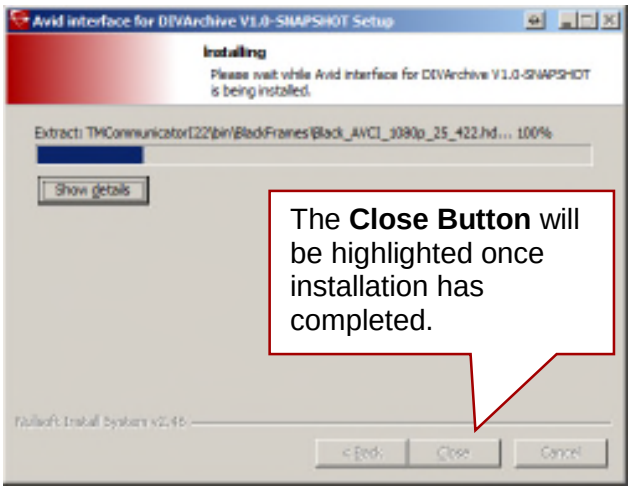
3. In this step the Installation Location is identified. Installing in the default folder is recommended. Once the installation location is satisfactory, click the **Install Button** to proceed with the installation.

Figure 9: Choose Installation Location



4. When the installation is complete the final window is shown. Click the **Close Button** to complete the installation.

Figure 10: Installation Complete Window



3 AM Communicator Installation

To set up interaction between DIVArchive and Avid Archive Manager using the AM Communicator, separate configuration stages are required for DIVArchive, AMC, and Avid Archive Manager Servers.

AMC can be installed on any computer, provided the computer is accessible via the network from the DIVArchive Actor, DIVArchive Manager, and Avid Archive Manager Servers. This option allows for installation of AMC on its own machine, separate from any specific server, if desired.

The following definitions apply when the term or acronym is used within this section:

Table 4: AM Communicator Parameters

Parameter	Definition
$DLL_HOME	Folder on target Avid Server where the **DET2 DLL** is installed.
$AMC_HOST	DNS Name or IP Address of the computer where AM Communicator is installed.
$DIVA_HOME	DIVArchive folder created on the target computer during the installation.
$AMC_HOME	AM Communicator folder on the target computer.
$AMC_INSTALLATION	AM Communicator folder created during DIVArchive installation. **$DIVA_HOME/AMCommunicator** for earlier Interplay versions. **$DIVA_HOME/AMCommunicatorI22** for Interplay 2.2 and above.

3.1 Installing AM Communicator

The following steps are used to install the AM Communicator:

1. Copy all files from the **$AMC_INSTALLATION/bin** folder to the **$AMC_HOME** on the destination computer.
2. Rename the default configuration file **amc.conf.ini** in the **conf/amc** subfolder of **$DIVA_HOME** to **amc.conf**. If multiple AMC instances are required to run on the target computer, add the corresponding service name (*should match the **SERVICE_NAME** parameter value from the AMC configuration*) to the filename; i.e. rename the file to **amc_{$SERVICE_NAME}.conf**.
3. Edit the AMC Configuration File to modify any required parameter values (*refer to Appendix A2 for detailed parameter descriptions*).

3.2 AM Communicator Command Line Options for Installation

AM Communicator supports the following command line options:

Table 5: AM Communicator Command Line Options

Command	Description
`install` **`-i`**	Installs AMC as a Windows System Service using the provided command line options as the default parameters. *This option will not start the service, it only installs the service.*
`uninstall` **`-u`**	Removes AMC from the Windows System Services. *This will stop the service automatically if it is running.*
`debug` **`-d`**	Starts the AMC Service in Console Mode. *Console Mode provides additional information as standard output.*
`version` **`-v`**	Displays version information and then exits.
`help` **`-h`**	Displays usage information and then exits.
`-conf` **`-f`**	Specifies a fully qualified configuration file path for AMC to use rather than the default configuration file. This option is used when running multiple instances of AMC on a single computer.

AM Communicator can be started in two modes:

- As a Windows System Service.
- As a console application.

It is recommended that AMC be run as System Service in production environments, however, console mode can be useful for troubleshooting if necessary.

To run multiple AMC instances on a single computer:

- Specify the fully qualified configuration file path in the command line
    - Use the **`–conf`** (*or its alias* **`-f`**) option.

For example, the following command starts an AMC instance that uses the parameters from the configuration file named **`amc_example.conf`** (*the* ***`SERVICE_NAME`*** *parameter value must be set to example – see Appendix A2 for all AMC parameters*) and runs in console mode.

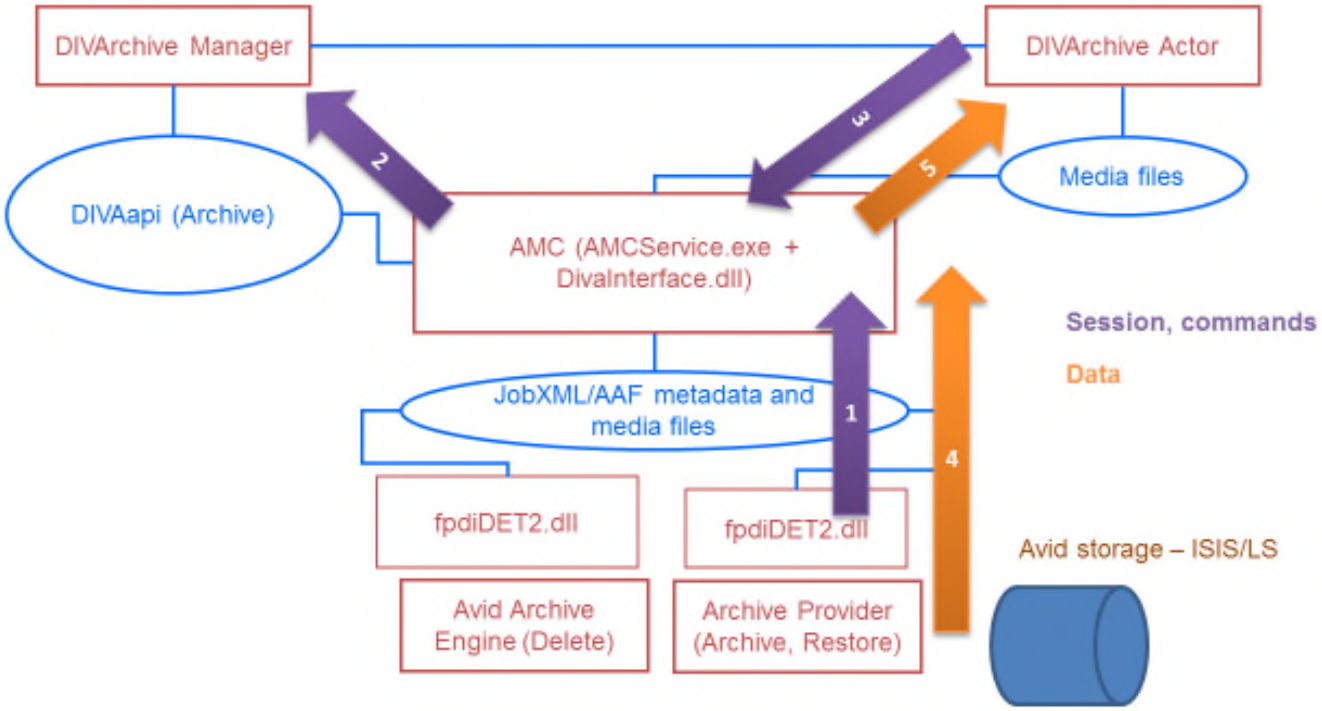
```
AMCService -d –conf ../conf/amc/amc_example.conf
```

4 Legacy AM Communicator

4.1 Legacy AMC Workflows

The following diagrams are examples of standard AMC Legacy Workflows for the various requests (*Archive, Restore/Partial Restore, and Delete*).

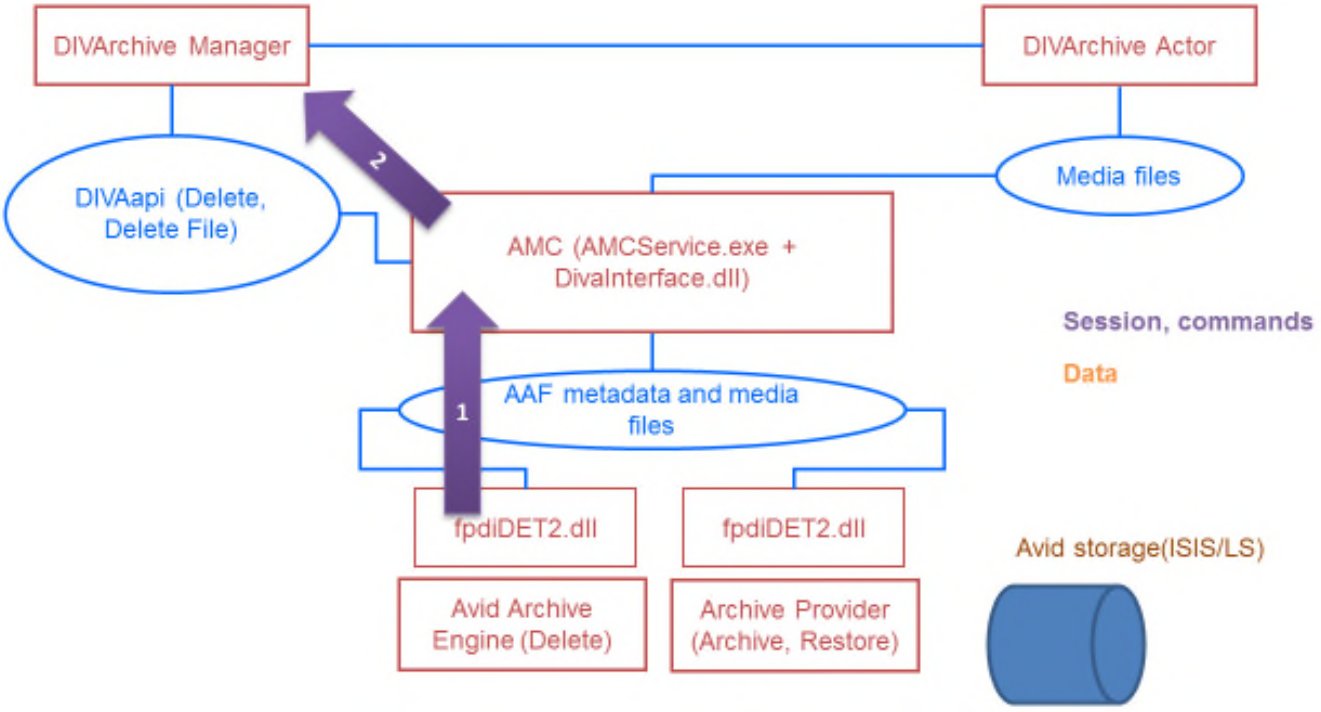
Figure 11: Legacy AMC Archive Workflow



The general Archive Workflow is as follows:

1. The Media Services Application submits a JobXML to the Archive Service.
   a. The Archive Service loads the **`fpdiDET2.dll`** and DET2 calls provided.
   b. The fpdiDET2 uses the Avid Archive SDK for this purpose.
   c. The fpdiDET2 connects to AMC and submits the JobXML.
2. AMC receives the command and then receives the JobXML from fpdiDET2.
3. The JobXML is parsed and a list of all files and their details is constructed.
4. AMC checks if the clip (*or sequence*) is part of any existing object and then decides if it needs to **Delete** (*based on the configuration*) and sends the Archive Request to the Manager.
   a. If a Delete is required, the workflow in the figure below is initiated to perform the action.
5. The Manager notifies the Actor of the request; the Actor contacts the AMC Service and proceeds to archive the object(s).

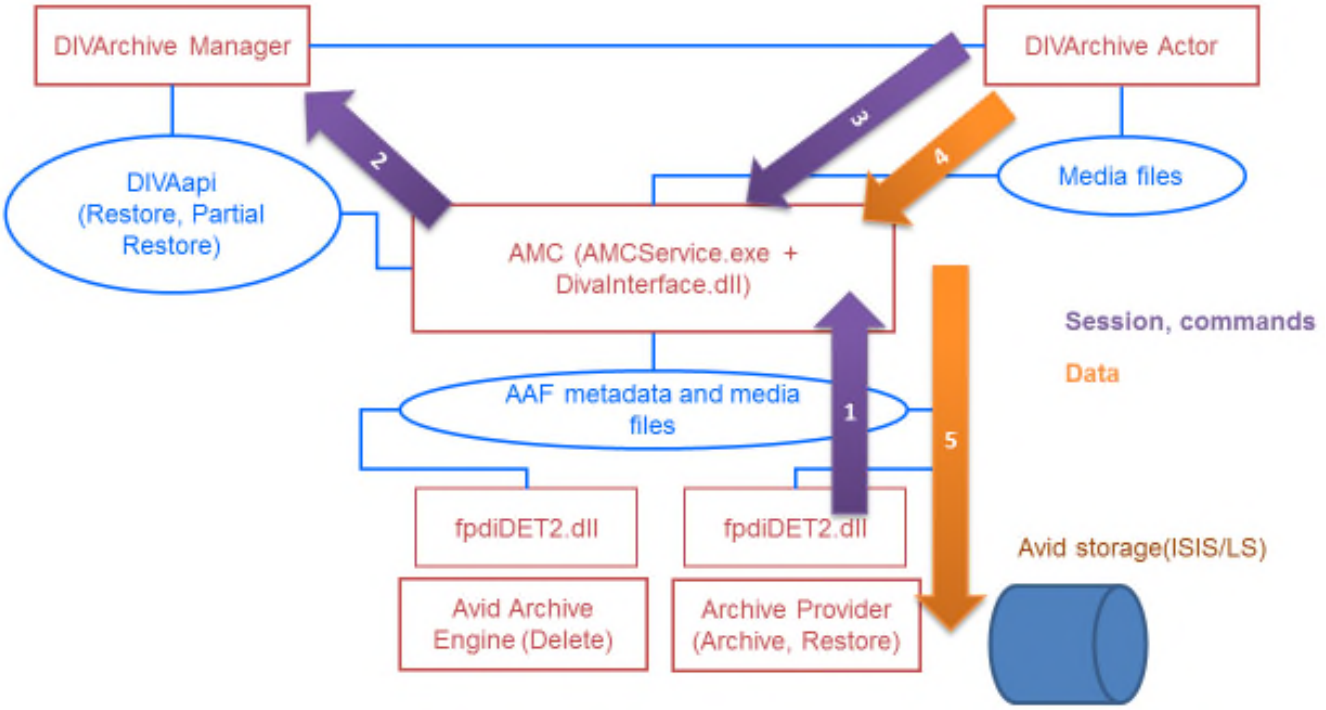
Figure 12: Legacy AMC Delete Workflow



Once a necessary Delete is identified by AMC, the general Delete Workflow is as follows:

1. The Avid Archive Engine sends a Delete Command to the AMC Service.
2. The AMC Service notifies the Manager that a delete is required and the Manager processes the request.

Figure 13: Legacy AMC Restore Workflow



The general Restore Workflow is as follows:

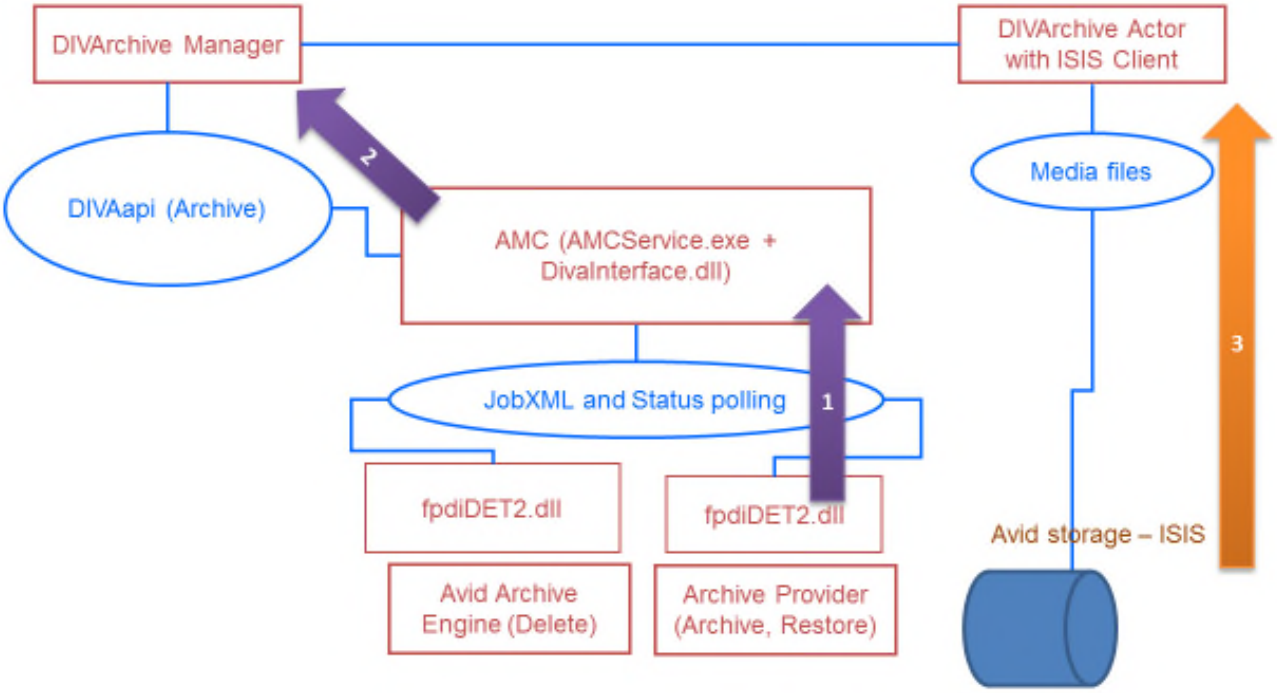
1. The Media Services Application submits a JobXML to the Restore Service.
    a. The Restore Service loads the **`fpdiDET2.dll`** and DET2 calls provided.
    b. The fpdiDET2 connects to AMC and submits the JobXML.
2. AMC receives the command and then receives the JobXML from fpdiDET2.
3. The JobXML is parsed and a list of all files and their details is constructed.
4. AMC searches all categories and identifies a list of objects to Restore and sends the Restore Request to the Manager.
5. The Manager notifies the Actor of the request; the Actor contacts the AMC Service and proceeds to restore the object(s).

5 Direct ISIS AM Communicator

5.1 Direct ISIS Connectivity Workflows

The following diagrams are examples of standard AMC Direct ISIS Workflows for the various requests (*Archive, Restore/Partial Restore*).

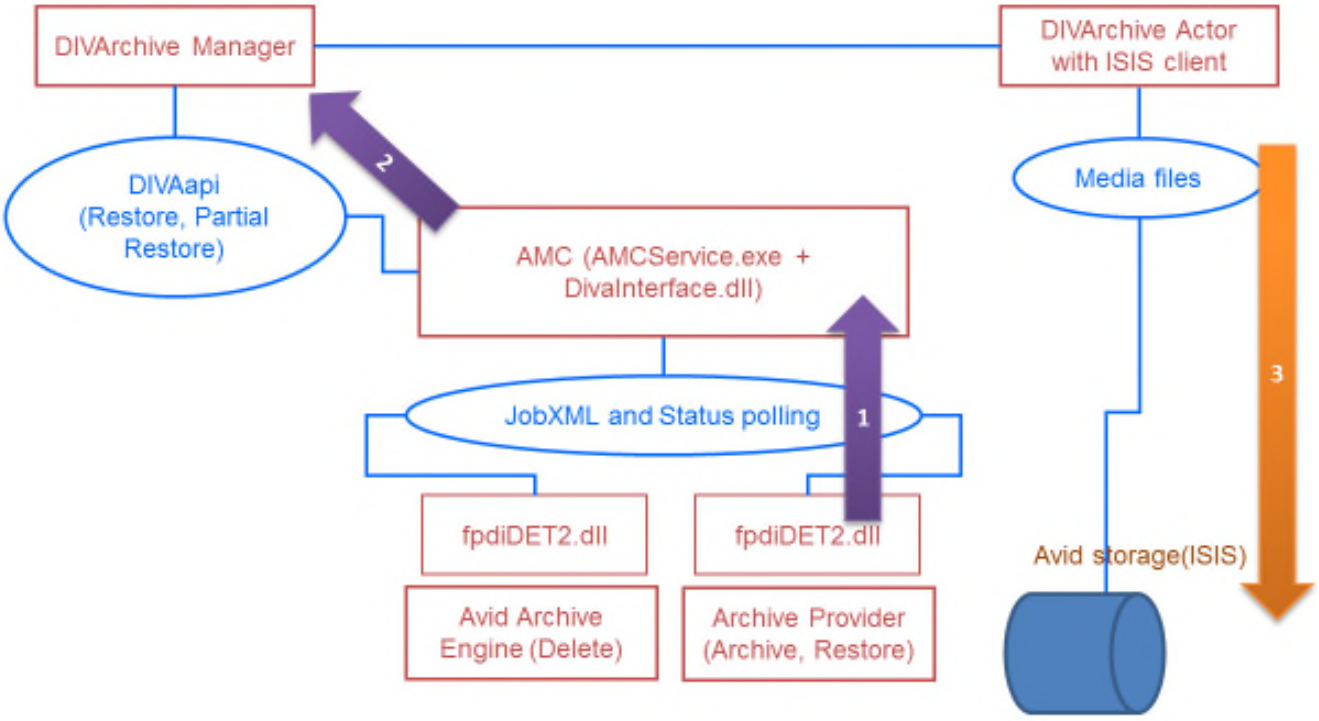
Figure 14: AMC Direct ISIS Archive Workflow



The general ISIS Archive Workflow is as follows:

1. The Media Services Application submits a JobXML to the Archive Service.
    a. The Archive Service loads the **`fpdiDET2.dll`** and DET2 calls provided.
    b. The fpdiDET2 uses the Avid Archive SDK for this purpose.
    c. The fpdiDET2 connects to AMC and submits the JobXML.
2. AMC receives the command and then receives the JobXML from fpdiDET2.
3. The JobXML is parsed and a list of all files and their details is constructed.
4. AMC checks if the clip (*or sequence*) is part of any existing object and then decides if it needs to **Delete** (*based on the configuration*) and sends the Archive Request to the Manager.
    a. All Delete commands are the same as in the Legacy AMC Workflow.
5. The Manager processes the request(s) and forwards all necessary information to the Actor (*with the ISIS Client*)
6. The Actor proceeds to archive the object(s) directly from the ISIS Server.

Figure 15: AMC Direct ISIS Restore Workflow



The general ISIS Restore Workflow is as follows:

1. The Media Services Application submits a JobXML to the Restore Service.
    a. The Restore Service loads the **`fpdiDET2.dll`** and DET2 calls provided.
    b. The fpdiDET2 connects to AMC and submits the JobXML.
2. AMC receives the command and then receives the JobXML from fpdiDET2.
3. The JobXML and fpdiDET2 provide AMC with the File Path and MOB ID to construct the Manager Request.
4. AMC searches all categories and identifies a list of objects to Restore and sends the Restore Request to the Manager.
5. The Manager notifies the Actor of the request; the Actor proceeds to restore the object(s) directly to the ISIS Server.

5.2 Direct ISIS Connectivity AM Communicator Configuration

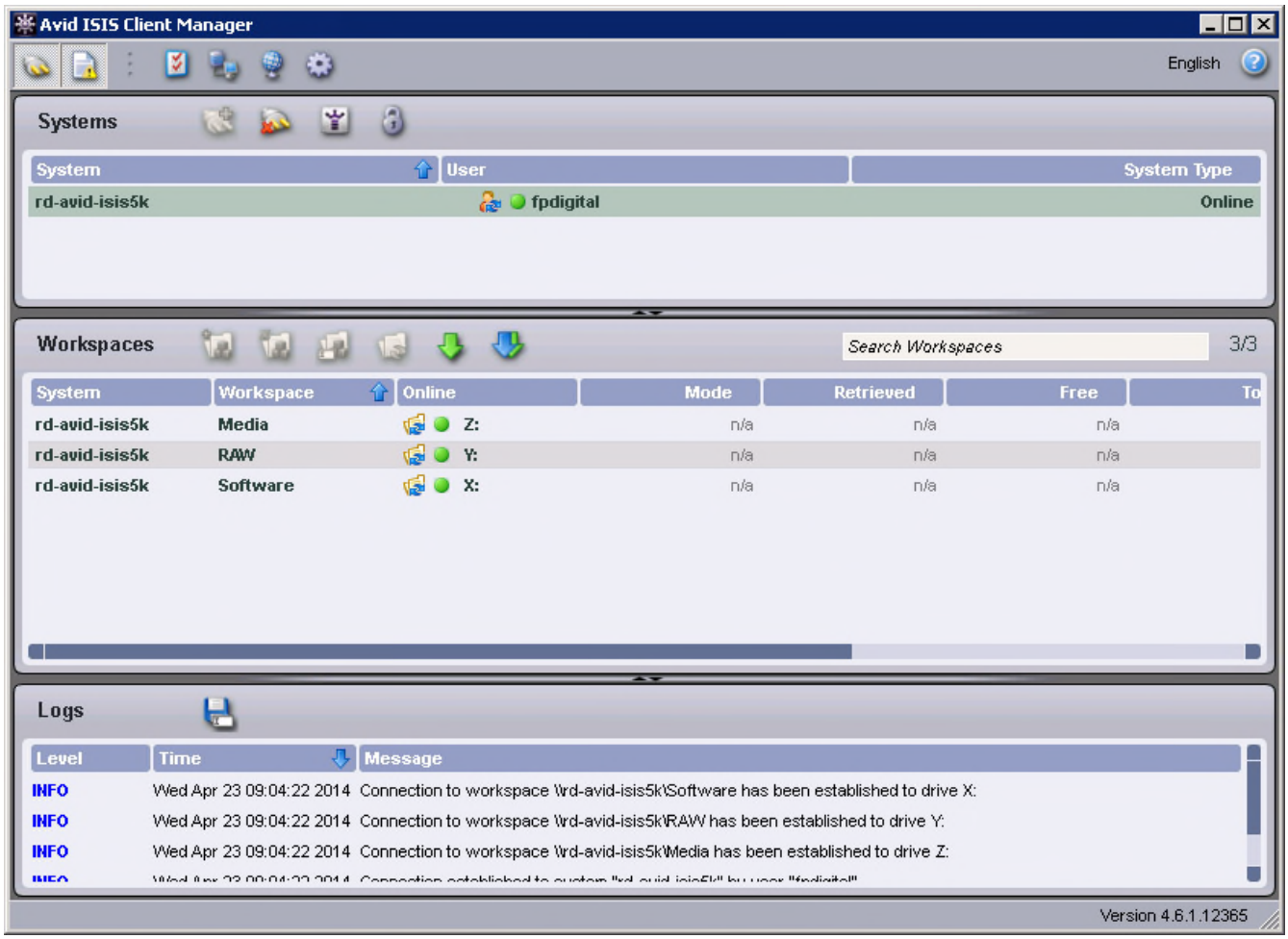
There is a default configuration file named **`amc.conf.ini`** delivered in both 1.x and 2.x packages with specific parameters for Legacy and ISIS respectively. It needs to be configured with the appropriate parameters. If an upgrade is being performed from a previous version, just copy **`amc.conf`** and add any new parameters to the new version.

Note: Please never change any Category parameters like `DIVA_DEFAULT_CATEGORY` when the system has been used previously. This will affect all Restore operations.

5.2.1 ISIS Client Installation

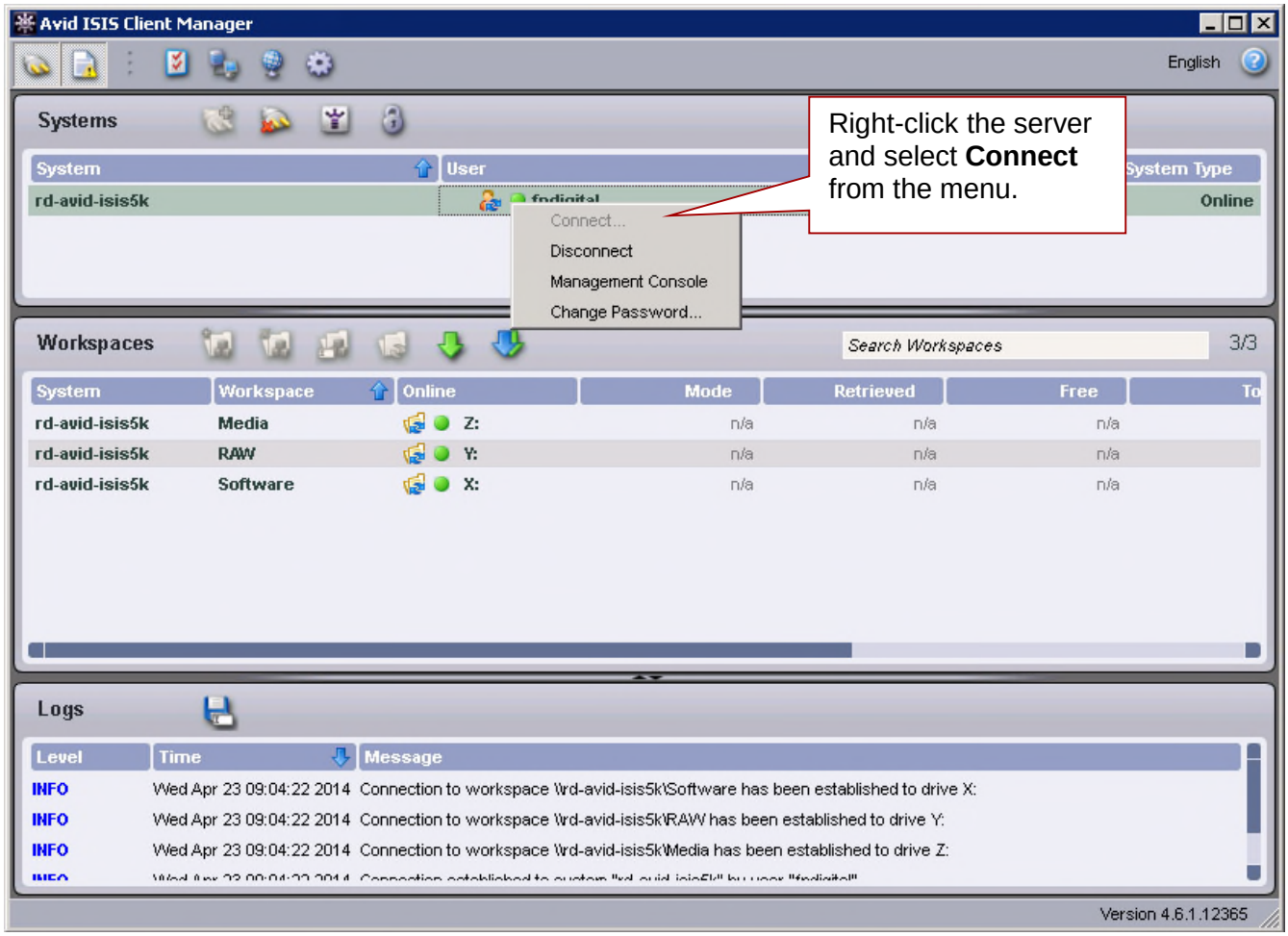
The latest ISIS Client should be installed on the Actor Machine that will interface with the ISIS Server. Double-click the ISIS Client installation file and install the program with the default settings. The figure below shows the typical ISIS Client after installation.

Figure 16: ISIS Direct Client



If the ISIS Server is on the same subnet as the Actor where the ISIS Client is installed, the ISIS Client will auto-detect the server. To connect to the server, right-click the server name and select connect from the menu as shown in the figure below.

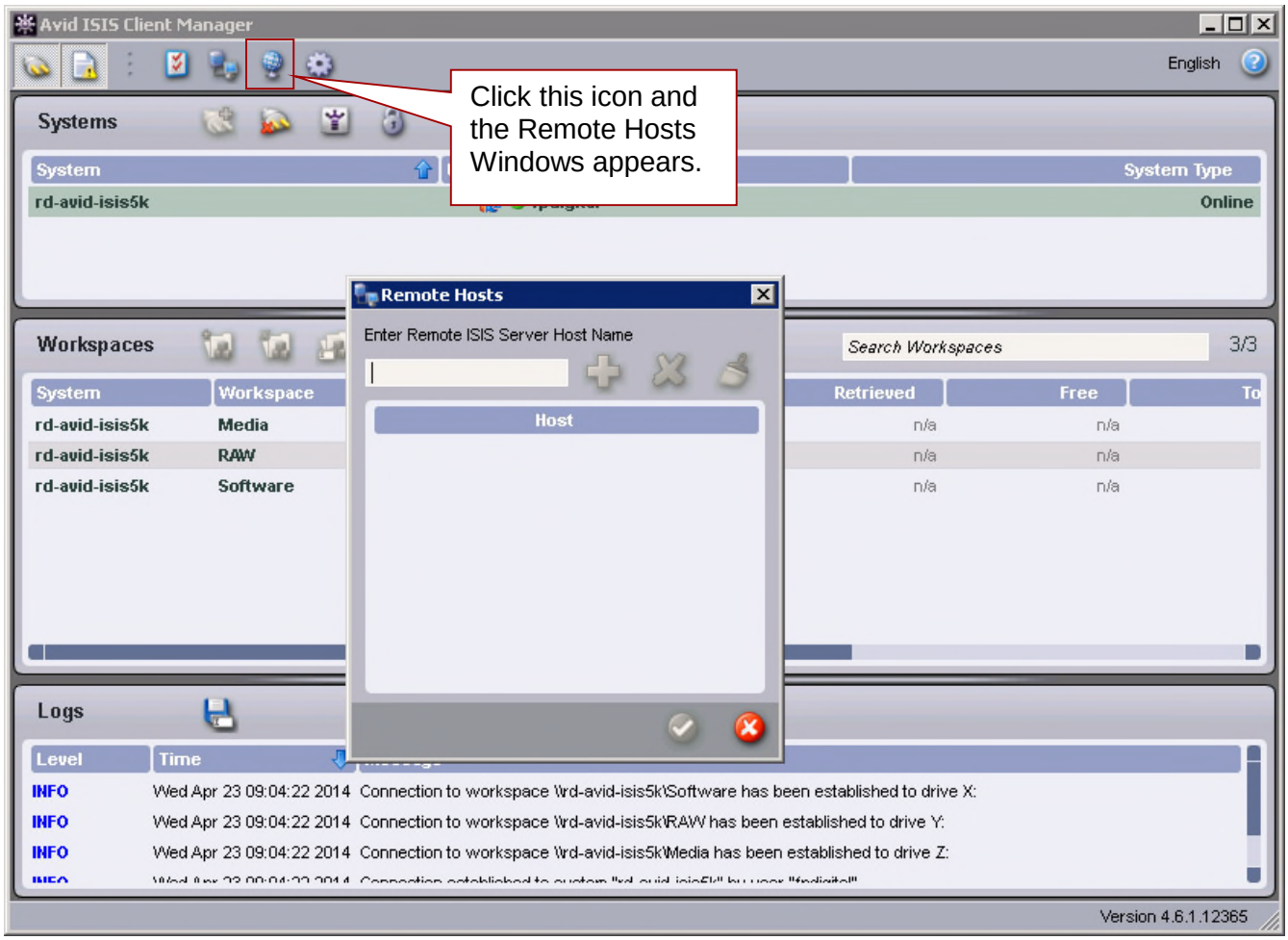
Figure 17: Connecting to the ISIS Server



If the ISIS Server is on a subnet that is different from the Actor Machine where the ISIS Client is installed use the following procedure to add the server to the Client interface.

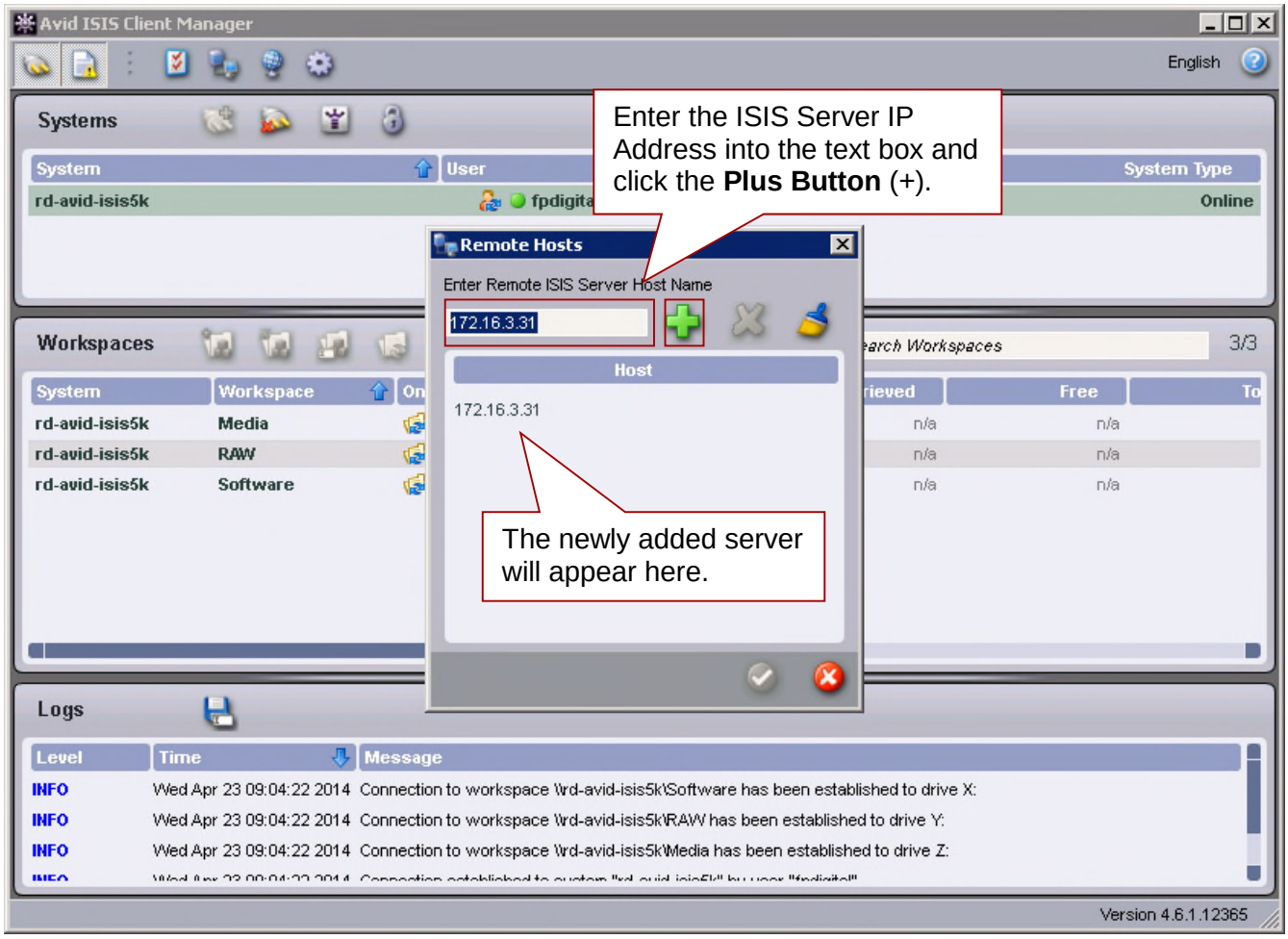
1. Open the ISIS Client and click on the **Add Server Icon** in the **Icon Bar**. The **Remote Hosts Window** will appear.

Figure 18: Adding a Server to the ISIS Client – Step 1



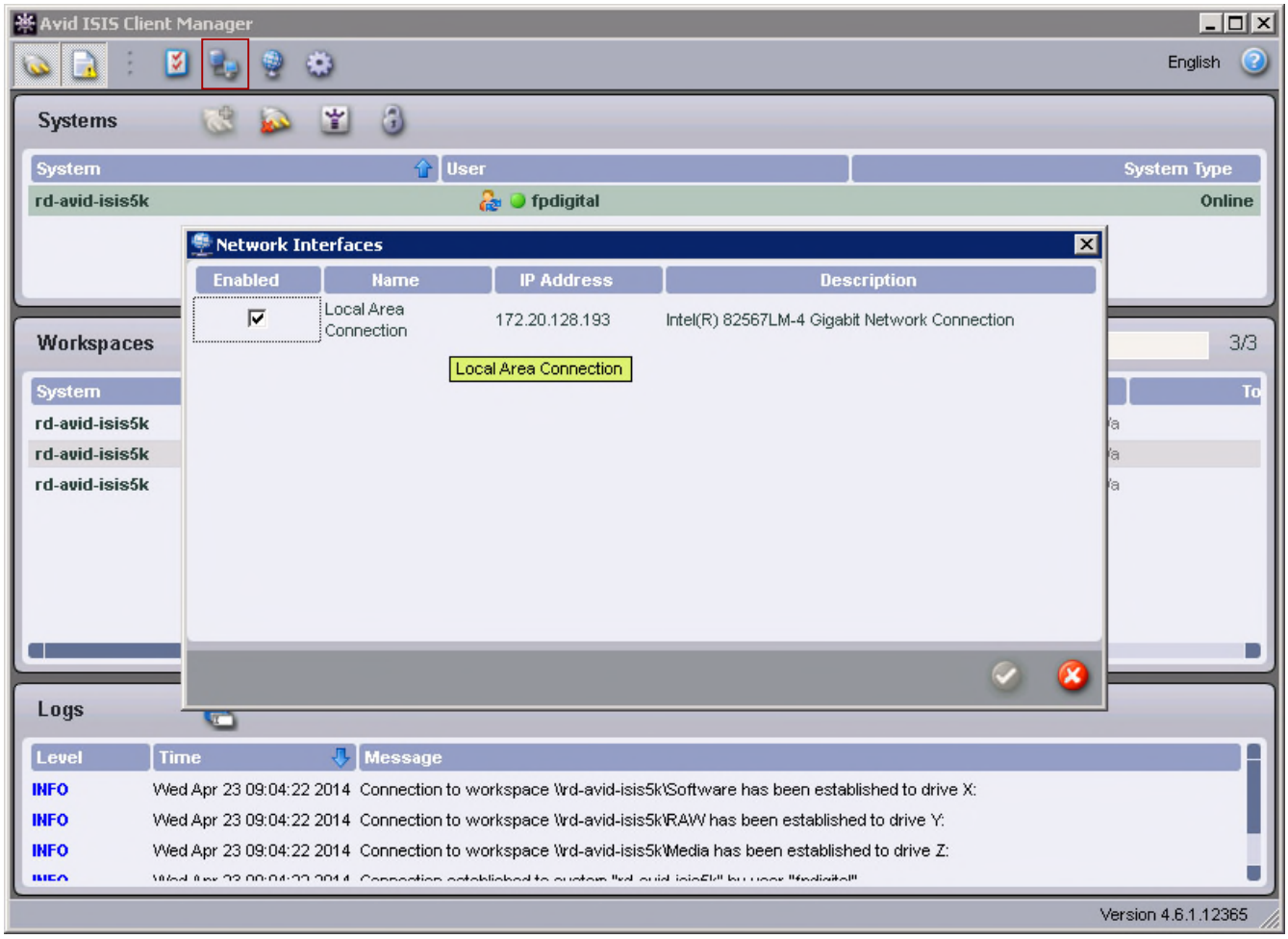
2. Enter the IP Address of the remote ISIS Server into the text box and click the **Plus Button** (+).

Figure 19: Adding a Server to the ISIS Client – Step 2



3. Check that the server has connectivity and has been added by clicking the Network Icon on the Icon Bar (*the sample server in the figures above has not actually been added to the network and is not displayed below*). A window will be displayed showing the added server on the network. Use the process in Step 1 to connect to the new server.

Figure 20: Adding a Server to the ISIS Client – Step 3



5.2.2 Configuration of AM Communicator Source/Destination in DIVArchive

Dedicated FTP-like Source/Destinations with the type **AVID_AMC** should be configured in DIVArchive to enable archive and restore workflows.

Figure 21: Sample AMC Source/Destination Configuration (Legacy)

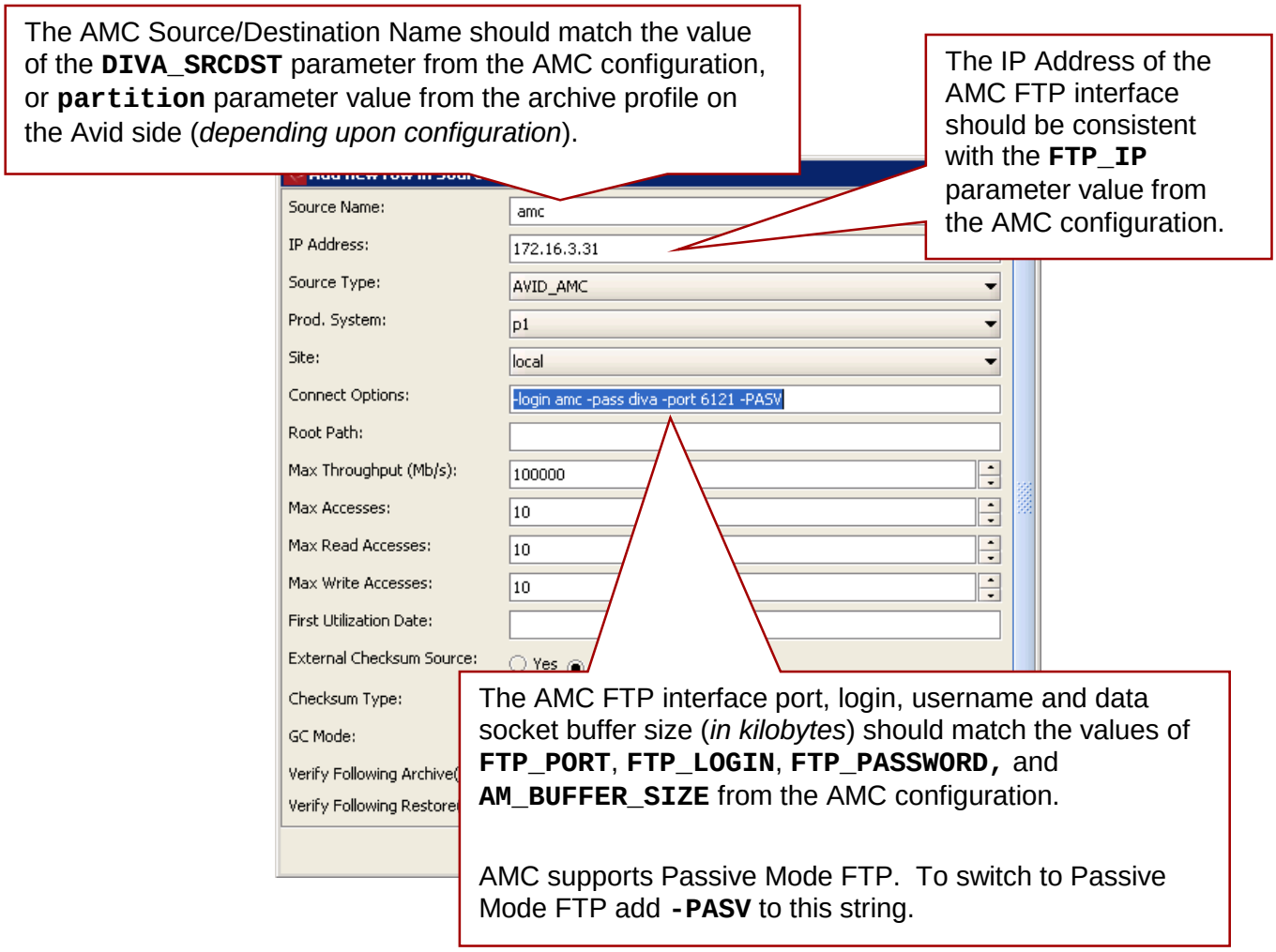
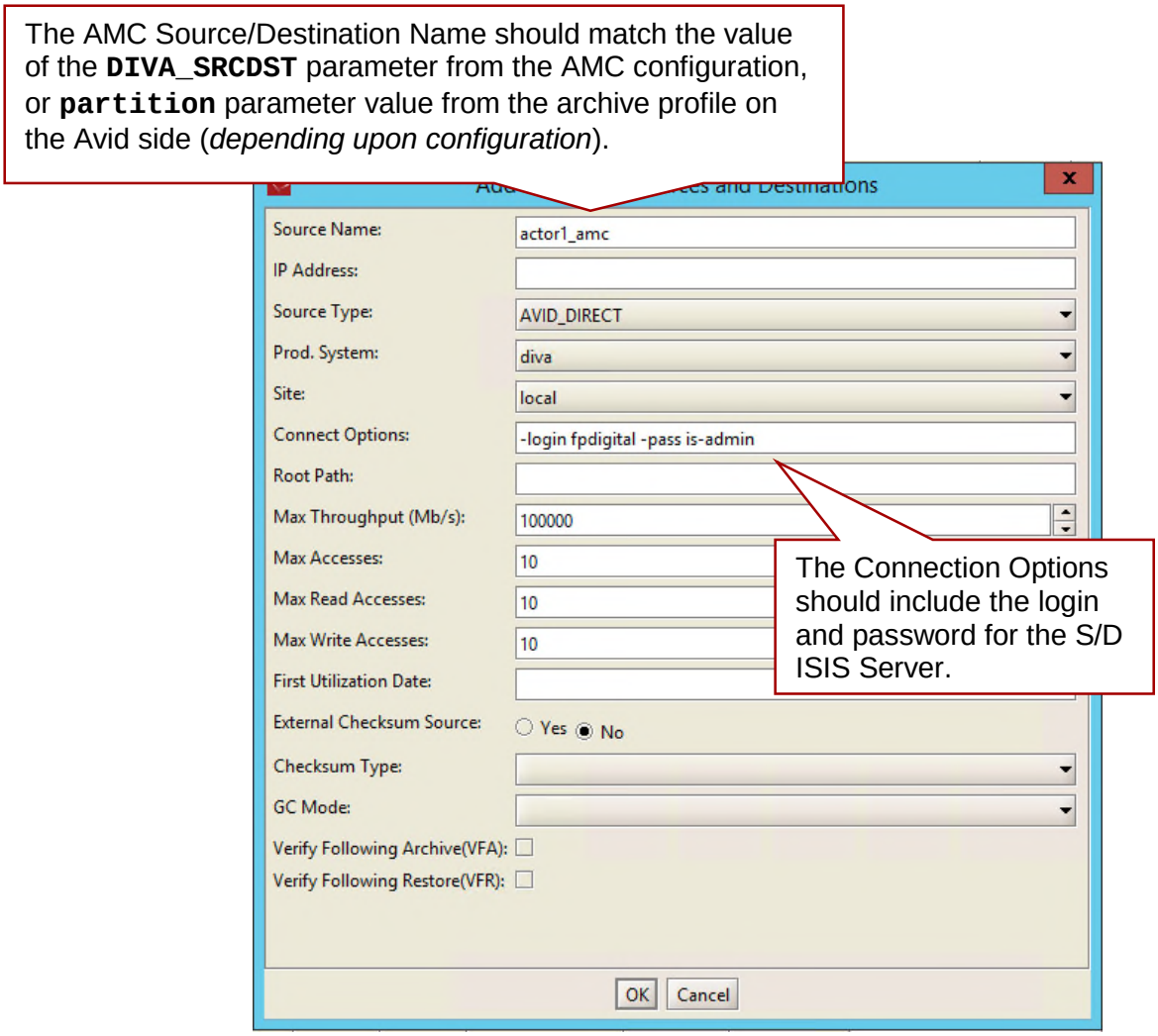


Figure 22: Sample AMC Source/Destination Configuration (ISIS)



The IP Address does not have any significance for ISIS configuration. The ISIS Source/Destination acts like a CIFS Source/Destination and an IP Address is not required in the configuration. The Actor uses the **`-login [username] -pass [password]`** options for authentication to access the ISIS Workspace Paths for reading and writing files in the file list.

Example:

```
\\rd-avid-isis5k\raw\avid mediafiles\mxf\rd-avid-
  mc.1\justinseq1_audi5384fd47.1.mxf
```

It is important to keep the **Root Path** in the Source/Destination empty - there is only one Source/Destination of type **`AVID_DIRECT`** for all Actors - **`METASOURCE`** is not required for multiple Actors. All Actors having an ISIS Client and the **`AVID_DIRECT`** Source/Destination should be in a single production system so that other (*non-ISIS*) Actors are not used with this Source/Destination.

The **amc.conf** configuration file must be configured with all required parameters. Important parameters include:

- **AM_MAX_CONNECTIONS**
  - Default is 100
- **DIVA_SRCDST**
  - This is a type of **AVID_DIRECT**.
- **DIVA_DEFAULT_CATEGORY**

All other parameters are set the same as with a Legacy configuration.

Note: AM_TIMEOUT is no longer used for status since the status is no monitored by AMC. AM_TIMEOUT will continue to monitor requests until it is cancelled or aborted.

Refer to Appendix A2.1 AMC Configuration File for the default, delivered **amc.conf** file.

5.2.3 Configuration of Avid Archive Manager

Push, **pull,** and **remove** requests are initiated and processed by three separate Avid services. These services normally reside on different computers. In a typical configuration, **archive** and **restore** services are installed on the Archive Provider Server and **remove** is handled by the Archive Engine Server.

To enable archive, restore/partial file restore and delete functionality, the **DET2 DLL** should be installed on the servers where the corresponding Avid Services reside.

The following procedure is identical for all Avid Servers:

1. Copy the **fpdiDET2.dll,** and all other files, from the **$AMC_INSTALLATION/fpdiDET2** folder to **$DLL_HOME** on the target Avid Server. The recommended default path is **C:\DET2\fpdiDET2**.
2. If the selected **$DLL_HOME** differs from the recommended default path, edit the **am_regkey.reg** file's **VendorFolder** Key Value so it matches the **$DLL_HOME** value.
3. Merge the **am_regkey.reg** file into the Windows Registry.
4. Change the AMC Parameter Value in **fpdiDET2.xml** to define the correct AM Communicator Network Address using the following format:

   <IP>:<port>

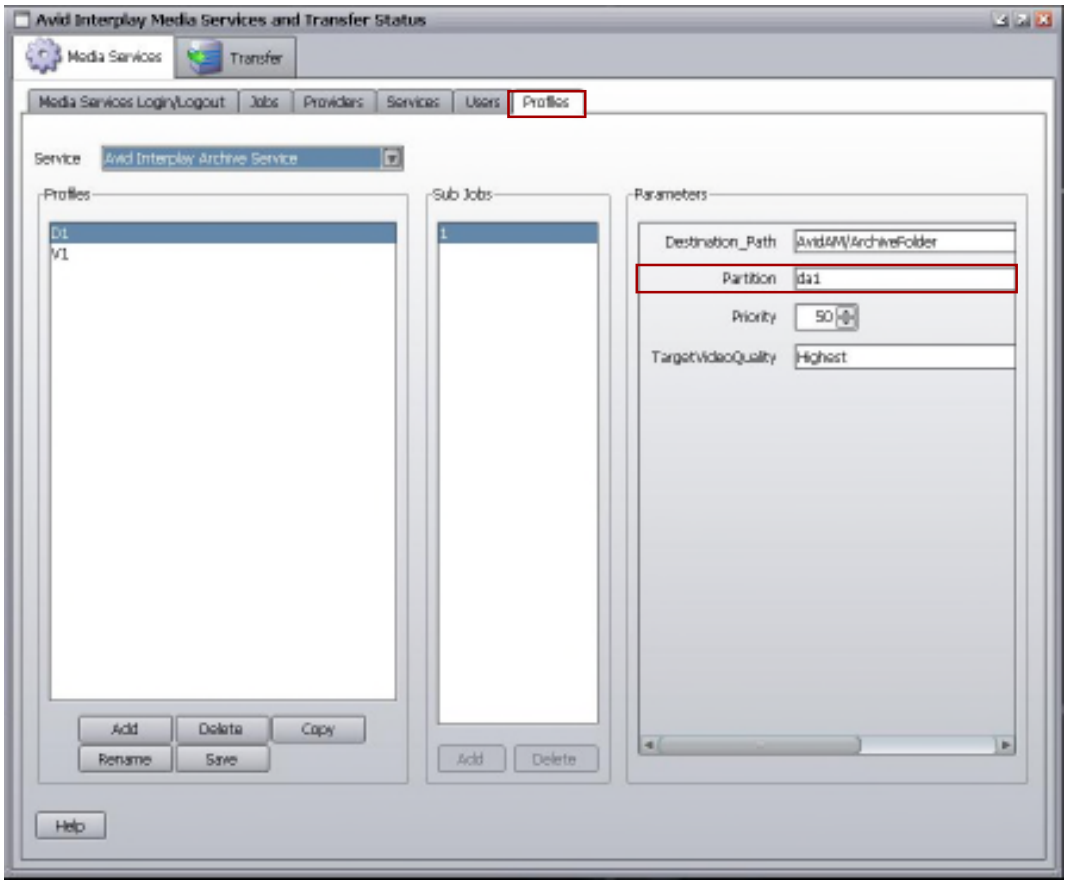
   Where:

   - **<IP>** is the IP Address of the AM Communicator's Listener.
     - This should be consistent with the value of the **AM_IP** parameter from the AMC configuration.
   - **<port>** is the port number for the AM Communicator Listener.
     - This should match the value of the **AM_PORT** parameter from the AMC configuration.

5. If needed, set the optional **`SOCKET_BUFFER_SIZE`** parameter in **`fpdiDET2.xml`** to enable TCP/IP Scaling.
    - This parameter value specifies the socket receive and send buffer sizes in kilobytes.
        - This should match the value of the **`AM_SOCKET_BUFFER_SIZE`** parameter from the AMC configuration.
        - Leave the default value if TCP/IP Scaling is not configured for the system.
6. In order for these changes to take effect, both the Archive and Restore Provider Services should be restarted.
    - It is also recommended to reboot the Avid Archive Engine Server.

To submit Archive and Restore/Partial Restore requests to the AM Communicator, define both archive and restore profiles using the Avid Interplay Media Services and Transfer Status utility.

Figure 23: Avid Interplay Archive Profile Window



The **`Partition`** parameter value (*indicated in the figure above*) defines either the destination **Tape Group/Disk Array Name** or the **Source/Destination Name** in DIVArchive. Creation and use of multiple archive profiles allows archiving to different Tape Groups and/or Disk Arrays.

Using the **`Partition`** parameter as the **Source/Destination Name** enables the creation of **Storage Plans** based on the **Source/Destination** in DIVArchive. **Note that the Storage Plan may also be used as media.**

Changing or adding archive profiles does not require AMC Service reconfiguration or restarting.

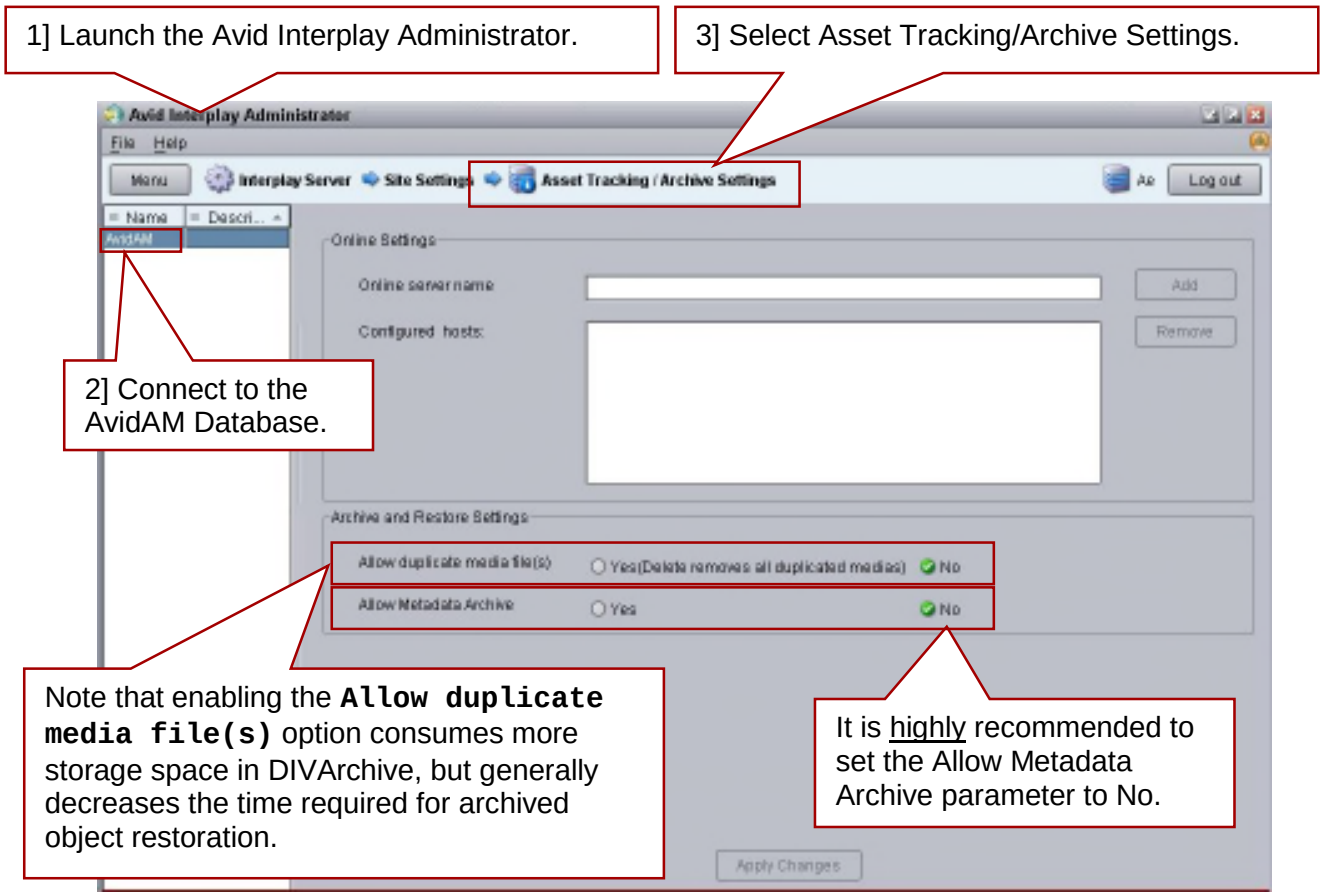
If the **`Partition`** parameter value is not specified, or a request is submitted with no profile selected, AMC uses Tape Group/Disk Array and Source/Destination Names from its configuration file.

Note: All other parameters in the archive and restore profiles depend on specific customer needs and are left up to the customer's discretion.

Avid Interplay 1.4 and above can be configured to store AAF metadata along with the media files and allows duplicate media files in a single archive.

To enable these options:

Figure 24: Avid Interplay Administrator Window - Allow Duplicate Files Options



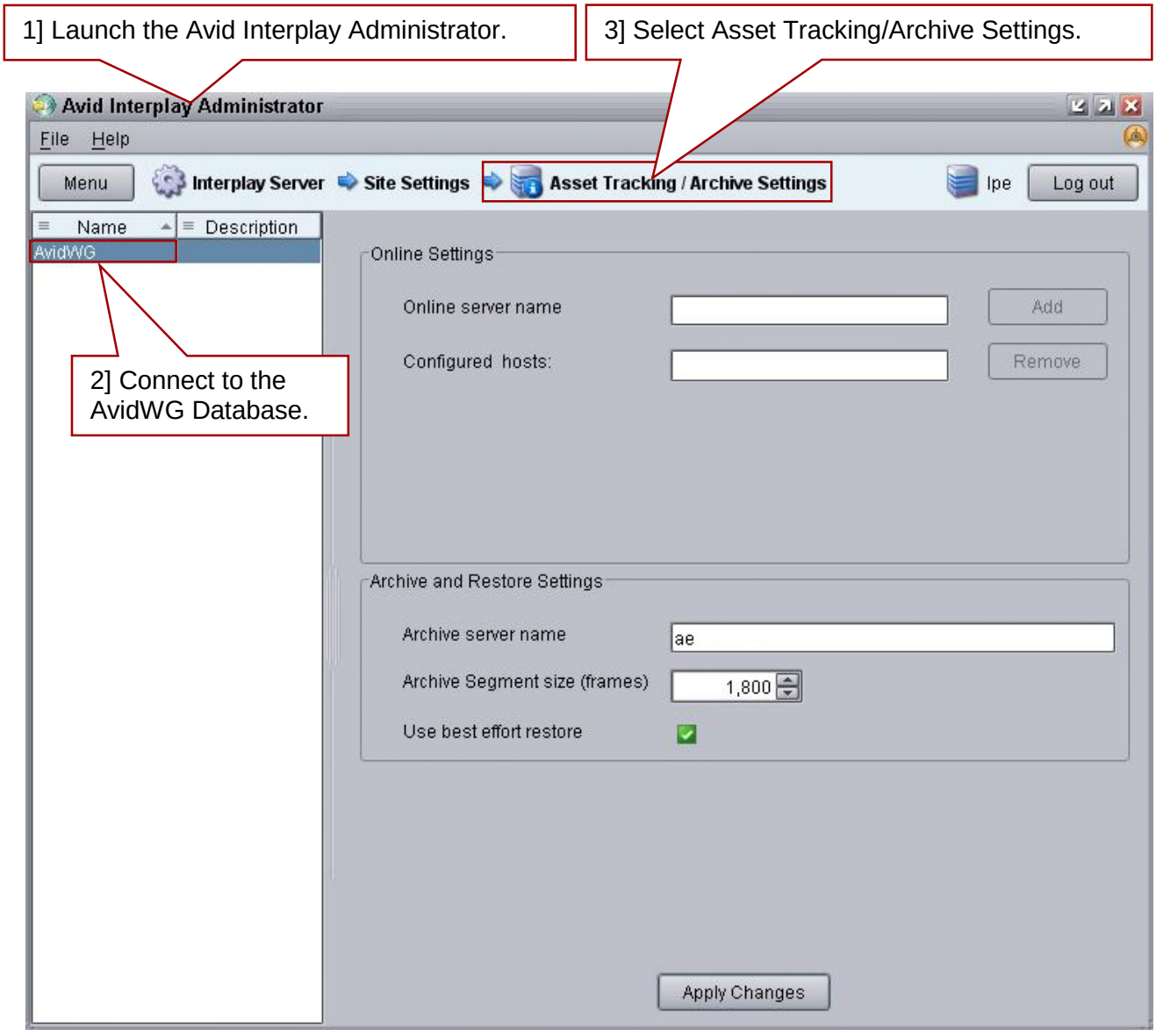
Metadata Files (***.AAF***) are **not** archived as part of the objects as in the Legacy AMC. It is highly recommended to disable Metadata Archive on Avid by selecting **No** for the **Allow Metadata Archive Parameter**.

Avid Interplay 1.6 and above can be configured to allow for *Best Effort Restore*. When the Best Effort Restore option is enabled, AMC tries to restore as many media files as it can and reports an error only if cannot restore any files at all.

Note: It is recommended to disable Best Effort Restore because the Avid Interplay Media Services and Transfer Status GUIs do not show partially restored and completely restored clips/sequences differently. As a result, it may appear that some content is successfully restored while it actually is not.

To enable best effort restore:

Figure 25: Avid Interplay Administrator Window – Best Effort Restore Options



6 AM Communicator Operations

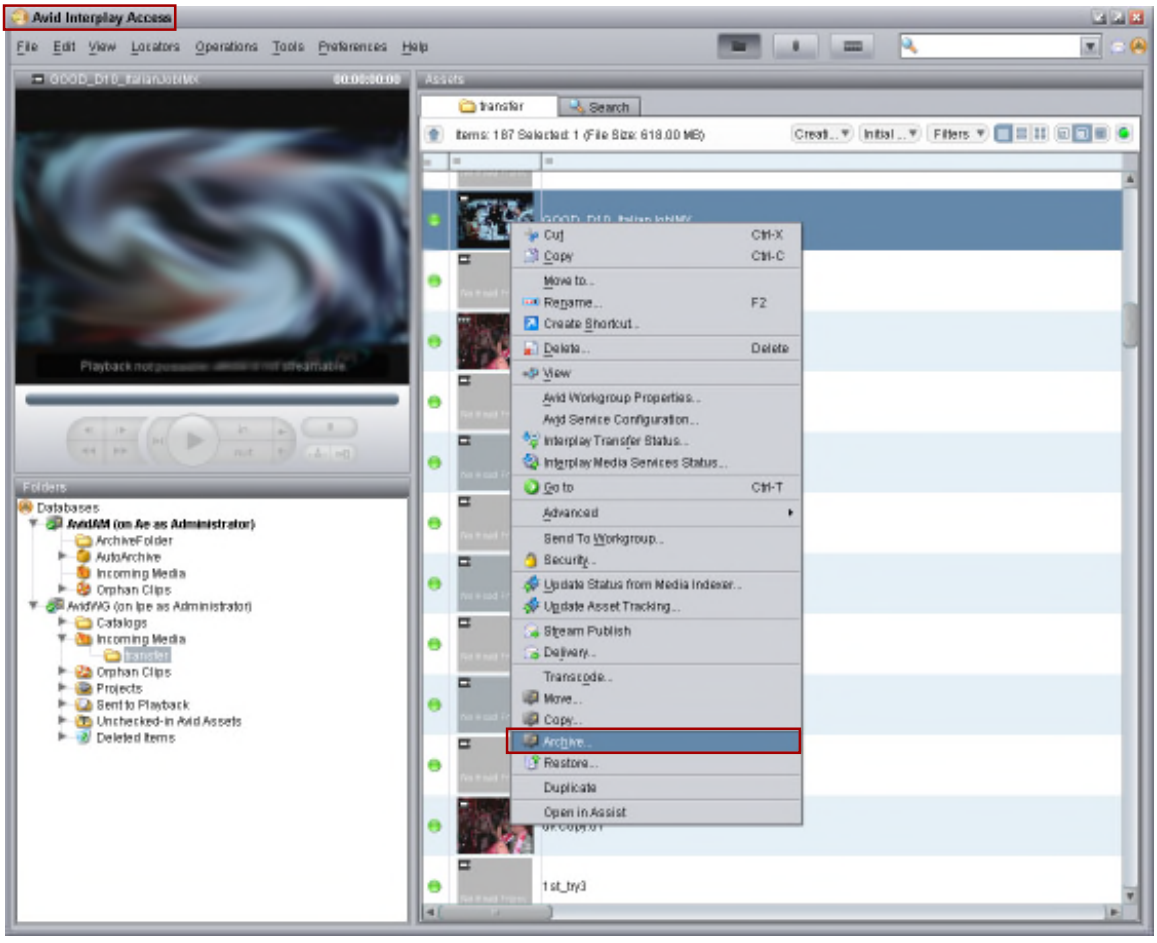
All operations for the AM Communicator are performed from Avid Interplay, not DIVArchive.

6.1 Archive Operations

The procedure below describes the steps required to **Archive** using AM Communicator.

1. Open the **Avid Interplay Access** application.
2. Select the desired clip.
3. Right-click the clip and select **Archive**.
4. The **Archive** pop-up window will open.
5. Select the **User Profile** using the pull-down box.
6. Click the **OK Button**.

Figure 26: Select Archive in the Avid Interplay Access Application



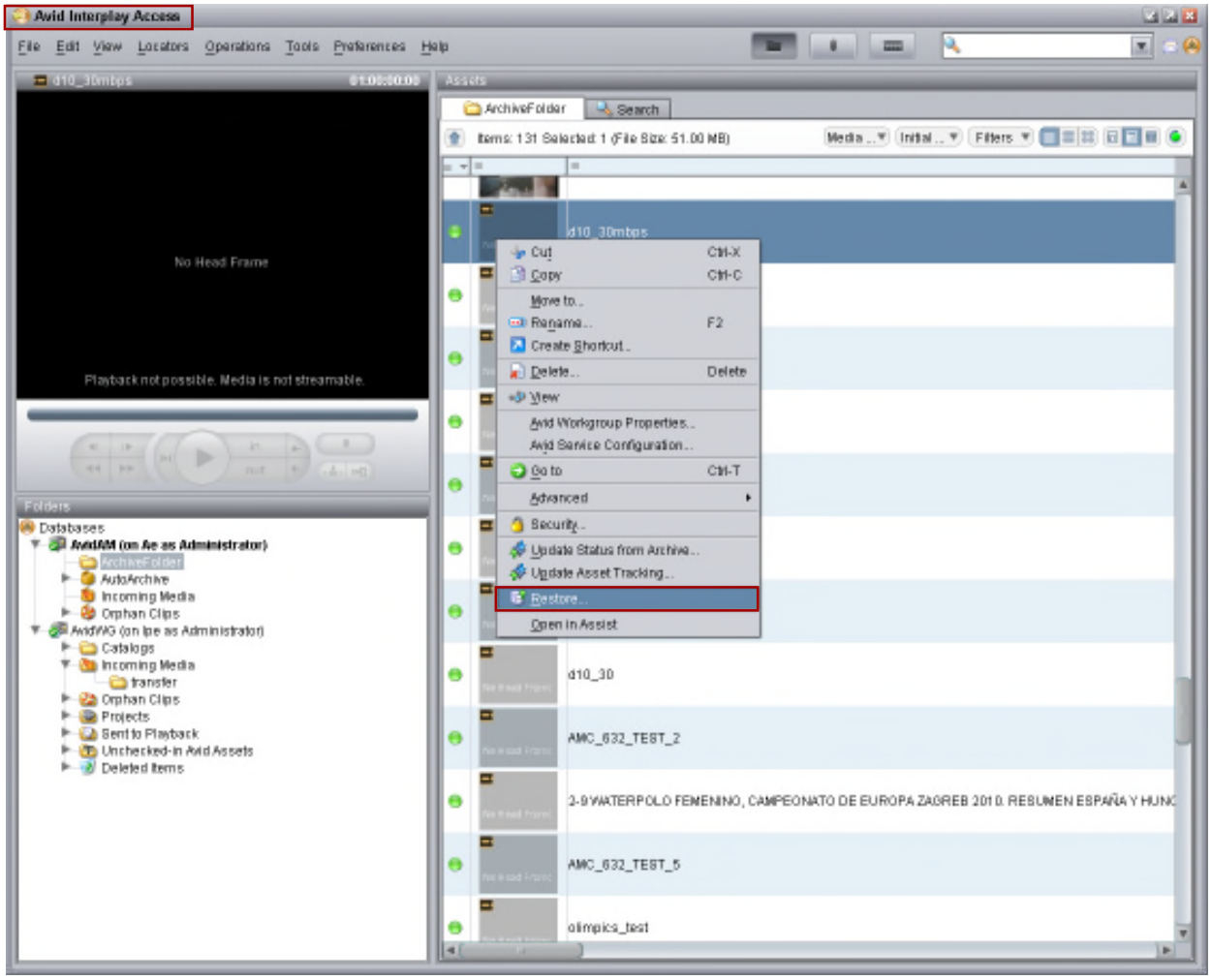
7. Check the status of the job using the **Avid Interplay Media Services Window**.

6.2 Restore Operations

The procedure below describes the steps required to **Restore** using AM Communicator.

1. Open the **Avid Interplay Access** application.
2. Open the **Archive** folder.
3. Select the archived object requiring restoration.
4. Right-click the clip and select **Restore**.
5. The **Restore** pop-up window will open.
6. Select the **User Profile** using the pull-down box.
7. Click the **OK Button**.

Figure 27: Select Restore in the Avid Interplay Access Application



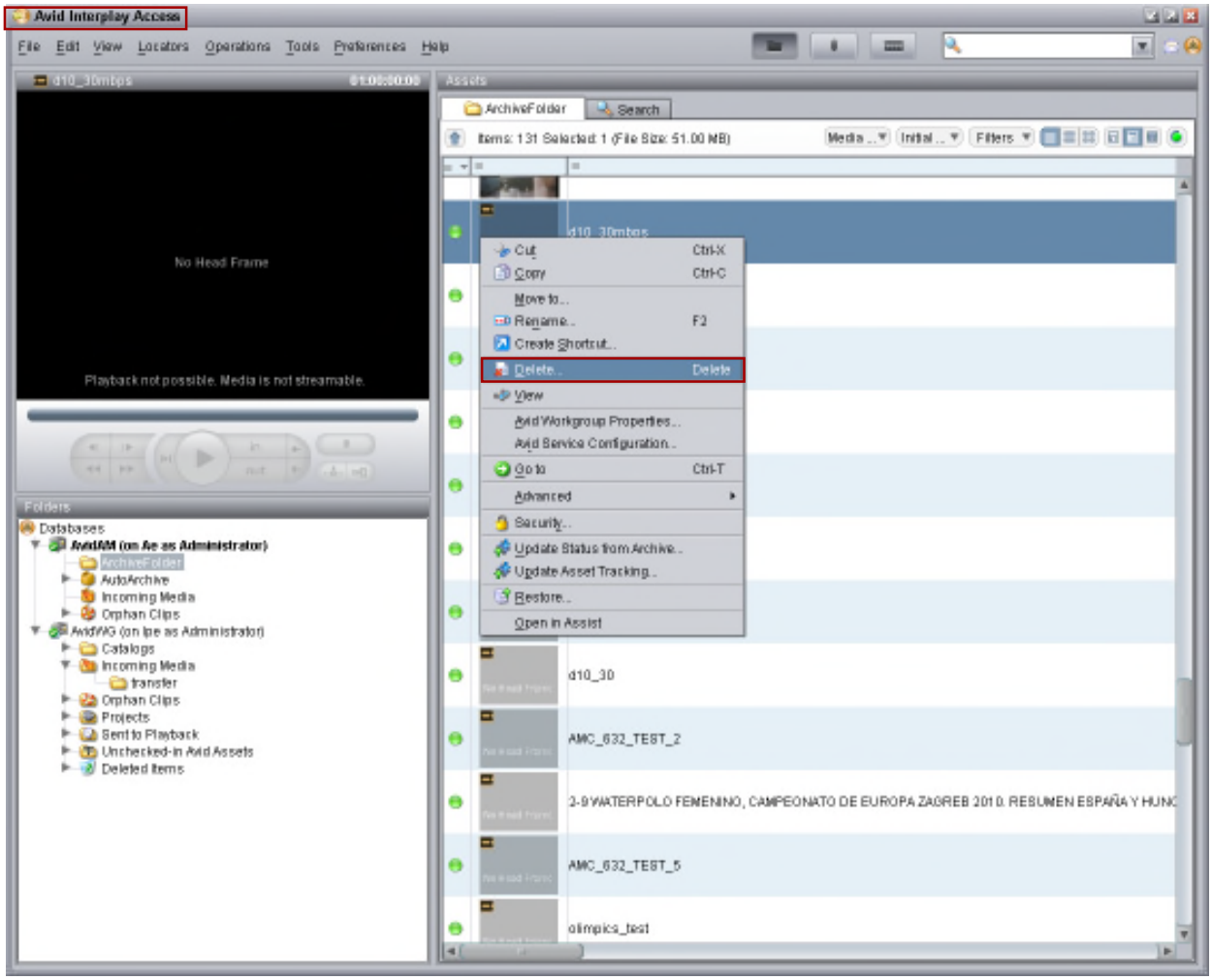
8. Check the status of the job using the **Avid Interplay Media Services Window**.

6.3 Delete Operations

The procedure below describes the steps required to **Delete** using AM Communicator.

1. Open the **Avid Interplay Access** application.
2. Open the **Archive** folder.
3. Select the archived object requiring deletion.
4. Right-click the clip and select **Delete.**
5. The **Delete** pop-up window will open.
6. Select **All**.
7. Click the **OK Button**.

Figure 28: Select Delete in the Avid Interplay Access Application



7 TM Communicator

This section covers installation and configuration of the TM Communicator. Configuration and installation of additional components is described only to the extent necessary to allow interaction with the TM Communicator.

7.1 TM Communicator Installation

To setup media transfers between DIVArchive and Avid Unity via the TM Communicator it is required to complete separate configuration stages for DIVArchive, TM Communicator and Avid Transfer Manager or Avid Interplay Transfer Engine.

The following definitions shall apply when the term or acronym is used within this chapter:

Table 6: TM Communicator Parameters

Parameter	Definition
$TMC_HOME	TM Communicator folder.
$TMC_HOST	DNS Name or IP Address of the computer where TM Communicator is installed.
$TMSERVER_HOST	DNS Name or IP Address of the computer where Avid Transfer Manager is installed.
$TMSERVER_HOME	Avid Transfer Manager (*or Interplay Transfer Engine*) folder on the Avid Server.
$WORKSPACE	Avid Unity workspace used for transfers.
$DIVA_HOME	DIVArchive folder created on the target computer during installation.
$WINDOWS_HOME	Folder where Microsoft Windows is installed on the target computer.

7.1.1 TM Communicator Installation

The TM Communicator can be installed on any computer, provided this computer is accessible via the network from the DIVArchive Actor machine, DIVArchive Manager and Avid Transfer Manager hosts. This option allows for installation of TMC on its own machine, separate from any specific server, if desired.

To install the TM Communicator:

1. Copy the files from the **`$DIVA_HOME/TMCommunicator/bin`** folder (*for installation in Interplay environment choose the* **`bin`** *subfolder of* ***`TMCommunicatorI22`***, ***`TMCommunicatorI25`***, or ***`TMCommunicatorI26`***) to **`$TMC_HOME`** on the destination computer.

2. Rename the default configuration file **`tmc.conf.ini`** in the **`conf/tmc`** subfolder of **`$DIVA_HOME`** to **`tmc.conf`**. The service name (*matching the* ***`SERVICE_NAME`*** *parameter value from the TMC configuration*) should be appended to the filename if the **`SERVICE_NAME`** parameter value is set; i.e. rename the file to **`tmc_{$SERVICE_NAME}.conf`**.

3. Change the parameter values in the TMC Configuration File. If only the DHM or the DET workflow is being configured, only parameters related to the selected workflow should be specified.

The TM Communicator requires the **Avid Transfer Manager Automation API** and the Transfer Manager Client to be installed and configured on the same computer.

Note: The TM Communicator requires the MOG SDK license to be installed in order to provide support for the MXF format in the DHM restore and archive workflows. The license comes in the form of a file that should be merged into the Windows Registry. If the customer is using DNxHD or AVCIntra formats, the license registry for MOG SDK Modules must be applied.

The TMC process must have permission to access the license registry keys.

If the TM Communicator is executed as a System Service, it should be started using the account of the user that installed the license. To verify the account being used, open the **Services Window** from **Windows Control Panel**:

1. Right click the **TM Communicator Service**.
2. Select **Properties.**
3. Click on the **Log On Tab**.
4. Select the **This Account** option and enter the corresponding user login and password.

7.1.2 Transfer Manager Client Installation

To install the Transfer Manager Client:

1. Run the **Transfer Manager Client** software installation program.
2. Select the **Client for Avid Editing Station** option.
3. Follow the on screen instructions.

It is **highly** recommended to install the version of **Transfer Manager Client** matching the version of the **Transfer Manager Server/Interplay Transfer Engine**. Interplay components are **not** compatible with their Workgroup 4 counterparts and often other Interplay releases.

Transfer Manager Client requires the **`TMClient.ini`** file on the target computer to be modified as shown below:

```
TMClient.ini
[MyServer,MyWorkgroup]
MyServer = $TMSERVER_HOST, $WORKSPACE
```

If a Domain Name is used as the **`$TMSERVER_HOST`** value it should correctly resolve to the corresponding IP Address.

The **`$WORKSPACE`** value should match the value of the **`TM_WORKSPACE`** parameter from the TMC configuration file (*please refer to Appendix A3 for detailed parameter descriptions*).

The location of the **`TMClient.ini`** file depends on the Avid Transfer Manager Client version:

- For non-Interplay environments and Interplay releases prior to Interplay 1.6 the file should be in **`$TMC_HOME.`**
- For Interplay versions from 1.6 to 2.1 the location depends on the Operating System version.
    - For example, on Windows 2008 and later the file should be copied to **`%ALLUSERSPROFILE%\Avid`** and on Windows XP/2003 it should be copied to **`$TMC_HOME.`**
- For Interplay 2.2 and later the location depends on the Operating System version:
    - For example, on Windows 2008 and later the file should be copied to **`%ALLUSERSPROFILE%\Avid\TMCService`** and on Windows XP/2003 it should be copied to **`%ALLUSERSPROFILE%\Application Data\Avid\TMCService`**.

7.1.3 TM Communicator Command Line Options for Installation

TM Communicator supports the following command line options:

Table 7: TM Communicator Command Line Options

Command	Description
`install` **`-i`**	Installs TMC as Windows System Service using the provided command line options as the default parameters. *This option will not start the service, it only installs it.*
`uninstall` **`-u`**	Removes TMC from Windows System Services. *This will stop the service automatically if it is running.*
`debug` **`-d`**	Starts the TMC Service in console mode. *This mode will provide additional information as standard output.*
`version` **`-v`**	Displays the version information and then exits.
`help` **`-h`**	Displays the usage information and then exits.

TM Communicator can be started in two modes:

- As a Windows System Service.
- As a console application.

It is recommended that TMC be run as a System Service in production environments; however, console mode can be useful for troubleshooting if necessary.

The fully qualified configuration file path can be specified in the command line using the **`–conf`** (*or its alias* **`-f`**) option.

For example, the following command starts TMC using parameters from the **`tmc_example.conf`** configuration file (*the* ***`SERVICE_NAME`*** *parameter value must be set to example*) and runs in Console Mode.

```
TMCService -d –conf ../conf/tmc/tmc_example.conf
```

7.2 TM Communicator Configuration

7.2.1 Configuration of Transfer Manager Automation API

Note: The configuration steps listed in this section are required only for the DHM Workflow and can be skipped in DET-Only environments.

The Transfer Manager Automation API is supplied with the TM Communicator in the form of the **Avid TM Auto API DLL** and enables communication with the **Avid Transfer Manager**.

In order to handle DHM restore requests correctly, the **Transfer Manager Automation API** needs two configuration files:

- **AvidTMAAPI_Ingest_DeviceToSetupFile.txt**
  - The content of this file is shown below.

```
Avid TMAAPI_Ingest_HostToDevice.txt
#This is the default file for converting Ingest Host Name to Device
#Name
#It needs to be in the following format (everything inside the
#double-quotes on a new line):
# "[IngestHostName] [IngestDeviceName]"
# make sure you also set the other file - IngestDeviceName to
#SetupDLL
#
$TMC_HOST FPDI_Ingest
```

- **AvidTMAAPI_Ingest_HostToDevice.txt**
  - The content of this file is shown below.

```
# This is the default file for converting Ingest Device Name to
#Setup File Name
# It needs to be in the following format (everything inside the
#double-quotes on a new line):
# "[IngestDeviceName] [IngestSetupFileName]"
# make sure you also set the other file - IngestHostName to
#IngestDeviceName
#
FPDI_Ingest fpdisetup
```

Typically, only the correct value for **$TMC_HOST** should be entered. The **DNS Name** rather than the **IP Address** **must** be used as the **$TMC_HOST** value and it should correctly resolve to the IP Address entered as the **TM_INGEST_IP** parameter in the TMC Configuration File.

The two files should be copied to different locations depending on the environment version:

- For Avid Transfer Manager 2.9.x and Interplay environments prior to Interplay 1.6, copy the configuration files to the **$WINDOWS_HOME** folder on the target computer.

- For Interplay 1.6 and above environments, copy the configuration files to **%ALLUSERSPROFILE%\Application Data\Avid\TMAuto** folder on Windows XP/2003 and to the **%ALLUSERSPROFILE%\Avid\TMAuto** folder on Windows 2008 and later.

7.2.2 Configuration of TM Communicator Source/Destination in DIVArchive

Two separate FTP Source/Destinations should be configured in DIVArchive in order to enable TM Communicator DHM and DET workflows. Although these Source/Destinations have different types, **AVID_DHM** for DHM workflow and **AVID_DET** for DET workflow, both have the same set of parameters.

The figure below shows an example of the DHM Source/Destination configuration (*DET Source/Destination is different only by Source Type and specific parameter values*).

Figure 29: DHM Source/Destination Configuration Window

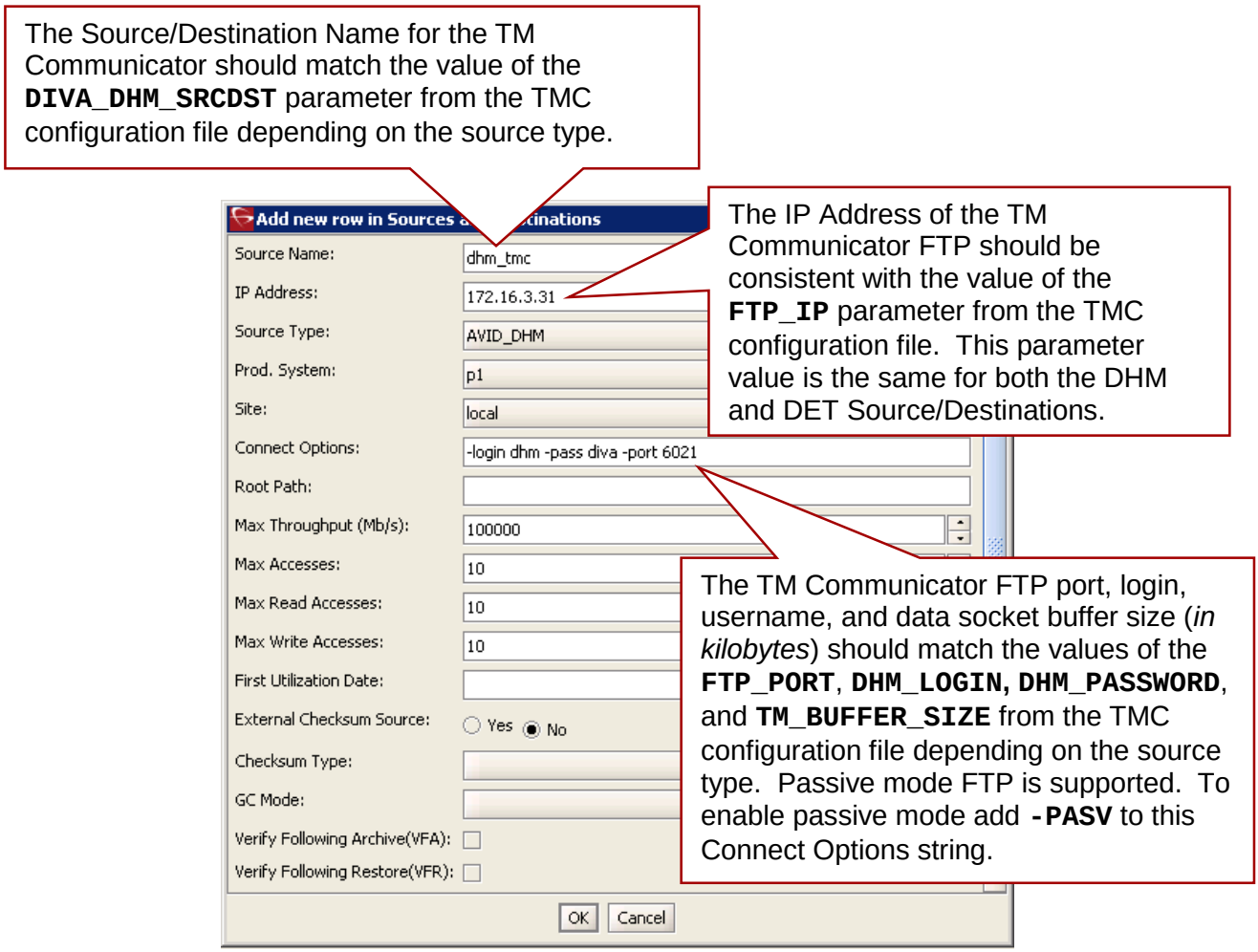
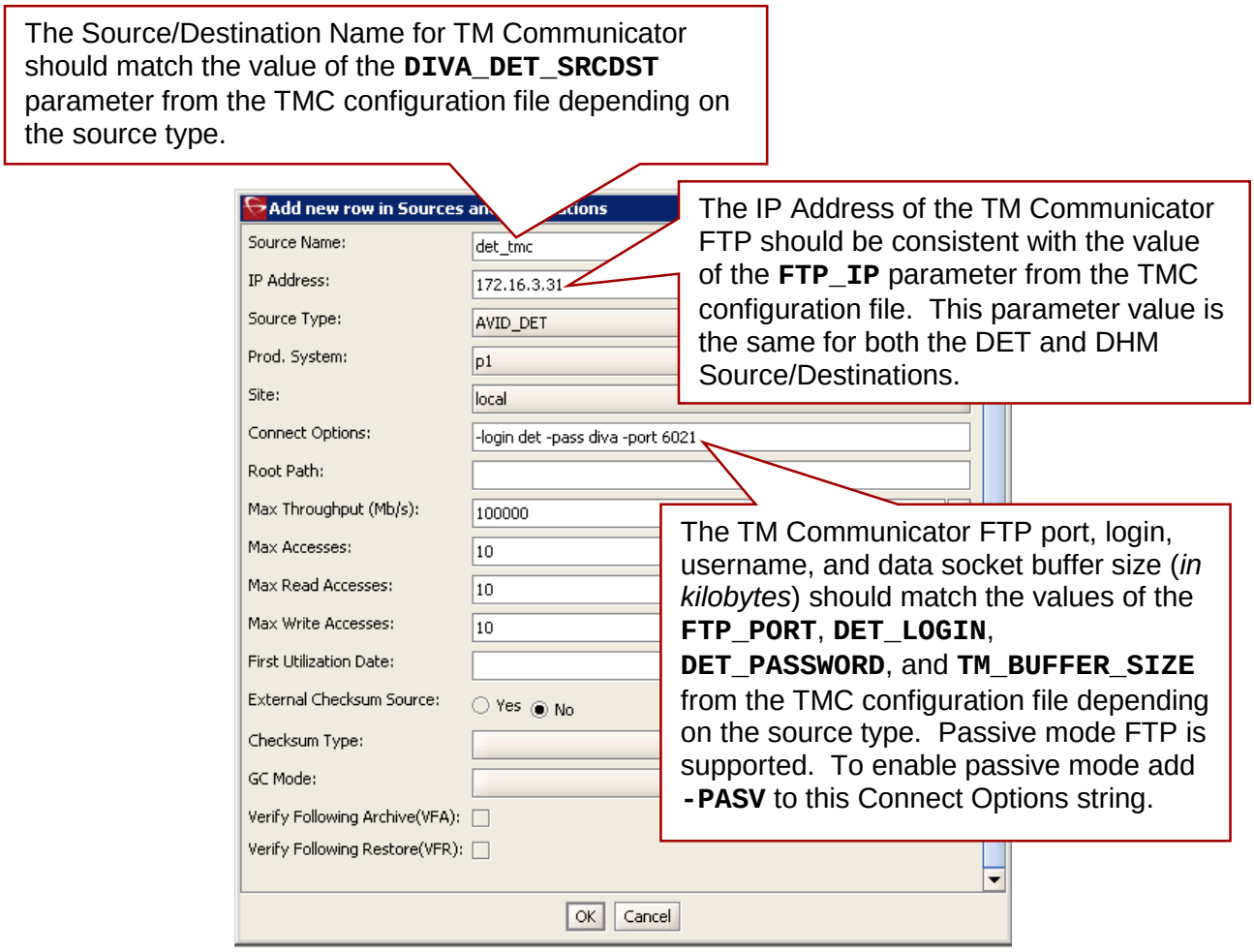


Figure 30: DET Source/Destination Configuration Window



Note: DHM and DET Source/Destinations should use different login/password parameter pairs. Entering the same values will lead to abortion of all DET requests.

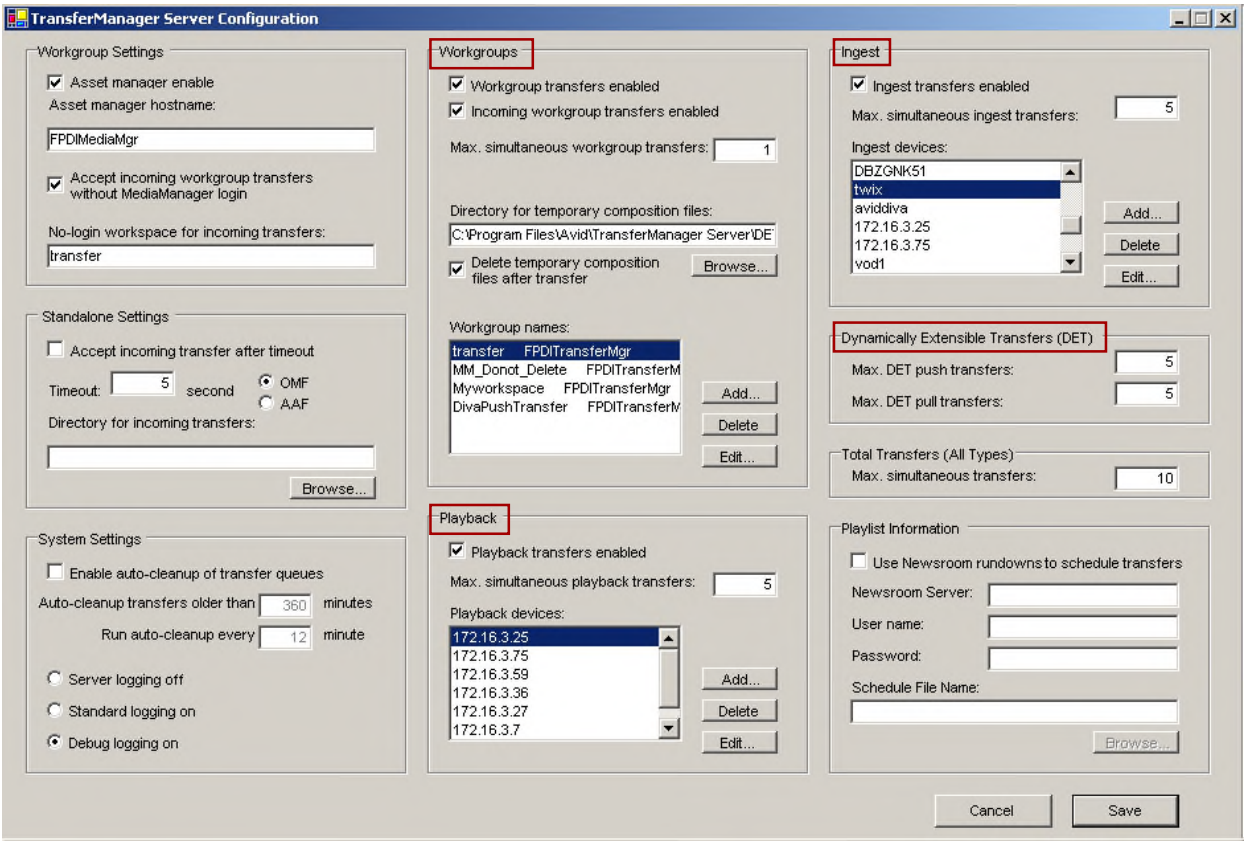
It is strongly recommended to match `Max Read Accesses/Max Write Accesses` and `Max Simultaneous Playback Transfers/Max Simultaneous Ingest Transfers` parameter values from the Avid Transfer Manager configuration for DHM Source/Destinations or `Max DET Push Transfers/Max DET Pull Transfers` for DET Source/Destinations.

7.2.3 Avid Transfer Manager Configuration

Avid provides a unified GUI to set both the DHM and DET related parameters of Transfer Manager/Interplay Transfer Engine.

The figure below shows a sample configuration:

Figure 31: Transfer Manager Server Configuration



1. Change the following settings using the **Transfer Manager Server Configuration GUI**:
    - **Workgroups**
        - Enable Workgroup Transfers.
        - Enable Incoming Workgroup Transfers.
        - Set the Maximum Simultaneous Workgroup Transfers.
        - Keep the Default Folder setting for temporary composition files.
        - Enable Delete Temporary Composition After Transfers.
        - Add a Workgroup Name on 1 line containing:

          <Name of Workspace><Name of Transfer Manager Server>

- **Playback (*DHM only*)**
  - Enable Playback Transfers.
  - Add the IP Address of the computer where TM Communicator is installed to the Playback window (*this value should be consistent with the* **`PBP_IP`** *parameter from the TMC configuration file*).
  - Set the Maximum Number of Playback Transfers.
- **Ingest (*DHM only*)**
  - Enable Ingest Transfers.
  - Add the DNS Name of the computer where the TM Communicator is installed to the Ingest window (*this value should be consistent with* ***`TM_INGEST_IP`*** *parameter from the TMC configuration file, i.e. the DNS Name should either match the parameter value or resolve to the IP Address specified by the parameter value*).
  - Set the Maximum Number of Ingest Transfers.
- **DET (DET only)**
  - Set **`Max DET Push Transfers`** and **`Max DET Pull Transfers`**.

2. After all other required parameters are defined, set a value for **`Max Simultaneous Transfers`**.
   - It is recommended to set a value not exceeding the sum of **`Max Simultaneous Ingest Transfers`**, **`Max Simultaneous Playback Transfers`**, **`Max DET Push Transfers`** and **`Max DET Pull Transfers`** values.
3. Save the configuration
   - Settings are saved in the **`TMServer.ini`** file in **`$WINDOWS_HOME`** folder**.**
4. Restart the Transfer Manager Server.

Note: Remove the line `HoldForPermission =1` if it is present in the `TMServer.ini` file (*this line is added in standalone configurations and disables transfers to Unity Storage*).

If the DNS Name is used as the Ingest Device Name it should correctly resolve to the IP Address of the TM Communicator Ingest Listener (*`TM_INGEST_IP` parameter in the TMC Configuration File*) from the Transfer Manager Server host. If needed, add a corresponding line to the `$WINDOWS_HOME\system32\drivers\etc\hosts` file.

7.2.3.1 DHM Specific Configuration

To enable DHM transfers, copy the DHM and Playback Sender implementations to the Avid Transfer Manager:

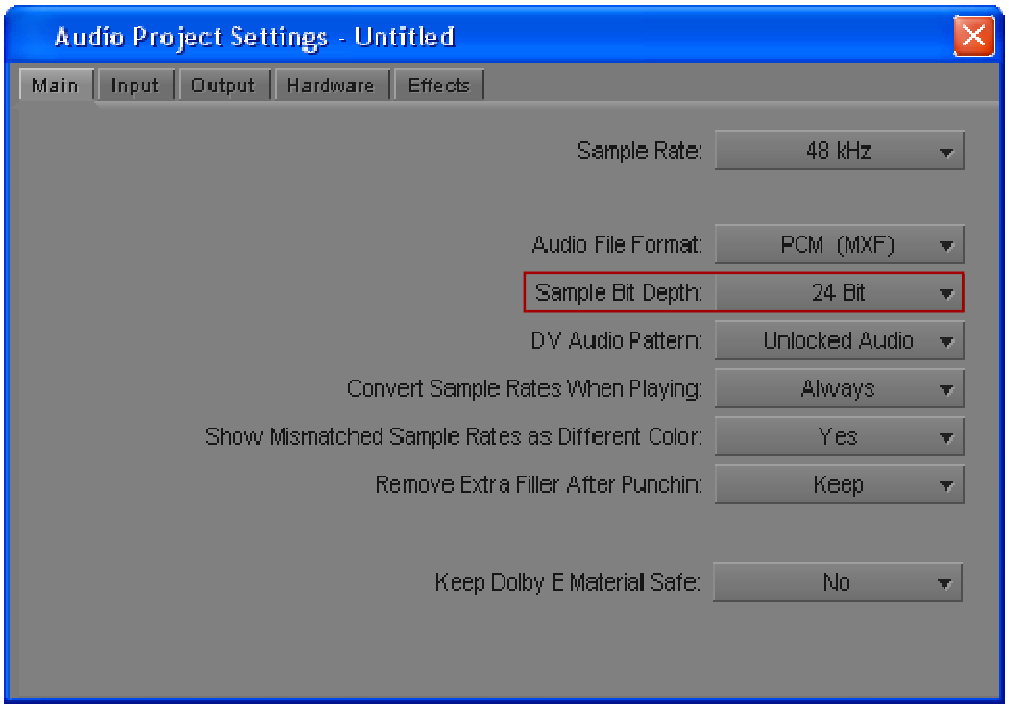
1. Copy the Oracle Receiver DLL from the **`$TMC_HOME/fpdireceiver`** folder and the Oracle Sender DLL from the **`$TMC_HOME/fpdisender`** folder to the **`$TMSERVER_HOME`** folder on the Avid Transfer Manager Host.

Note: If clips with 24-bit audio are ingested, or sent to playback, it is important to set the Sample Bit Depth setting in Avid NewsCutter or Media Composer to 24-bit.

To set the Sample Bit Depth:

2. Select **Edit**, then **Preferences** from the drop-down menu.
3. Click on the **Settings Tab**.
4. Select Audio Project.
5. Set the **Sample Bit Depth** to 24-bit.
    - If this is not set correctly, the DHM Archive Request may fail with the error "Audio with inconsistent sample sizes".

Figure 32: Audio Project Settings Window – Selecting the Sample Bit Depth for DHM



7.2.3.2 DET Specific Configuration

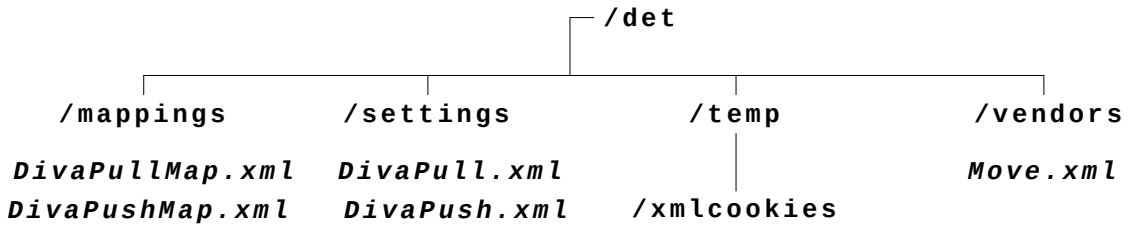
To enable DET transfers copy the DET Vendor DLL implementation to the Avid Transfer Manager and perform additional configuration steps as required:

1. Copy the Oracle Transceiver DLL and all other files from the **$TMC_HOME/fpditransceiver** folder to the **$TMSERVER_HOME** folder on the Avid Transfer Manager host.
2. Copy the **$TMC_HOME/det** folder, including all subdirectories, to the **$TMSERVER_HOME** folder on the Avid Transfer Manager host.

Note: If the det subfolder exists in the $TMSERVER_HOME folder, it is recommended to create a backup copy of its contents. Overwriting any of the files in the det folder may disable other vendors' DET implementations configured in the environment.

The resulting folder structure shown below is created:

Figure 33: DET Folder Structure



3. Change the Settings File XML parameter values as follows:
   - **DivaPullMap.xml**
     - Must point to **$TMSERVER_HOME/det/settings/DivaPull.xml**.
   - **DivaPushMap.xml**
     - Must point to **$TMSERVER_HOME/det/settings/DivaPush.xml**.
4. Change the Vendor File XML parameter values as follows:
   - **DivaPullMap.xml** and **DivaPushMap.xml**
     - Must point to **$TMSERVER_HOME/det/vendors/Move.xml**.
5. Change the TMC XML Parameter Value in the **Move.xml** file to define the TM Communicator DET parameters in the following format:

   <IP>:<port>

Where:

- **<IP>** is the IP Address of the **TM Communicator DET Listener**.
  - This should be consistent with the value of the **TM_DET_IP** parameter from the TMC Configuration File.
- **<port>** is the port of the **TM Communicator DET Listener**.
  - This should be consistent with the value of the **TM_DET_PORT** parameter from the TMC Configuration File.

6. Set the **MaxPullSessions** and **MaxPushSessions** XML parameter values in the **Move.xml** file to be consistent with the **Max Read Accesses** and **Max Write Accesses** parameters of the DIVArchive DET Source/Destination.
7. Determine that the

   HKEY_LOCAL_MACHINE\SOFTWARE\Avid Technology\DETMove\MoveCookiePath

Windows Registry Key exists and that it points to the folder specified by the Folder Setting for the temporary composition file parameter (*see Avid Transfer Manager Configuration*).

- If the registry key does not exist, or points to a different location, edit the key value in the **tm_regkey.reg** file and merge this file into the registry.
- If the specified folder does not exist it must be created manually because the TM Communicator will not create new directories.
- It is recommended to set this to the **$TMSERVER_HOME/det/temp** folder.

7.3 TM Communicator Operations

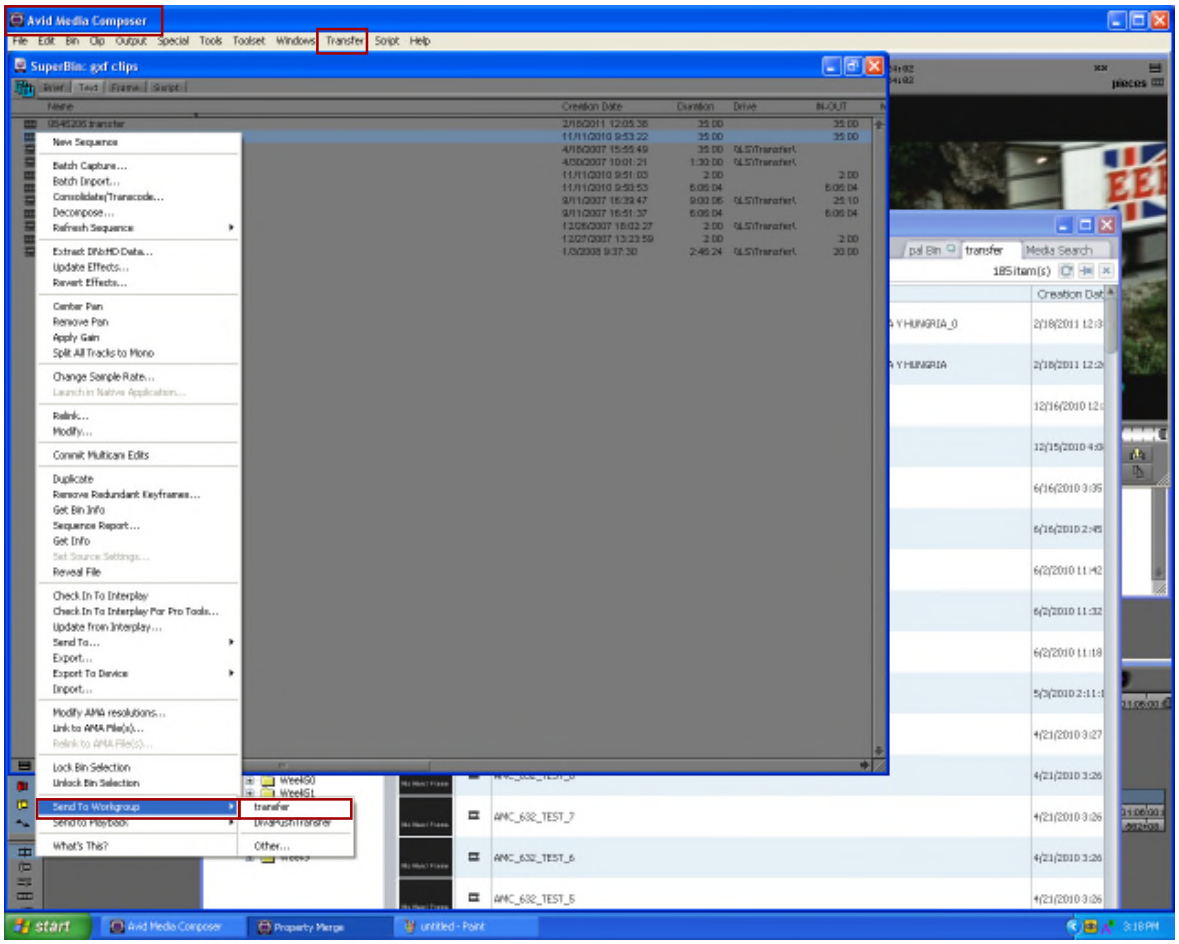
All TM Communicator archive operations are performed from Avid, while all restore and delete operations are performed from DIVArchive.

7.3.1 DET Archive Operations

The procedure below describes the steps required to **Archive** using DET TM Communicator.

1. Open the **Avid Media Composer** application.
2. Select a clip or sequence.
3. Right-click and select **Send To Workgroup** from the menu**.**
4. Select **Transfer**.

Figure 34: Select Send to Workgroup in the Avid Media Composer Application



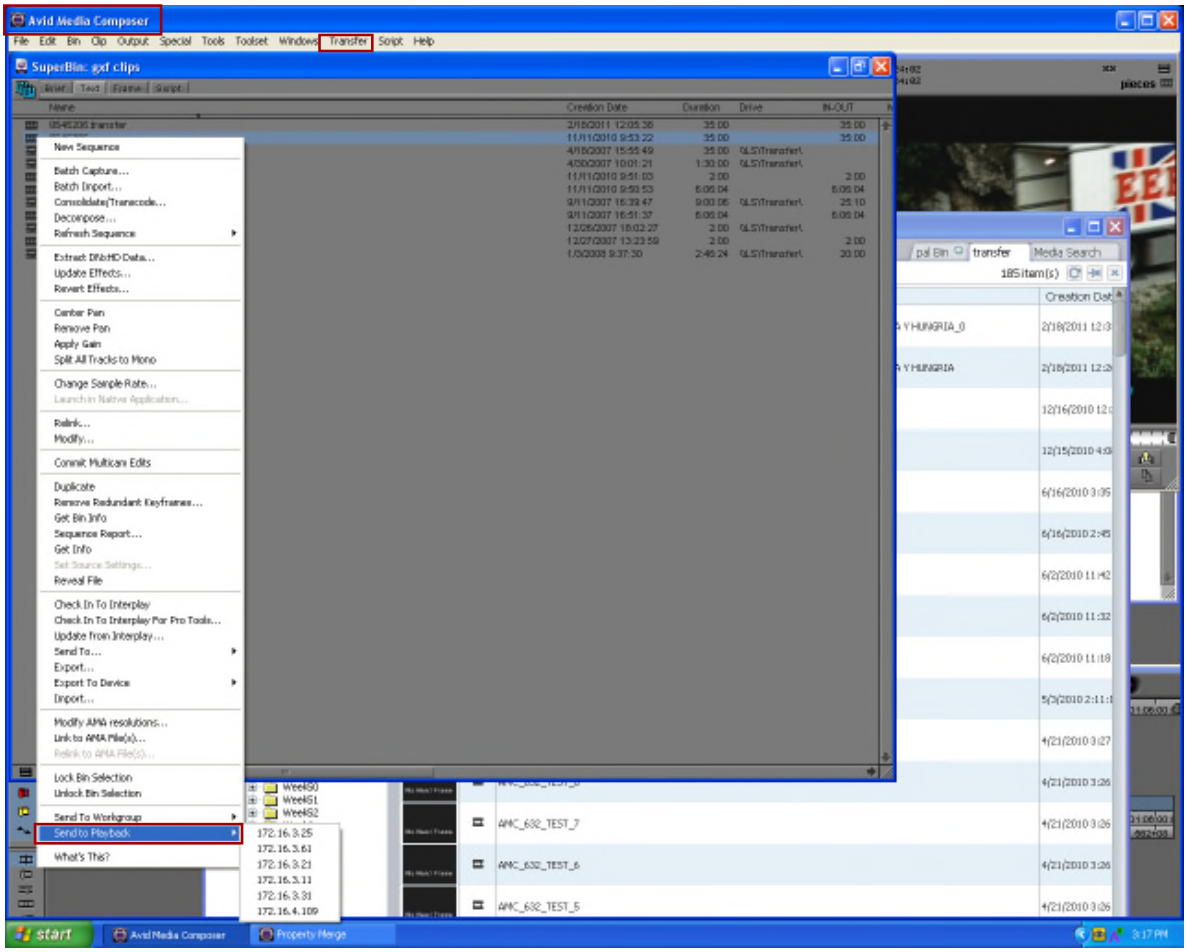
5. Select **Transfer** from the menu bar and then **Status Window** to view the transfer status.

7.3.2 DHM Archive Operations

The procedure below describes the steps required to **Archive** using DHM TM Communicator.

1. Open the **Avid Media Composer** application.
2. Select a sequence.
3. Right-click and select **Send To Playback**.
4. Select the **TMC Host IP Address**.

Figure 35: Select Send to Playback in the Avid Media Composer Application



5. The **Send To Playback** pop-up window will open.
6. Enter the **Tape ID**.

   Note: The Tape ID entered during Archive from Media Composer will become the Object Name/Clip Name in DIVArchive.)

7. Click the **OK Button**.
8. Select **Transfer** from the menu bar and then **Status Window** to view the transfer status.

7.3.3 DHM Archive with Empty Frames – Video and Audio

TM Communicator supports the archiving of empty audio and video frames in the AVID sequences. Empty video frames are replaced by corresponding Black Frames. Empty audio frames are replaced by Mute Audio Frames with mute audio.

Once the MXF or GXF file is generated and archived to DIVArchive, these files can be restored back to AVID and will be played the same as the original sequence. During restore, TM Communicator treats all Black Video Frames and Mute Audio Frames exactly the same as other frames and no additional changes are required for a restore workflow.

A sequence can have holes in only video, or only audio, or both, because TM Communicator handles video and audio empty frames separately. A sequence can have multiple holes in each track of video or audio.

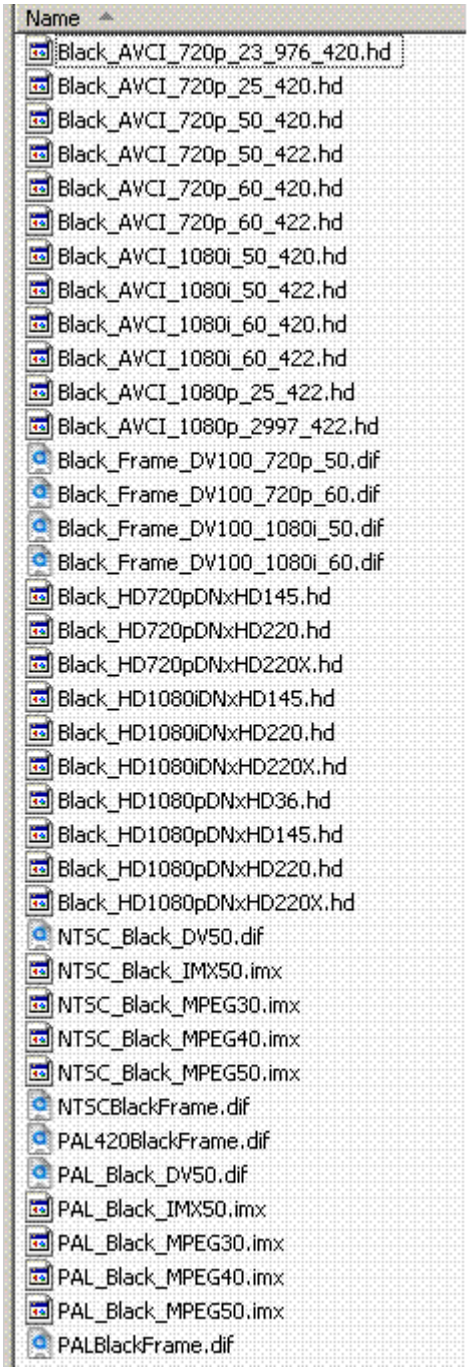
DHM archive of a sequence with empty audio:

- During playback, AVID Interplay Transfer Engine sends empty frame code (***`IsFill`***) to indicate mute audio.
- When TMC sees empty frame code for audio, it assumes that it needs to make that frame mute audio.
- It will assign value 0x00 to all bytes of the frame buffer which is of the same size as other non-empty frames.
- TMC writes the audio frame to the Muxer.
- This sequence will continue until the entire sequence is archived.

DHM archive of a sequence with empty video:

1. When TMC receives the request from AVID, it identifies the video format of clips that are part of a sequence.
2. Once it identifies the video format (*e.g., DV-25, DV-50, D10 30 Mbps etc.*), it reads the Black Frame File corresponding to the identified format and assigns it to a video frame. The Black Frames are placed in the TM Communicator installation folder (***`TMCommunicator/bin`*** *or* ***`TMCommunicator/bin/BlackFrames`***). All of the Black Frames are acquired from AVID Interplay Engine's installation folder. Each file contains one frame of Black Frame corresponding to that format. The files are as shown in the following screenshot:

Figure 36: Black Frames File Organization



3. TMC reads the frame from AVID and checks if it is an empty frame (***`IsFill`***).
4. If it is an empty video frame, it writes the black frame to the Muxer.
5. This will continue till the completion of archive request.

APPENDIX A1 Avid Interplay Supported Environments

A1.1 DIVArchive Compatibility (all versions)

Interplay Version	TMCommunicator	TMCommunicator Binaries	AMCommunicator
2.2.x	Yes	TMCommunicatorI22	
2.3.x	Yes		
2.4.x	Yes		
2.5.x	Yes	TMCommunicatorI25	
2.6.x	Yes	TMCommunicatorI26	
2.7.x	Yes		
3.0.x	Yes	TMCommunicatorI30	AMCommunicatorI22: 1.0 For all Legacy workflows. 2.0 For Avid Direct workflows.
3.1.x	Not Supported	Not Supported	
3.2.x	Only DHM	TMCommunicatorI32 (*TMClient3.1 is required; DET restore not supported*)	
3.3.x	Only DHM	TMCommunicatorI33 (*DET restore not supported*)	
3.4.x	Only DHM	TMCommunicatorI33 (*DET restore not supported*)	
3.5.x	Yes	TMCommunicatorI33	
3.6.x	No		

A1.2 Avid Interplay Supported Environments

Component	Avid Protocol	WorkGroup	Wrappers[1] (*Archive and Restore*[2])	Supported Video Essences	Supported Audio Essences	Compatibility List with Third Party Equipment[3]	
						Compatible Avid Objects created by DIVArchive	Formats Restorable to Avid:
TMC	DHM	• WG4 Transfer Manager 2.9.x • Interplay 2.2.x 2.3.X 2.4.x 2.5.x 2.6.x 2.7.x 3.0.x 3.2.x 3.3.x 3.4.x 3.5.x	MXF[4]	• MPEG2 D10 (*50, 40, or 30 Mbps*)[5] • DV25 • DVCPRO25 • DVCPRO50 • DVCPRO100[6] • XDCAM HD422 and SD(IMX) • AVCIntra 100Mbps • DNxHD 145 and 220 Mbps[7]	• PCM • AES[8] • Up to 8 Audio Tracks (*16 for Interplay 2.2.x*) • 16 or 24-bit	• OmneonD10 DV25 DVCPRO25 DVCPRO50 • K2	• Omneon MXF D10 DV25 DVCPRO25 DVCPRO50 • SeaChange MXF D10 • K2 MXF D10
			GXF	• MPEG2 D10 (50, 40 or 30 Mbps) • DV25 • DVCPRO25 • DVCPRO50[9]	• PCM • Up to 8 Audio Tracks (16 for Interplay 2.2.x) • 16 or 24-bit	• Profile • K2	• Profile GXF D10 • K2 GXF D10

Component	Avid Protocol	WorkGroup	Wrappers[1] (*Archive and Restore*[2])	Supported Video Essences	Supported Audio Essences	Compatibility List with Third Party Equipment[3]	
						Compatible Avid Objects created by DIVArchive	Formats Restorable to Avid:
TMC	DET	• WG4, Transfer Manager 2.9.x • Interplay 2.2.x 2.3.X 2.4.x 2.5.x 2.6.x 2.7.x 3.0.x 3.2.x 3.5.x	OMF MXF OP atoms	All essences supported by Avid.	All essences supported by Avid.	N/A	N/A

Component	Avid Protocol	WorkGroup	Wrappers[1] (*Archive and Restore*[2])	Supported Video Essences	Supported Audio Essences	Compatibility List with Third Party Equipment[3]	
						Compatible Avid Objects created by DIVArchive	Formats Restorable to Avid:
AMC	AM	• Interplay 2.2.x 2.3.X 2.4.x 2.5.x 2.6.x 2.7.x 3.0.x 3.1.x 3.2.x 3.3.x 3.4.x 3.5.x 3.6.x	MXF OP atoms	All essences supported by Avid.	All essences supported by Avid.	N/A	N/A

[1] This is a list of formats that can be exported/imported from/to Avid. An imported clip must have been previously exported by DIVArchive.

[2] Original clip time code is preserved during both archive and restore.

[3] DIVArchive can restore some clips to Avid even if they were not generated by DIVArchive. It can also restore its Avid Objects to some video platforms other than Avid. Essence/server not listed must be tested.

[4] SMPTE 386M compliant MXF-wrapped content is supported.

[5] MXF D10 files can be archived with either PCM or AES3 audio (as required by SMPTE 386M). Restore supports MXF files with any of the two audio formats.

[6] DVCPRO100 is not fully supported by Avid Transfer Engine. Some essence types (for instance, 720p24 and 720p30) can be archived, but cannot be restored back to Avid.

[7] Not all DNxHD clips are supported. Support depends on Avid Interplay version.

[8] There is an option to generate DV clips with AES3 audio.

[9] DV files are archived with PCM audio. Existing (DV) clips with AES3 audio can be successfully restored. NOTE: AES3 audio is supported only for MXF-wrapped content.

[10] DET support is broken in Interplay 1.6.0

APPENDIX A2 AM Communicator Configuration Parameters

This section identifies the AM Communicator parameters located in the AMC Configuration File. Any parameter not specifically mentioned in the table below is used solely for debugging purposes and should not be modified from its default value.

All listed parameters must be defined even if the default values are not provided in the configuration file.

Note: All IP Addresses mentioned in this section can be replaced by corresponding DNS names, provided the DNS service functions properly. If the Listener's IP Address has the default value "0.0.0.0", the AM Communicator listens to all configured network interfaces on the given computer.

Name	Default Value	Description
SERVICE_NAME	DIVArchive AMCommunicator	Specifies the Windows Service Name for the AMC Service. This option is required to run multiple AMC instances on a single computer. **If not specified, the default Service Name `DIVArchive AMCommunicator` is used.**
AM_IP	0.0.0.0	IP Address of the AM Communicator PBP Listener.
AM_PORT	6101	Port of the AM Communicator PBP Listener.
AM_TIMEOUT	30	Time in seconds that AM Communicator waits for a connection from the DIVArchive Actor.
AM_MAX_CONNECTIONS	100	Maximum simultaneous number of requests submitted by Avid. *This is present only in 2.0.x packages.*

Name	Default Value	Description
AM_BUFFER_SIZE	2048	Size of the Network I/O Buffer in kilobytes. **The valid value range for this parameter is from 8 to 2048 kilobytes. It is recommended to keep the default value for environments with high-speed networks.**
AM_SOCKET_BUFFER_SIZE	0	Socket receive and send buffer sizes in kilobytes. If this is set to 0, the system default values are used. **This parameter may be used to enable TCP/IP scaling if it is supported by the installed hardware and Operating System.**
AM_SOCKET_LINGER	1	Maximum time in seconds the FTP Data Socket remains open during a Socket Close call to enable sending of queued data.
AM_MODE	1	Indicates AMC operation mode: 1. All clip/sequence files are archived as single DIVArchive Object. 2. Each clip/sequence file is archived individually. 3. All files are archived as one DIVArchive Object, but AMC tries to restore clips/sequences from individual files if an object containing all files does not exist (*useful for migration purposes*).

Name	Default Value	Description
AM_OPTIMIZE_FOR_MIGRATION	0	Notifies AMC to restore the content in Single File Per Object Mode before searching for objects by filename. **This parameter should be set to 1 only when content archived in Single File Per Object Mode is used, i.e. most often to speed up content migration to Multiple File Per Object format.**
AM_READABLE_NAMES	0	When this parameter is set to 1 the original clip or sequence name is used as the DIVArchive Object Name rather than the Metadata MOB ID. **This parameter does not affect Single File Per Object Mode.**
AM_OVERWRITE	0	Indicates whether AMC tries to delete an existing DIVArchive Object or returns an error if an object with the same name already exists in DIVArchive. This parameter does not affect Single File Per Object Mode.
FTP_IP	0.0.0.0	The IP Address of the AM Communicator FTP interface. This parameter value must be set to the IP Address or DNS Name visible from the DIVArchive Actor machines if the partition parameter from the Avid profile is interpreted as the DIVArchive Source/Destination and multiple Archive and/or Restore providers are used.
FTP_PORT	6121	The Port of the AM Communicator FTP interface.

Name	Default Value	Description
FTP_LOGIN	amc	Login required to access AM Communicator via an FTP interface.
FTP_PASSWORD	diva	Password required to access AM Communicator via an FTP interface.
DIVA_MANAGER_ADDRESS	localhost	IP Address of the DIVArchive Manager where AM Communicator sends requests. **Multiple Manager IPs separated by commas can be specified. AMC will try to connect to the second IP if it cannot connect to the first and so on. All DIVArchive Managers should have the same port configured.**
DIVA_MANAGER_PORT	9000	The DIVArchive Manager port where AM Communicator sends requests.
DIVA_REQUEST_RETRY	1	Number of reconnect attempts made if a request sent by AM Communicator fails due to a lost connection with the DIVArchive Manager. **It is recommended to keep the default value of this parameter**.
DIVA_MONITOR_INTERVAL	10	Request status polling interval in seconds.
DIVA_SRCDST		Name of the AMC Source/Destination configured in DIVArchive.
AM_CATEGORY_DELIMITER	~	Delimiter used to separate the base category from the appended resolution and optional index. Changing this parameter after it has been set may prevent previously archived objects from being successfully restored.

Name	Default Value	Description
AM_CATEGORY_IGNORE_LIST	**Metadata**, **PCM**, **WAVE**, **AIFC**, **MPEG1Layer2**	A comma separated list of resolution values that do not affect Object Category selection.
AM_CATEGORY_MIXED_RESOLUTION		A special resolution value used to construct the category for multi-resolution content. **It is strongly recommended to keep this parameter an empty value if AMC is upgraded from an earlier implementation.**
DIVA_DEFAULT_CATEGORY		Base Category of DIVArchive Objects created by AM Communicator.
DIVA_ARCHIVE_PRIORITY	**-1**	Priority of DIVArchive requests initiated by AM Communicator.
DIVA_ARCHIVE_QOS	**0**	Value of the Quality Of Service parameter for archive requests initiated by AM Communicator.
DIVA_RESTORE_QOS	**0**	Value of the Quality Of Service parameter for restore and partial file restore requests initiated by AM Communicator.
PARTITION_IS_MEDIA	**1**	When this parameter is set to 1, the **partition** parameter from the archive profile specifies the destination DIVArchive Media. When it is set to 0, the **partition** parameter value is used as the DIVArchive Source/Destination Name.

Name	Default Value	Description
DIVA_ARCHIVE_MEDIA		Name of the DIVArchive Media where objects archived. This parameter is used in configurations where the **partition** parameter value is used as the Source/Destination and when the archive is submitted with no profile selected.

A2.1 AMC Configuration File

The file displayed below is the default AMC Configuration file delivered with Avid: amc.conf.ini. Refer to APPENDIX A2 AM Communicator Configuration Parameters for configuration parameters.

```
########################################
# AM Communicator network interfaces
########################################

# AMC service name
SERVICE_NAME =

# AMC listener ip and port (default 6101)
AM_IP =
AM_PORT = 6101

# Time in seconds AM Communicator waits
# for connection from Diva Actor
AM_TIMEOUT = 14400

# Network I/O buffer size in kilobytes
AM_BUFFER_SIZE = 2048

# Socket receive and send buffer sizes in kilobytes
# If set to 0 system default values are used
AM_SOCKET_BUFFER_SIZE = 0

# Maximum time in seconds FTP data socket remains open
# on socket close call to enable sending of queued data
AM_SOCKET_LINGER = 1

# Maximum simultaneous number of requests submitted by AVID
# default is 100
AM_MAX_CONNECTIONS = 100
```

```
# Hints AMC to restore content in single file
# per object mode before searching for objects
# by file name
AM_OPTIMIZE_FOR_MIGRATION = 0

########################################
# Parameters from the block below affect
# only multiple files per object modes
########################################

# Indicates whether existing DIVA object
# is deleted as a result of archiving an
# object under the same name
AM_OVERWRITE = 0

# Indicates whether metadata mob id or
# clip/sequence name is used as DIVA
# object name
AM_READABLE_NAMES = 0

# Delimiter used to separate default category from
# appended resolution and optional index
AM_CATEGORY_DELIMITER = ~

# A comma separated list of resolution values that
# do not affect object category selection
AM_CATEGORY_IGNORE_LIST = Metadata, PCM, WAVE, AIFC, MPEG1Layer2

# A special resolution value used to construct
# category for multi resolution content
AM_CATEGORY_MIXED_RESOLUTION =

########################################
# Diva connectivity parameters
########################################

# A comma separated list of Diva Manager IPs/DNS names AMC tries to
connect to DIVA_MANAGER_ADDRESS = localhost
```

```
# Diva Manager port
DIVA_MANAGER_PORT = 9000

# Number of retry attempts made when
# connection to Diva Manager fails
DIVA_REQUEST_RETRY = 1

# Request status polling interval
# in seconds
DIVA_MONITOR_INTERVAL = 10

##########################################
# Diva request parameters
##########################################

# AMC source name in DIVA
DIVA_SRCDST =

# Category set for archived objects
# in single file per object mode
DIVA_DEFAULT_CATEGORY =

# Priority of submitted requests
DIVA_ARCHIVE_PRIORITY = -1

# Values for DIVA_ARCHIVE_QOS:
# 0 => DIVA_QOS_DEFAULT            // Direct and Cache
# 1 => DIVA_QOS_CACHE_ONLY         // Cache only
# 2 => DIVA_QOS_DIRECT_ONLY        // Direct only
# 3 => DIVA_QOS_CACHE_AND_DIRECT   // Cache and direct (if cache
n/available)
# 4 => DIVA_QOS_DIRECT_AND_CACHE   // Direct and cache (if direct
n/available)
DIVA_ARCHIVE_QOS = 0
```

```
# Values for DIVA_RESTORE_QOS:
# 0 => DIVA_QOS_DEFAULT            // Direct and Cache
# 1 => DIVA_QOS_CACHE_ONLY         // Cache only
# 2 => DIVA_QOS_DIRECT_ONLY        // Direct only
# 3 => DIVA_QOS_CACHE_AND_DIRECT   // Cache and direct (if cache
n/available)
# 4 => DIVA_QOS_DIRECT_AND_CACHE   // Direct and cache (if direct
n/available)
DIVA_RESTORE_QOS = 0


# Indicates whether partition parameter from
# archive profle is used as destination media
# name or source/destination name
PARTITION_IS_MEDIA = 1


# If PARTITION_IS_MEDIA parameter is set to 0
# this parameter specifies destination media
# name. Otherwise it is used only if archive
# is submitted with no profile selected on
# Avid side
DIVA_ARCHIVE_MEDIA =
```

A2.2 TM Communicator Configuration Parameters

This section describes the TM Communicator parameters located in the TMC Configuration File. Any parameter not specifically mentioned in the table below is used solely for debugging purposes and should not be modified from its default value.

The parameters are logically split into three groups:

- Common
  - Required for both DET and DHM workflows.
- DHM related
- DET related

While configuring the TM Communicator to support any of the two workflows, all common parameters should be defined along with parameters pertaining to the corresponding workflow. All listed parameters must be defined even if default values are not specified in the configuration file.

Note: All IP Addresses mentioned in this section can be replaced by corresponding DNS Names provided the DNS service functions properly. If the Listener's IP Address has the default value "0.0.0.0", the TM Communicator listens to all configured network interfaces and passes the DNS Name of its host to the Oracle Sender and/or Receiver.

Setting values of the timeout parameters, `PLAYBACK_TIMEOUT`, `INGEST_TIMEOUT` and `DET_TIMEOUT`, greater than 120 seconds is impractical and leads to increased memory consumption as DIVArchive Actor closes inactive TM Communicator connections in 120 seconds. It is recommended to keep the default values of these parameters.

COMMON PARAMETERS		
Name	**Default Value**	**Description**
`SERVICE_NAME`		Specifies Windows Service Name for the TMC Service. **If not specified, the default Service Name `DIVArchive TMCommunicator` is used.**
`TM_WORKSPACE`		Avid Unity Workspace (*logical storage unit*).
`TM_USER`		Avid Unity Username. **This user must have write access to `TM_WORKSPACE`.**

COMMON PARAMETERS		
Name	**Default Value**	**Description**
DIVA_MANAGER_ADDRESS	**localhost**	IP Address of the DIVArchive Manager where TM Communicator sends archive requests. **Multiple Manager IPs separated by commas can be specified. TMC will try to connect to the second IP if it cannot connect to the first and so on. All DIVArchive Managers should have the same port configured.**
DIVA_MANAGER_PORT	9000	Port of the DIVArchive Manager where TM Communicator sends archive requests.
DIVA_REQUEST_RETRY	1	Number of reconnect attempts made if the request sent by TM Communicator fails due to a lost connection with the DIVArchive Manager. **It is recommended to keep the default value of this parameter.**
DIVA_MONITOR_INTERVAL	10	Request status polling interval in seconds.
FTP_IP	0.0.0.0	TM Communicator FTP interface IP Address.
FTP_PORT	6021	TM Communicator FTP interface port.
TM_BUFFER_SIZE	2048	Size of the Network I/O Buffer in kilobytes. **The valid value range for this parameter is from 8 to 2048 kilobytes. It is recommended to keep the default value for environments with high-speed networks.**
TM_SOCKET_BUFFER_SIZE	0	Socket receive and send buffer sizes in kilobytes. If set to 0, the system default values are used. **This parameter may be used to enable TCP/IP scaling if it is supported by installed hardware and OS.**
TM_SOCKET_LINGER	1	Maximum time in seconds that the FTP data socket remains open in a Socket Close call to enable sending of queued data.

DHM RELATED PARAMETERS		
Name	**Default Value**	**Description**
DHM_LOGIN	**dhm**	Login required to access TM Communicator via an FTP interface in the DHM workflow.
DHM_PASSWORD	**diva**	Password required to access TM Communicator via an FTP interface in the DHM workflow.
PBP_IP	0.0.0.0	IP Address of the TM Communicator Receiver that accepts PBP contacts from the Transfer Manager (*DHM Archive Workflow*).
PBP_PORT	6535	Port of the TM Communicator Receiver that accepts PBP contacts from the Transfer Manager (*DHM Archive Workflow*).
TM_PLAYBACK_IP	0.0.0.0	IP Address of the TM Communicator Receiver that listens for connections from the Oracle Sender (*DHM Archive Workflow*).
TM_PLAYBACK_PORT	6001	Port of the TM Communicator Receiver that listens for connections from the Oracle Sender (*DHM Archive Workflow*).
PLAYBACK_TIMEOUT	30	Time in seconds that TM Communicator waits for a connection from the DIVArchive Actor (*DHM Archive Workflow*).
TM_INGEST_IP	0.0.0.0	IP Address of the TM Communicator Receiver that listens for connections from the Oracle Receiver (*DHM Restore Workflow*).
TM_INGEST_PORT	6002	Port of the TM Communicator Receiver that listens for connections from the Oracle Receiver (*DHM Restore Workflow*).
INGEST_TIMEOUT	30	Time in seconds that TM Communicator waits for a connection from the Oracle Receiver (*DHM Restore Workflow*).
AVID_METADATA_FORMAT	**OMFI**	Format of the Avid composition submitted to initiate ingest (*DHM Restore Workflow*). **This parameter must be set to AAF if Avid Media Manager is set to MXF/AAF mode, otherwise it should be set to OMFI.**

DHM RELATED PARAMETERS		
Name	**Default Value**	**Description**
INGEST_QUEUE_SIZE	100	Maximum number of video frames and audio chunks per clip stored in memory on the Avid Transfer Manager side during a DHM Restore.
INGEST_SET_TAPE	1	Setting this parameter to 0 makes TM Communicator use an empty string rather than the clip name or title (*if present*) for the Tape field in the Avid Metadata.
MUXER_TYPE	**GXF**	Format of clips stored in DIVArchive (*DHM Archive Workflow*). **This parameter should be set to either GXF or MXF.**
MUXER_SMPTE386M	1	Setting this parameter to 1 makes TM Communicator generate **MXF D-10** clips compliant with the **SMPTE 386M** standard (*DHM Archive Workflow*). **It is recommended to keep the default value of this parameter**.
MUXER_DV_AES3	0	Setting this parameter to 1 makes TM Communicator generate **MXF DV-25** and **DV-50** clips with **AES3** audio rather than **WAV** audio (*DHM archive workflow*). **It is recommended to keep the default value of this parameter.**
DEMUXER_TYPE	**GXF**	Indicates whether ingested clips are considered to be **GXF** or **MXF** when the clip type is not explicitly defined by the file extension (*DHM Restore Workflow*). **This parameter should be set to either GXF or MXF.**
DEMUXER_D10_STRIP	**0**	Setting this parameter to 1 enables stripping of **MPEG** user data from **D10** frames of restored clips (*DHM Restore Workflow*). **It is strongly recommended to keep the default value of this parameter unless changing it is absolutely required to enable DHM restore of D10 clips.**

DHM RELATED PARAMETERS		
Name	**Default Value**	**Description**
DEMUXER_D10_STRICT	1	Setting this parameter to 0 disables checking of restored **D10** clips for frame size compliance (*DHM Restore Workflow*). **It is <u>not</u> recommended to disable the check permanently as it may lead to creation of non-playable clips in Avid Unity.**
DEMUXER_UMF_TIMECODE	1	Setting this parameter to 0 forces the **GXF** demuxer to retrieve the time code from the MAP packet rather than the UMF packet during **GXF** clip restore (*DHM Restore Workflow*). **It is <u>strongly</u> recommended to keep the default value of this parameter.**
CONVERT_24BIT_AUDIO	0	Setting this parameter to 1 enables conversion of 24-bit audio to 16-bit during DHM archive and restore. **It is recommended to keep the default value of this parameter and enable the conversion only if it is required for software or hardware compatibility.**
IGNORE_FILL_TRACKS	1	Indicates whether TMC ignores audio tracks composed entirely of fill (*reserved*) segments or aborts the corresponding DHM archive request (*DHM Archive Workflow*). **If this parameter is set to 1, fill tracks will be removed and subsequent audio tracks will be shifted.**
CHECK_AUDIO_TRACKS	1	Indicates whether TMC aborts the DHM archive request when it cannot obtain an audio sample size for an audio track, or assumes that the sample size in question is consistent with that of other audio tracks from the same sequence (DHM Archive Workflow).
DIVA_DHM_SRCDST		Name of the TM Communicator DHM Source/Destination configured in DIVArchive.

DHM RELATED PARAMETERS		
Name	**Default Value**	**Description**
DIVA_DHM_ARCHIVE_MEDIA		Name of the DIVArchive Media where objects archived via TM Communicator in the DHM workflow are stored.
DIVA_DHM_ARCHIVE_CATEGORY		Category of DIVArchive Objects archived via TM Communicator in the DHM workflow.
DIVA_DHM_ARHIVE_PRIORITY	-1	Priority of DIVArchive archive requests initiated by TM Communicator in the DHM workflow.
DIVA_DHM_ARCHIVE_QOS	0	Value of the Quality Of Service parameter for DHM archive requests initiated by TM Communicator.

DET RELATED PARAMETERS		
Name	**Default Value**	**Description**
DET_LOGIN	**det**	Login required to access TM Communicator via an FTP interface in the DET workflow.
DET_PASSWORD	**diva**	Password required to access TM Communicator via an FTP interface in the DET workflow.
TM_DET_IP	0.0.0.0	IP Address of the TM Communicator Receiver which listens for connections from the Oracle Transceiver (*DET Archive and Restore Workflows*).
TM_DET_PORT	6003	TM Communicator Receiver port that listens for connections from the Oracle Transceiver (*DET Archive and Restore Workflows*).
DET_TIMEOUT	30	Time in seconds that TM Communicator waits for a connection from the Oracle Transceiver (*DET Archive and Restore Workflows*).

DET RELATED PARAMETERS		
Name	**Default Value**	**Description**
DET_PULL_NAME	**DivaPull Transfer**	Name of the DET Pull Device configured on the Avid Transfer Manager side for DET restore.
DET_XML_DUMP	0	If this parameter is set to 1, TM Communicator stores incoming XML Metadata on the local disk (*DET Archive Workflow*).
DET_XML_PATH		Full path on the local disk where TM Communicator stores incoming XML Metadata (*DET Archive Workflow*). **Directories that compose a defined path should be created manually. TM Communicator will not try to create the specified path nor verify its correctness.**
DIVA_DET_SRCDST		Name of the TM Communicator DET Source/Destination configured in DIVArchive.
DIVA_DET_ARCHIVE_MEDIA		Name of the DIVArchive Media where objects archived via TM Communicator in the DET workflow are stored.
DIVA_DET_ARCHIVE_CATEGORY		Category of the DIVArchive Objects archived via TM Communicator in the DET workflow.
DIVA_DET_ARCHIVE_PRIORITY	-1	Priority of the DIVArchive Archive Requests initiated by TM Communicator in the DET workflow.
DIVA_DET_ARCHIVE_QOS	0	Value of the Quality Of Service parameter for DET archive requests initiated by TM Communicator.