IADS Real Time Station
User Guide

Version 9.2.2 July 2019
Curtiss-Wright Document SSD-IADS-153
©2020 Curtiss-Wright

Table of Contents

1. IADS Real Time Station

1.1. Introduction

The IADS Real Time Station (RT Station) product is a real time application that can process and display data from various telemetry data sources including third party ground stations. RT Station combines data acquisition, processing, archiving and the IADS Display Client for both real time and playback operations. Upon launching RT Station, a Start Wizard is provided to guide you through the process of selecting the required setup information to run.

1.2. Start Wizard

The IADS Start Wizard will automatically run each time RT Station is started. The Start Wizard is comprised of several pages that need to be completed in order to begin processing and visualizing data. Each of these pages are described in detail in the following topics.

Note: When selecting a file or path using the wizard, there are some important considerations to take into account. Some options require you to make your choices from the perspective of a computer you are not interfacing with directly. For example, when making your choice where the IADS Server will store IADS data files, this path must have a direct correlation to the physical IADS Server hardware.
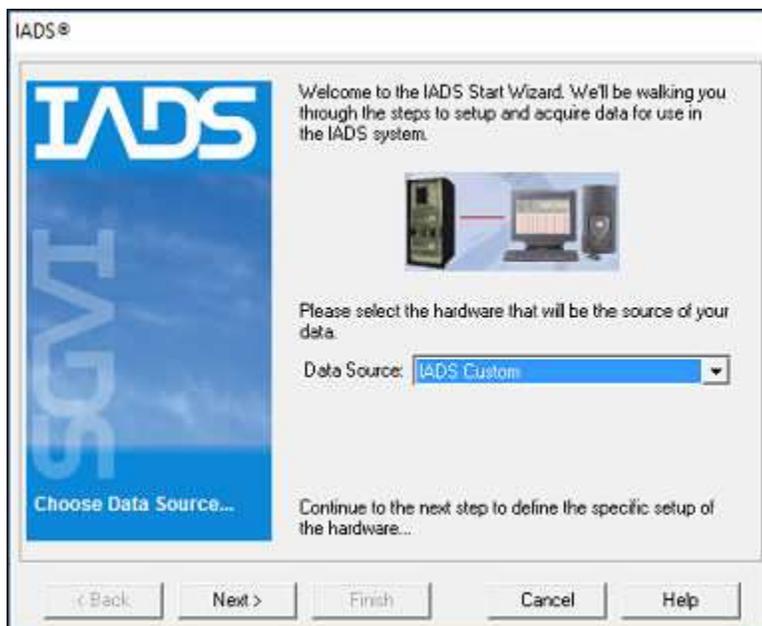
1.3. Data Source

The first page in the Start Wizard requires you to select the IADS data source. The Start Wizard will have one or more pages to further specify the required system and setup information for the data source that is selected, which are further defined in this document. The following table lists the data sources and their required setup files available in RT Station.

Data Source	Setup File
L3 O/S90	IADS PRN File
L3 550 System 6/7/8	Parameter Exchange files and IADS Config file
Smartronix Omega 3000	IADS Omega IOM data server
L3 550 Vista	Vista XML module files (Selection is a directory)
L3 S6200	S6200 Mission Xref file
EAFB MCS	MDT XML File
IADS Custom	IADS PRN File (Similar format as the OS90 interface)
L3 MFT Vista	Vista XML module files (Selection is a directory)
Lumistar LS50	Acra XidML or TTC XML
Lumistar LS-28-DRSM	Acra XidML or TTC XML
Acra GTS/DEC	Acra XidML or TTC XML
Acra (IENA, iNetX)	Acra XidML
Acra SAMDEC	Acra XidML
Acra Compact Flash	Data file & Strategy file, extracted from or on CF reader; XidML file optional
Acra PCAP File	Acra XidML
iNet TmNS	Acra XidML, TTC XML or TMATS
TTC DAR3 Real Time	TTC XML
TTC DAR3 PCAP	TTC XML
TTC Chapter 4 Binary File	Acra XidML, TTC XML or TMATS
TTC DBS-120	Acra XidML, TTC XML or TMATS
TTC DBS-140	Acra XidML, TTC XML or TMATS
RIG 106 Chapter10 Real Time *	TMATS information from recorder or file
IRIG 106 Chapter10 File *	Chapter 10 file and TMATS information
Composite Data Source *	Chapter 10 file, TMATS and embedded data source setup file
* Requires additional license options from Curtiss-Wright IADS	
Note: For use with Acroamatics, the IADS Custom data source is selected.	

1.4. IADS Data Directory

At the *Choose Data Directory* page in the Start Wizard you are required to select a location on your system to store the parameter data and other various internal files that will be created when you run IADS. It is recommended to choose the highest performance drive on your PC for your data directory.

The following options can be enabled by selecting the checkbox:

Prevent me from overwriting previous archives - When selected, prevents existing data, in the data directory selected in the start wizard from being overwritten. A new data folder will be created automatically.

Disable Data Archiving - When selected, prevents the system from archiving IADS data files.

Enable Support for 16bit IADS Data Files - Stores 16 bit parameters as 16 bit words in the IADS data files (32bit by default); to allow for more storage space.

1.5. IADS Configuration File

The IADS Configuration "Config" file is a database file that contains a series of tables to describe IADS display information, parameter definitions, and other user specific data that is necessary to run IADS. If you do not already have an IADS Configuration file, you will have to create a new one to start with.
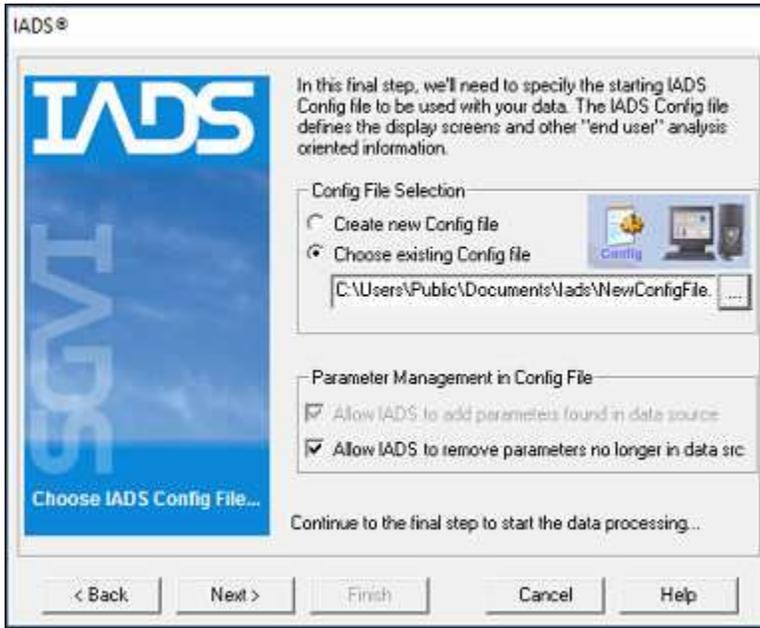
Choose IADS Config File options:

Create new Config file - The system will automatically create a new IADS Configuration file with parameters found in the data source. The default name *NewConfigFile.iadsConfig* is offered when you save a new Configuration file the first time. This name should be changed to something applicable to your project.

Choose existing Config file - When IADS is initially installed this setting is left blank. Click the [...] button to select an IADS configuration file. Each subsequent run of the Start Wizard will show this Configuration file name and location in the Choose existing config file field. It will contain all changes from previous runs. Select this option to continue with your last saved Configuration file.

Note: When IADS is installed an "Iads" Public documents folder is created at C:\Users\Public\Documents\Iads. It is recommended to save your IADS Configuration files to this folder.

Allow IADS to add parameters found in data source *[Default]* – Add missing data source parameters to the configuration.

Allow IADS to remove parameters no longer in data source – Removes old data source parameters from the configuration.

1.6. SmartEU

Selections in the SmartEU wizard page are optional. The purpose of the SmartEU is to convert raw data into engineering units based on information in the instrumentation setup file.

Note: The first time you use a SmartEU feature it is recommended that you select a new (empty) destination directory and new IADS config file in the Start Wizard. The results that are generated can be compared against existing derived parameter definitions to determine if the results of the SmartEU are satisfactory.
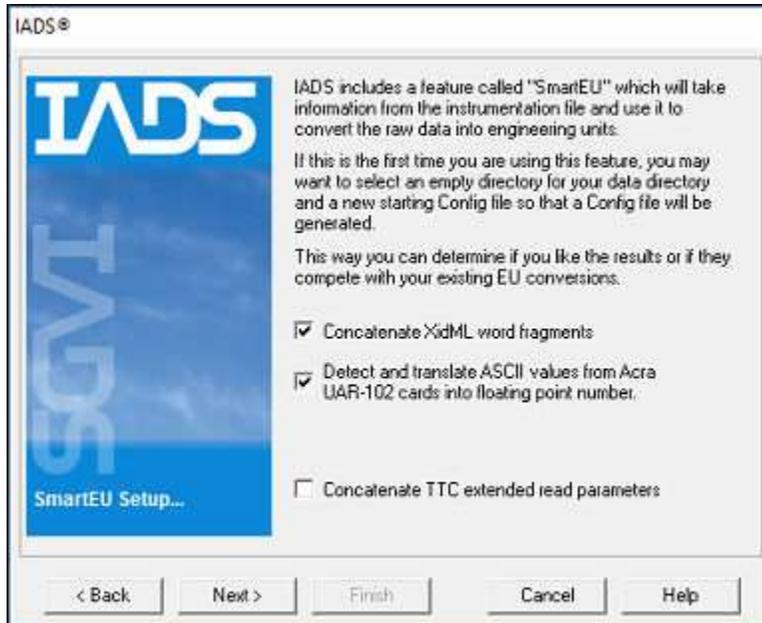
SmartEU Options:

Concatenate XidML word fragments - This option will take information from the X-Bitmap portion of the *AlgorithmSet* in the XidML file to automatically concatenate word fragments that are defined there. An example of this is placing a 16 bit HI_TIME word in a 12 bit PCM stream. KSetup will create HI_TIME_Frame_1_1 and HI_TIME_Frame_1_2. IADS will take these definitions and recreate HI_TIME.

Detect and translate ASCII values from Acra UART cards into floating point number - This option relies on the message definitions of the Acra UAR-102 card and is used for serial streams that have ASCII numerals embedded in them. The bytes of the message will be put in an array and then the value of the message will be translated into a floating point number. Only one ASCII number can appear per message. Acra uses the start and end sequences to "parse" the incoming stream into these values and IADS will only use the words that it needs for the portion - it will skip the start/stop sequence and it will skip the Acra even (duplicate) words.

For example if you have UAR_0_J4_Msg1 and it is comprised of 9 words: UAR_0_J4_Msg1_DW0 - UAR_0_J4_Msg1_DW8. The "data" portions of these words (ignoring start and stop sequences) will be used to create the floating point value which will appear as UAR_0_J4_Msg1.

Concatenate TTC extended read parameters - TTC extended reads are automatically detected if the ExtendedReads.csv file is located in the \Program Files\IADS\IadsTpp directory. The IadsTppLog.txt file (generated after you run RT Station in the "Logs" directory) will list all the extended read parameters.

Note: SmartEU currently supports Acra XidML and TTC XML files only.

1.7. Embedded PCM

The Embedded PCM page in the start wizard is an option only for those data sources that use Acra XidML, TTC XML or TMATS file to describe PCM metrics; such as the Acra GTS/DEC, Lumistar, TTC DBS 120, TTC DBS 140 and Chapter 10 Real Time. Embedded PCM is used to describe another (usually legacy) PCM stream that is embedded in the system's master PCM stream.
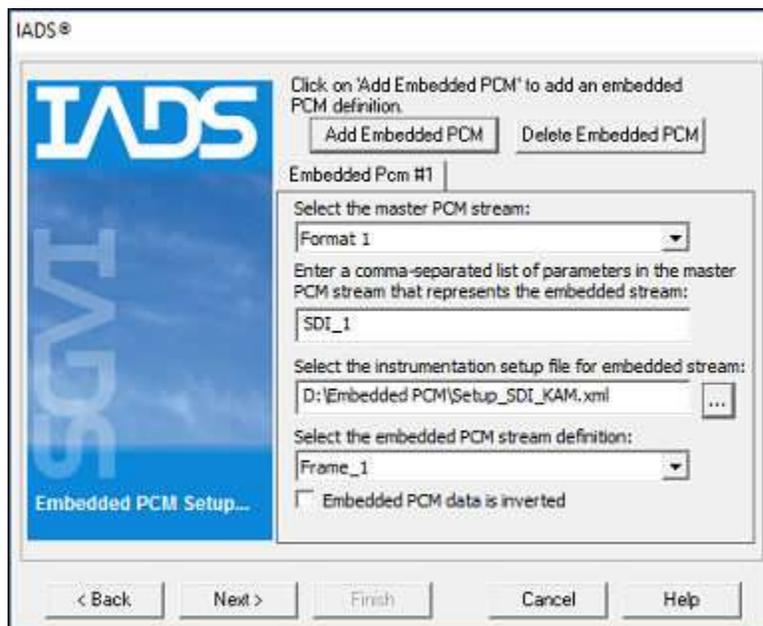
To add an embedded PCM definition:

1. Click the **Add Embedded PCM** button.

2. Click the *Select Master PCM stream* drop down to select the master data stream.

3. Enter a comma separated list of parameters in the master PCM stream that represents the embedded stream.

4. Click the [...] button in the following field to select the instrumentation setup file for the embedded stream.

5. Click the S*elect the embedded PCM stream definition* drop down to select the stream.

6. Click **Next**.

2. IADS Chapter 10 Processing

2.1. IADS Chapter 10 Overview

Curtiss-Wright IADS provides support for IRIG-106 Chapter 10 with the IADS Real Time Station product line for both stand-alone systems (IADS-TELEM-RTSTATION) and control room based multiple display systems (IADS-TELEM-BASE-TPP); collectively known as RT Station in this document. RT Station provides processing for the real time Chapter 10 UDP stream or playback from a Chapter 10 data file. The Start Wizard allows the user to describe the content of the Chapter 10 source along with a combination of TMATS files and other COTS instrumentation files.

IADS Chapter 10 Processing
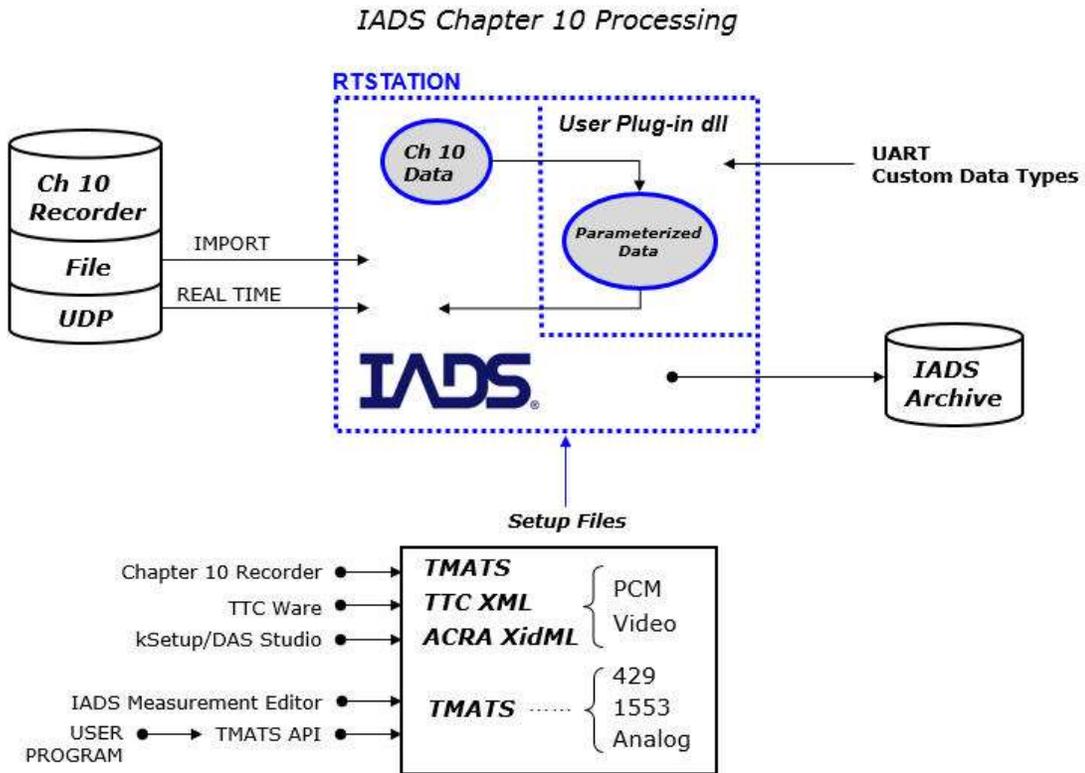
2.2. IADS Chapter 10 Supported Formats

PCM

RT Station supports PCM Chapter 10 packets in unpacked and throughput mode. Time stamps for this packet type are periodic and will appear every PCM minor frame. Each PCM stream will be processed independently. The following file types can be used to define the content of any particular PCM stream:

1. TMATS file (IRIG 106 Chapter). This file can either be a standalone file or you can use the TMATS portion of your Chapter 10 file.

2. Acra XidML file

3. TTC XML file. You can generate this file by exporting your TTC project into an XML file.

ARINC 429

RT Station supports ARINC Chapter 10 packets. Currently the content of the ARINC busses must appear in a TMATS file in the B group. RT Station supports and expects ARINC busses to appear in their "sub-channeled" format where sub-channeled ARINC busses appear in the same Chapter 10 packet. Each ARINC channel, which can be a collection of sub-channels, is processed independently in RT Station. The time for these sources is aperiodic and is updated each time it updates in the Chapter 10 packet. Mid-packet time offsets are also considered a "time update" and will be treated accordingly.

Parameter definitions in a TMATS file that share the same combination of octal label and SDI bits and appear on the same ARINC bus, will be consolidated to form the raw or "TPP" parameter in RT Station as shown:

1. A 32 bit unsigned TPP parameter will be created. It will be named BusName_BUS_BB_OLBL_LL_SDI_NN where:

    BusName = Name of bus

    BB = Bus number

    LL = Octal number

    NN = SDI code

2. A derived parameter, using the TPP parameter above as input, will be automatically created within the RT Station Configuration file for usage within the displays.

1553

Each 1553 channel (bus) will be processed independently in RT Station. The time for these sources is aperiodic and is updated each time it updates in the Chapter 10 packet. Mid-packet time offsets are also considered a "time update" and treated accordingly. RT Station will generate an IADS raw (TPP) parameter for each bus message defined in the TMATS file within the RT Station configuration file. In addition, a derived parameter will be created in the configuration file, using the raw parameter as input. Users who do not wish do fully populate a TMATS file can leave just the bus messages there and define bus measurements by hand as derived parameters using the Configuration Tool in the Client Workstation.

Video

RT Station supports Format 1 (MPEG-2) and Format 2 (MPEG-4) of the Chapter 10 Video standard. Video is automatically generated for all enabled video channels. Video will appear

in the IADS Media Player channel list as "Channel 1", "Channel 2", etc where "Channel 1" is the first enabled Chapter 10 video channel, "Channel 2" is the second, etc.

Unless data archiving has been disabled in the IADS Start Wizard, video will also be recorded as AVI files in the IADS data output directory the user selected. The files names will appear as "Video Channel #1.avi", "Video Channel #2.avi", etc where "Video Channel #1.avi" is the first enabled Chapter 10 video channel, "Video Channel #2.avi" is the second, etc.

IADS recommends using the latest version of the ffdshow codec available on-line (ffdshow-tryouts.sourceforge.net).

Analog

RT Station supports the packed format of the Chapter 10 Analog standard. Each analog channel will be processed independently in RT Station. Time is periodic for each source and is updated once for each sampling sequence (see IRIG 106 Chapter 10 documentation for the definition of a "sampling sequence").

Multiple analog signals can be sub-channeled into one analog Chapter 10 channel in accordance with IRIG 106. RT Station supports and encourages this configuration. Assigning each signal to an individual analog Chapter 10 channel can result in overall performance degradation in RT Station.

2.3. IRIG 106 Chapter 10 Real Time

**To connect to an IRIG 106 Chapter 10 Real Time data source using Real Time Station:**

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **IRIG 106 Chapter 10 Real Time** *Data Source* option from the drop down menu > **Next**.

3. Click the [...] button to select one or more files that describe the instrumentation setup and parameter definitions for the different Chapter 10 packets (multiple files can be selected simultaneously by holding down the **Ctrl** key) > click **Next**.

   In certain cases (video and analog) the recorder is also the content provider; the file that describes the recorder layout (see step 5.) will need to be selected here as well.

   Note: Supported file types are Acra XidML, TTC XML, TMATS and Chapter 10. Data streams that are identified in the files are listed on the "Channel Mapping" wizard page. Stream names must be unique across instrumentation files; there cannot be any duplicate names describing PCM, ARINC, or other data. To remove a file from the list, select it and click the ☒ button.
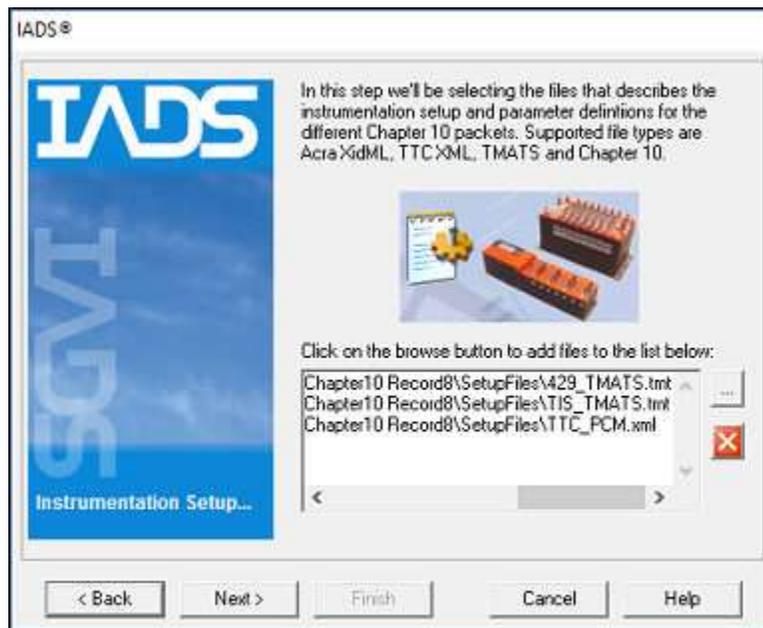
4. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

5. Select an option to get the recorder layout information either directly from the Chapter 10 device or from a file; this information will be used to determine the channel mapping on the following page. If retrieving the TMATS from a recorder, select the associated COM port; or enter the Ethernet IP and Port Id. Click the **Update TMATS** button to generate a TMATS file from the Ethernet/Serial connection to the recorder > click **Next**.
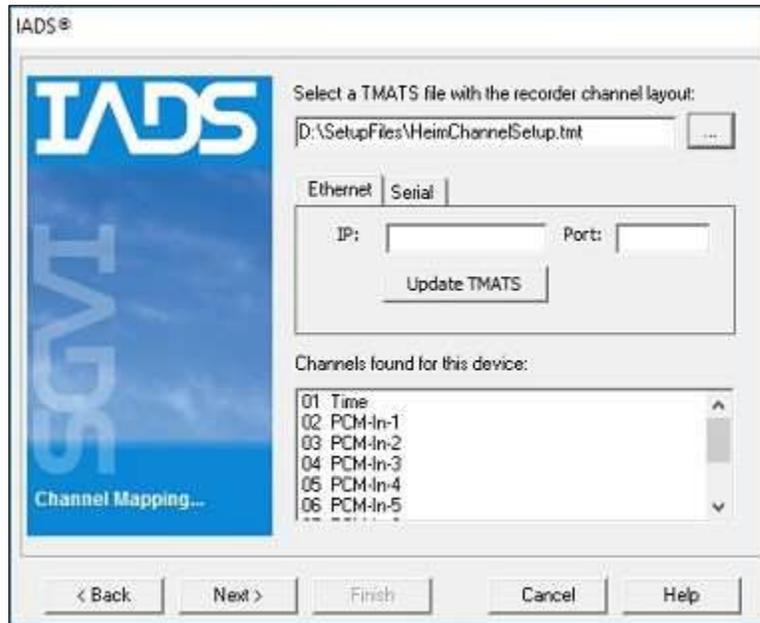
6. You can map channels to stream names manually, or automatically by clicking the **Auto-populate** button (stream names and channels names must match exactly). To match channels manually, click the *Stream* drop down next to the *Ch Name* entry to view the list of stream names and make a selection.

In certain cases (video and analog) the recorder is also the content provider; the file that describes the recorder layout here will also need to be selected in step 3. (instrumentation setup files) so the data stream can be mapped to the channel.

Note: Clicking the Auto-populate button will undo any channels that are hand-mapped. It is recommended to auto-populate (if applicable), then hand-map those channels that are active (black) but <not set> as necessary.

[Optional] **Merge ARINC Channels** - Select the checkbox to merge Chapter 10 ARINC channels if the Chapter 10 recorder does not support sub-channeling. Click **Next**.
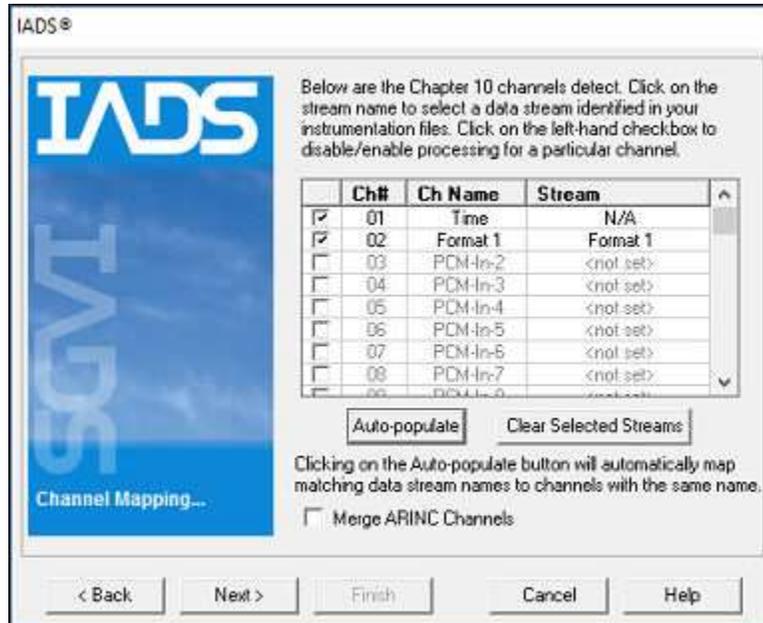
7. [Optional] Click the Add Embedded PCM > click **Next**. (See section 1.7.)

8. Click the Network Interface drop down to select the NIC the data is coming in on. Enter the *Multi-cast* address if applicable. Enter the *Port Id* that the data is coming in on (default is 5006). If you are using a Heim data recorder you can use the ConfigC10DC utility to control the data flow and set the Port Id.
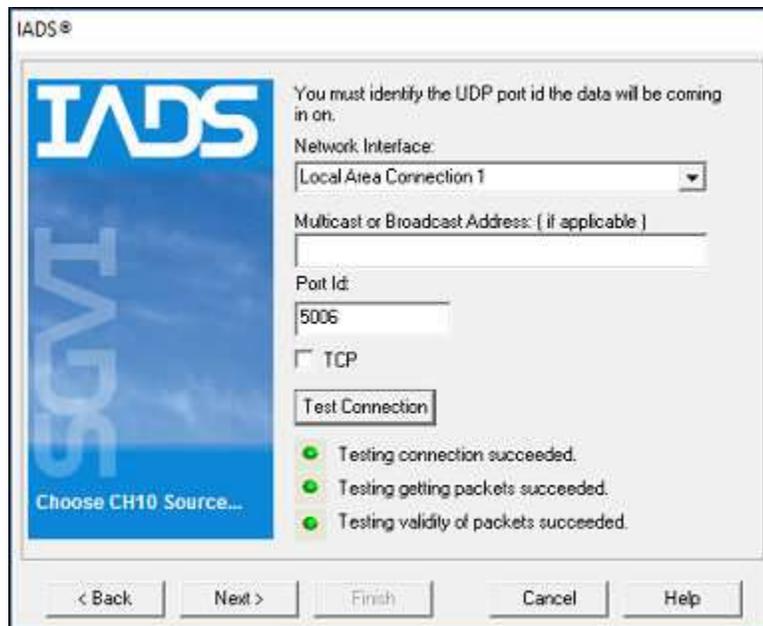
9. Click the **Test Connection** button. After validation (all green lights) > click **Next**.

10. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

11. Select IADS configuration file options > click **Next**. (See section 1.5.)

12. Review settings and click **Finish** to start IADS.

2.4. IRIG 106 Chapter 10 File

To connect to an IRIG 106 Chapter 10 File data source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **IRIG 106 Chapter 10 File** *Data Source* option from the drop down menu > click **Next**.

3. Click the [...] button to select one or more Chapter 10 files. If more than one file is selected they must be in the same directory and represent one contiguous time > click **Next**.

4. Click the [...] button to select one or more files that describe the instrumentation setup and parameter definitions for the different Chapter 10 packets (multiple files can be selected simultaneously by holding down the **Ctrl** key) > click **Next**.

   In certain cases (video and analog) the recorder is also the content provider; the file that describes the recorder layout (see step 6.) will need to be selected here as well.

   Note: Supported file types are Acra XidML, TTC XML, TMATS and Chapter 10. Data streams that are identified in the files are listed on the "Channel Mapping" wizard page. Stream names must be unique across instrumentation files; there cannot be any duplicate names describing PCM, ARINC, or other data. To remove a file from the list, select it and click the ☒ button.
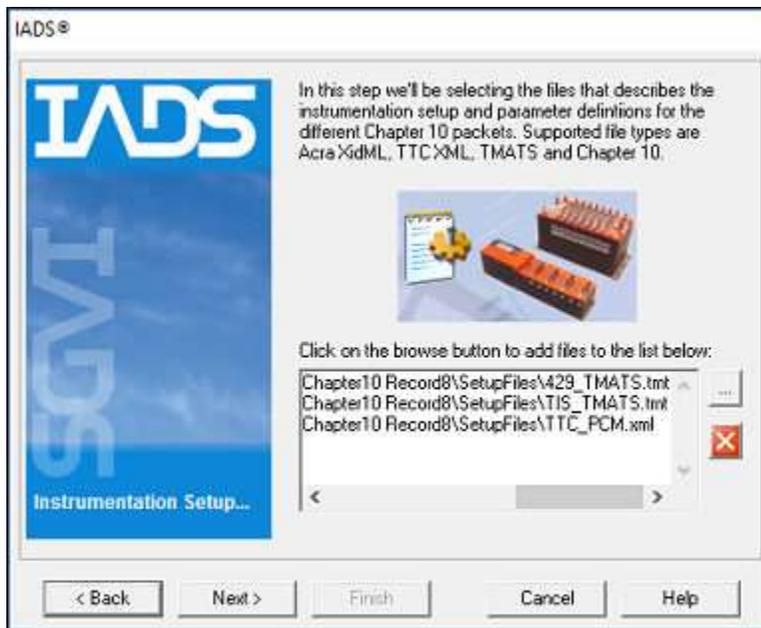
5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

6. Select an option to get the recorder layout information either directly from the Chapter 10 device or from a file; this information will be used to determine the channel mapping on the following page. If retrieving the TMATS from a recorder, select the associated COM port; or enter the Ethernet IP and Port Id. Click the Update TMATS button to generate a TMATS file from the Ethernet/Serial connection to the recorder > click **Next**.

   In certain cases (video and analog) the recorder is also the content provider; the file that describes the recorder layout here will also need to be selected in step 4. (instrumentation setup files) so the data stream can be mapped to the channel.

7. You can map channels to stream names manually, or automatically by clicking the **Auto-populate** button (stream names and channels names must match exactly). To match channels manually, click the *Stream* drop down next to the *Ch Name* entry to view the list of stream names and make a selection.

Note: Clicking the Auto-populate button will undo any channels that are hand-mapped. It is recommended to auto-populate (if applicable), then hand-map those channels that are active (black) but <not set> as necessary.

[Optional] **Merge ARINC Channels** - Select the checkbox to merge Chapter 10 ARINC channels if the Chapter 10 recorder does not support sub-channeling.
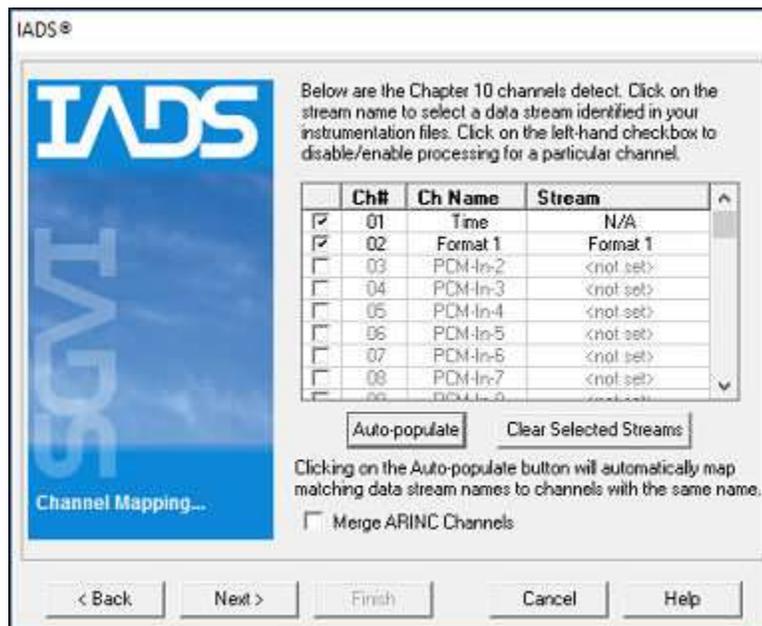
Click **Next**.

8. [Optional] Click the Add Embedded PCM > click **Next**. (See section 1.7.)

9. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

10. Select IADS configuration file options > click **Next**. (See section 1.5.)

11. Review settings and click **Finish** to start IADS.

3. IadsTpp Sources

3.1. Acra PCAP File

The playback of one or more Acra PCAP files in IADS.

To connect to an Acra PCAP File data source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Acra PCAP File** data source option from the drop down menu > click **Next**.

3. Click the [...] button to select the Main XidML File from the directory. Click the [...] button to add files that contain PCM definitions for the PBM card if applicable > click **Next**.

4.

5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

6. Select the **All Packages** or **Selected Packages** option. To select only those IENA packages you are interested in viewing, use the arrow buttons to add them to the right side of the dialog > click **Next**.

   [Optional] **I have multiple KAMs whose PTP time is not synchronized to a master source or switch** - Checking this box forces all packets to align to one arbitrary time line. Data alignment across sources can suffer in this case. This is not recommended for actual flight test.

   [Optional] **PTP leap seconds to subtract** - Enter the number of PTP leap seconds to subtract from the IADS IRIG clock.

6. Click the [...] button to select the PCAP files. The files should be in one directory and represent one contiguous time > click **Next**.

   Note: To add event package information as IP Address, Port Number and Hex ID, select the Process Event Package checkbox.
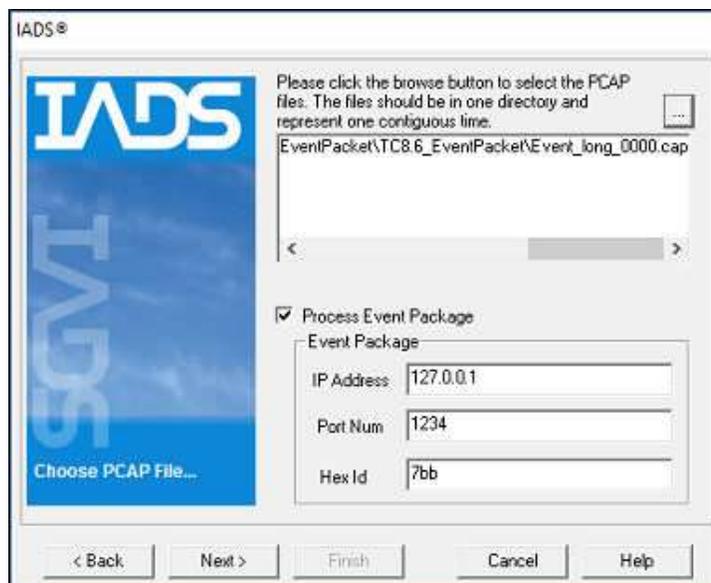
7. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

8. Select IADS configuration file options > click **Next**. (See section 1.5.)

9. Review settings and click **Finish** to start IADS.

3.2. Acra IENA or iNetX

The Acra Ethernet data source needs to be configured in advance and ready to interface with IADS prior to running the Start Wizard:

- The Acra Ethernet output module has been configured correctly using the Acra software.

- Verify network communications with the Acra Ethernet module.

Note: Wireless interfaces should be avoided for any type of UDP work. Also, UDP packets can be blocked by firewalls and/or NET balancing software; disabling these features may be necessary.

To connect to an Acra Ethernet data source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Acra (IENA or iNetX)** data source option from the drop down menu > click **Next**.

3. Click the upper [...] button to select the XidML file that describes the parameter definitions in the data stream. [Optional] Click the lower [...] button to select additional files that describe PCM definitions for the PBM card if applicable > click **Next**.

4. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

5. Select (check) the IENA packages you are interested in viewing > click **Next**.

   [Optional] **I have multiple KAMs whose PTP time is not synchronized to a master source or switch** - Checking this box forces all packets to align to one arbitrary time line. Data alignment across sources can suffer in this case. This is not recommended for actual flight test.

   [Optional] **PTP leap seconds to subtract** - Enter the number of PTP leap seconds to subtract from the IADS IRIG clock.
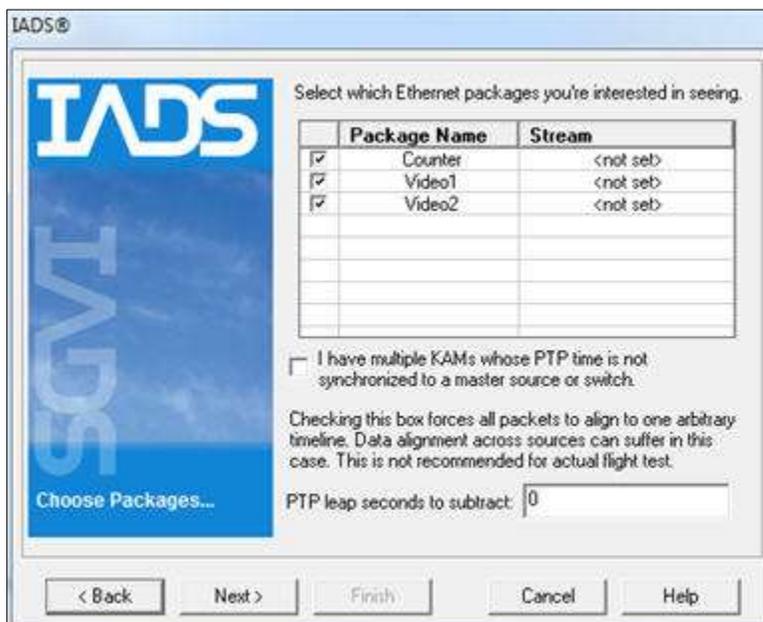
6. Click the *Network Interface* drop down to select the NIC the data is coming in on. Enter the *Multi-cast* or *Broadcast* address if applicable. Enter the *Port Id* that the data is coming in on (default is 1023).

7. Click the **Test Connection** button. After validation (all green lights) > click **Next**.

8. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

9. Select IADS configuration file options > click **Next**. (See section 1.5.)

10. Review settings and click **Finish** to start IADS.

3.3. Acra Compact Flash

IADS post test data processing from an Acra Compact Flash card; or the extracted data and strategy files from a CF reader. Currently, only the 32-bit version of IADS Real Time Station supports Acra CF processing (Start > All Programs > IADS > Win32 > IADS Real Time Station).

The strategy file is created at C:\Acra\Kprogram\ when you program the KAM. If you use KFlashcardXid to initialize the card, you can select the strategy (.txt) file in the dialog and it will get copied to the card. Otherwise, you can select the strategy file that resides in the Acra directory for the Real Time Station start wizard entry. If you do select the strategy (.txt) file in the "initialize card" dialog, when you do an extraction it will get copied off in the same directory with the .dat file.

Troubleshooting: If an error occurs "Error reading CF device or file: Acra Load Library (kflashex.dll) failed." The kflashex.dll has to be in a folder that is listed in the Path environment variable; I usually put it in the "C:\Windows\System32" directory.

To connect to an Acra Compact Flash Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Acra Compact Flash** data source option from the drop down menu > click **Next**.

3. Select the device directory if the **CD Device** option is applicable, or select **Raw Data File** and click the ... button to select the *Data* (.dat) and *Strategy* (.txt) files from a directory on your PC > click **Next**.
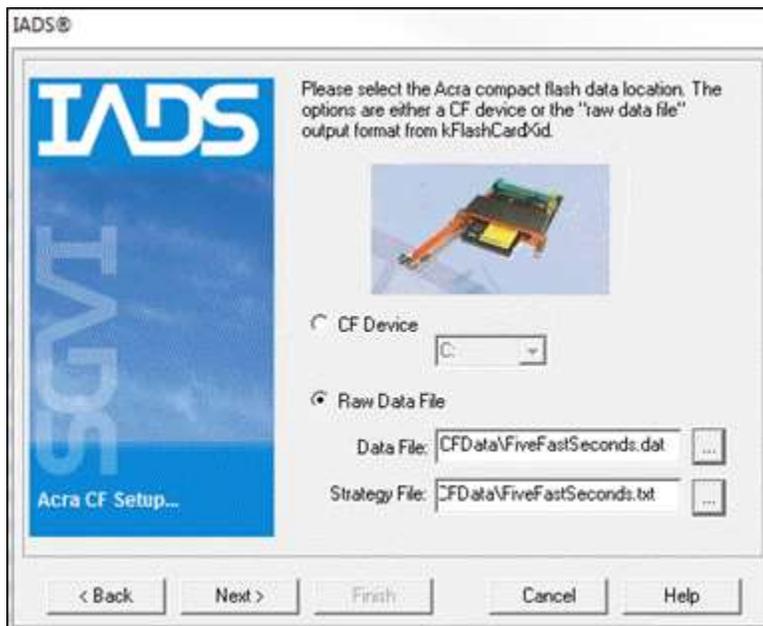
4. [Optional] Click the [...] button to select a XidML file from the directory; if the CF recording contains video the XidML file will sync the video with other data automatically. If you do not provide a XidML file, the start time of the first frame of video will have to be set in the Video Player properties *IrigStartTime,* to synchronize. Select a time word or click the **Use this start time** option and enter the desired start time > click **Next**.

5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

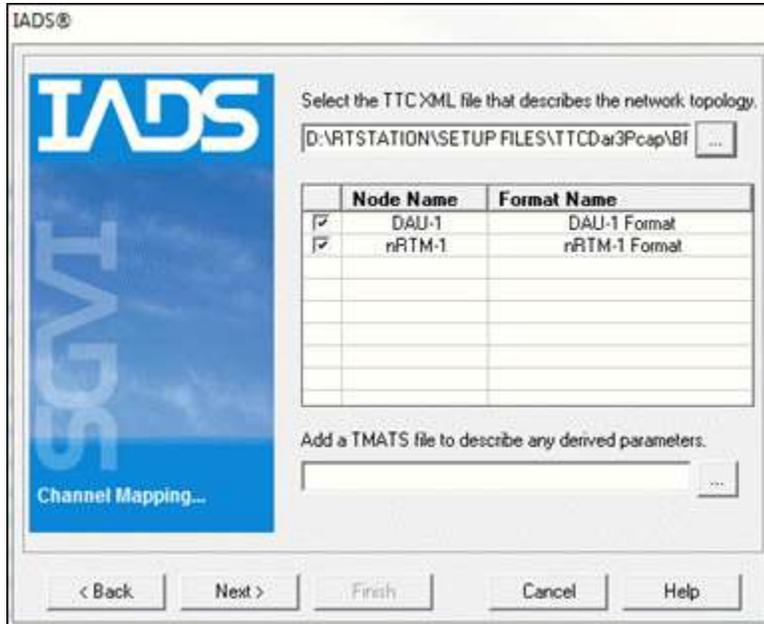6. Click the drop down to select an event > click **Next**.

7. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

8. Select IADS configuration file options > click **Next**. (See section 1.5.)

9. Review settings and click **Finish** to start IADS.

3.4. TTC DAR3 PCAP

To connect to a TTC DAR3 PCAP Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.
2. Select the **TTC DAR3 PCAP** data source option from the drop down menu > click **Next**.
3. Click the [...] button to select the TTC XML file that describes the network topology. [Optional] Add a TMATS file to describe any derived parameters > click **Next**.

   Note: Click the checkbox in the grid to enable or disable processing for a particular node.


4. Click the [...] button to select the PCAP files. The files should be in one directory and represent one contiguous time > click **Next**.
5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)
6. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)
7. Select IADS configuration file options > click **Next**. (See section 1.5.)
8. Review settings and click **Finish** to start IADS.

3.5. TTC DAR3 Real Time

To connect to a TTC DAR3 Real Time Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **TTC DAR3 Real Time** data source option from the drop down menu > click **Next**.

3. Click the [...] button to select the TTC XML file that describes the network topology. [Optional] Add a TMATS file to describe any derived parameters > click **Next**.

   Note: Click the checkbox in the grid to enable or disable processing for a particular node.
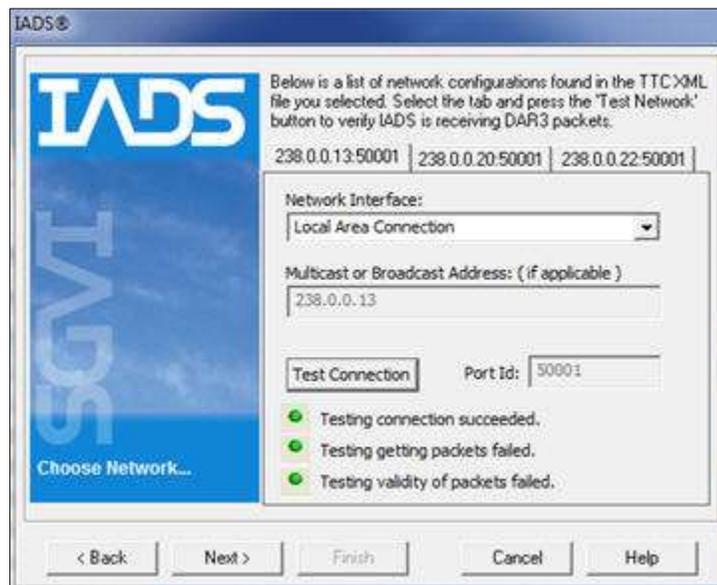
4. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

5. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

6. Select IADS configuration file options > click **Next**. (See section 1.5.)

7. Review settings and click **Finish** to start IADS.

3.6. TTC Chapter 4 Binary File

To connect to a TTC Chapter 4 Binary Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **TTC Chapter 4 Binary File** data source option from the drop down menu > click **Next**.

3. Click the ... button to select the instrumentation setup file from the directory. Click the drop down to select a data stream (if applicable) > click **Next**.

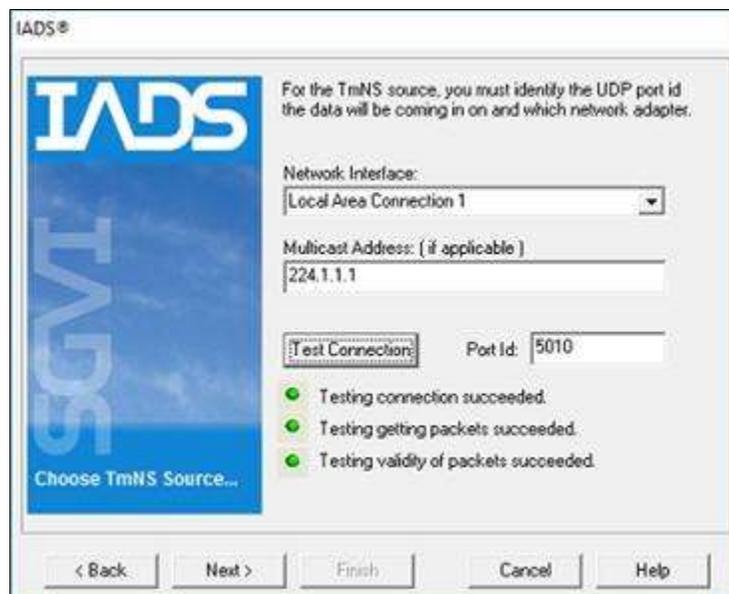4. Click the ... button to select the TTC Chapter 4 BIN file > click **Next**.
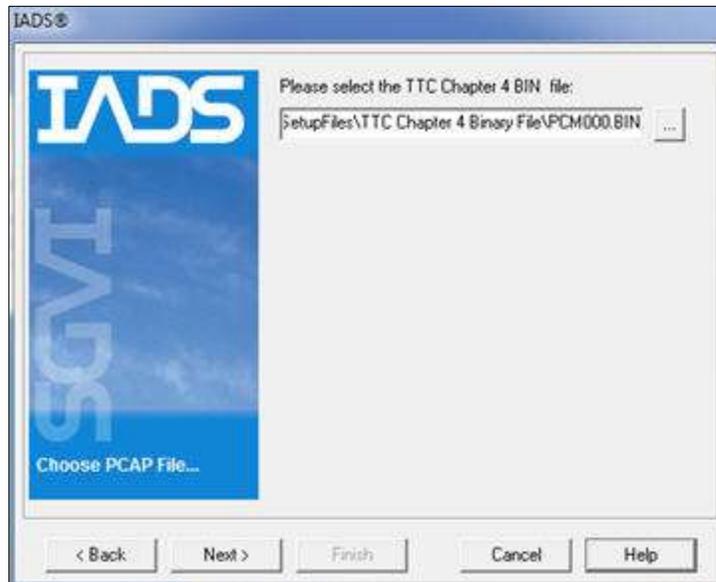
5. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

6. Select IADS configuration file options > click **Next**. (See section 1.5.)

7. Review settings and click **Finish** to start IADS.

3.7. iNet TmNS

To connect to an iNet TmNS Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **iNet TmNS** data source option from the drop down menu > click **Next**.

3. Click the [...] button to select the instrumentation setup file from the directory. Supported file types are Acra XidML, TTC XML and TMATS. Click the drop down to select a data stream (if applicable) > click **Next**.

4. Click the Network Interface drop down to select the NIC the data is coming in on. Enter the *Multi-cast* address if applicable (default is 224.1.1.1) and the *Port Id* that the data is coming in on (default is 5010).

5. Click the **Test Connection** button. After validation (all green lights) > click **Next**.
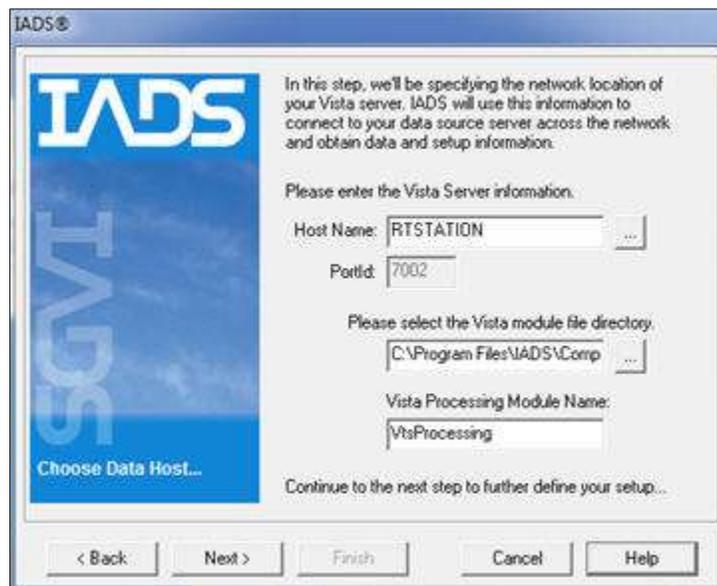

6. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

7. Select IADS configuration file options > click **Next**. (See section 1.5.)

8. Review settings and click **Finish** to start IADS.

4. Direct Decom Sources

4.1. L3 MFT Vista

To connect to an L3 MFT Vista Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.
2. Select the **L3 MFT Vista** data source option from the drop down menu > click **Next**.
3. Enter the *Host Name* (computer name) of the Vista server or click the ... button to select it from the Network.
4. Enter the path name of the Vista module file directory or click the ... button to select it from the directory. Enter the Vista Processing Module Name > click **Next**.

5. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)
6. Select IADS configuration file options > click **Next**. (See section 1.5.)
7. Review settings and click **Finish** to start IADS.
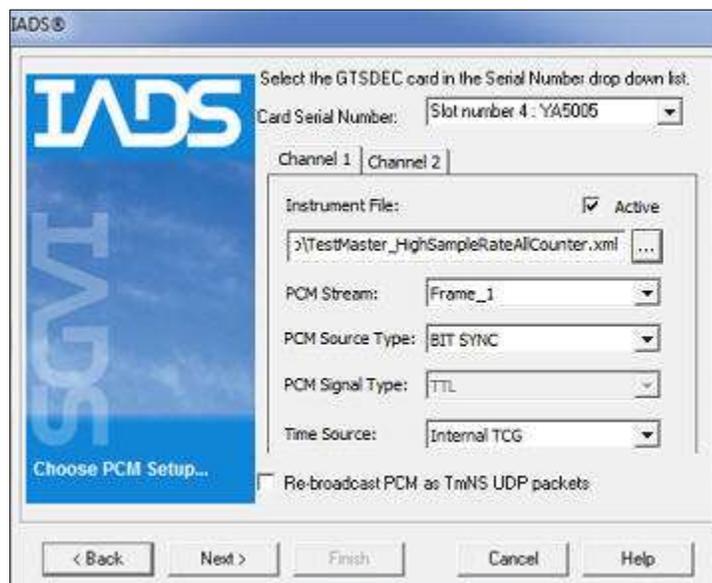
4.2. Acra GTS/DEC

The GTSDEC data source needs to be configured in advance and ready to interface with IADS prior to running the Start Wizard:

- Installation of the ACRA GTSSDK software.

- Installation of the ACRA GTS/DEC decom card.

To connect to an Acra GTS/DEC Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Acra GTS/DEC** data source option from the drop down menu > click **Next**.

3. Click the Card Serial Number drop down to select the applicable GTSDEC card if more than one card is installed in your system.

4. Click the ... button to select the instrumentation setup file from the directory. Click the drop down to select the *PCM stream*. Click the drop down to select the *PCM Source Type*. Click the drop down to select the *PCM Signal Type*. Click the drop down to select the *Time Source*. Repeat for Channel 2 if applicable (select the **Active** checkbox to activate) > click **Next**.

   Note: To rebroadcast the PCM as Telemetry Network Sever (TmNS) UDP packets, select the checkbox.

5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

6. [Optional] Click the Add Embedded PCM > click **Next**. (See section 1.7.)

7. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

8. Select IADS configuration file options > click **Next**. (See section 1.5.)

9. Review settings and click **Finish** to start IADS.
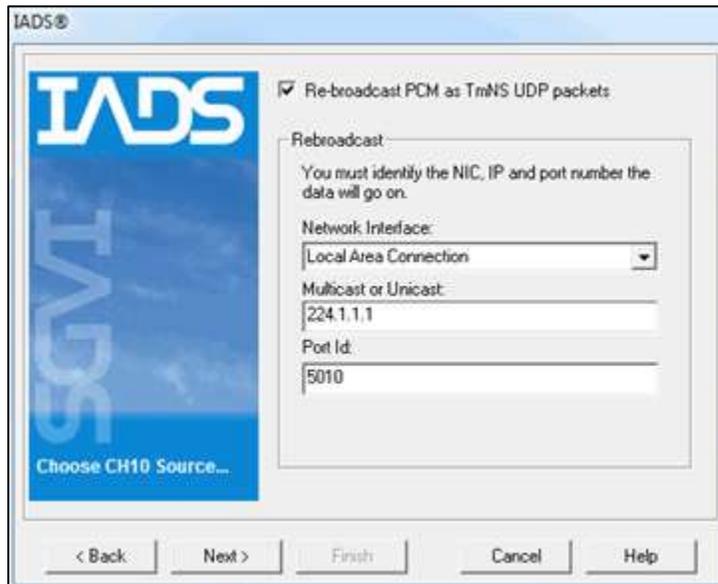
4.3. Lumistar LS50

The Lumistar data source needs to be configured in advance and ready to interface with IADS prior to running the Start Wizard:

- Installation of the Lumistar software.

- Installation of the Lumistar decom.

Note: The Lumistar server software and IADS cannot run simultaneously.

To connect to a Lumistar Data Source using Real Time Station:

1. Click the **IADS Real Time Station** icon on the Desktop.

2. Select the **Lumistar** data source option from the drop down menu > click **Next**.

3. Click the ... button to select the instrumentation setup file from the directory. Click the drop down to select a data stream (if applicable) > click **Next**.

4. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

5. Select your IADS time source. If an External Time Code Generator (TCG) is available, that is your best option > click **Next**.

6. Select your *PCM Source Type* and *PCM Signal Type* from the drop down menu > click **Next**.

7. [Optional] Click the Add Embedded PCM > click **Next**. (See section 1.7.)

8. To rebroadcast the PCM as Telemetry Network Sever (TmNS) UDP packets, select the checkbox. Select the NIC and enter the IP and Port number the data will go on.
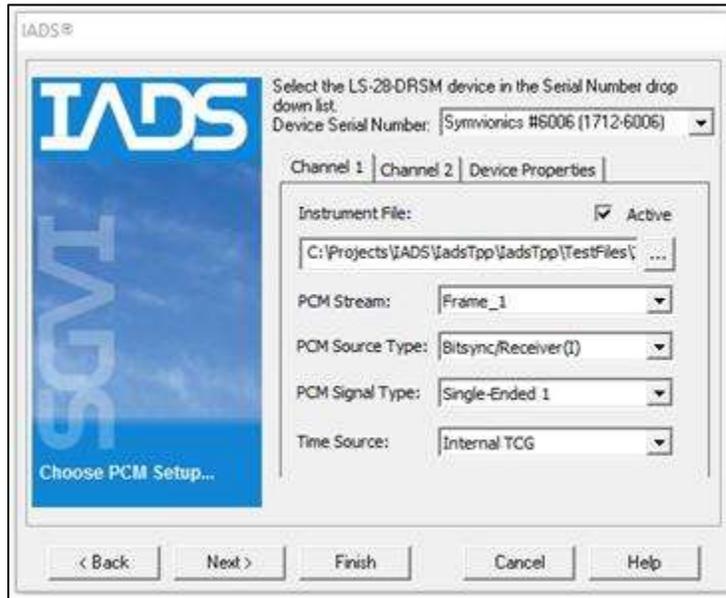

9. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

10. Select IADS configuration file options > click **Next**. (See section 1.5.)

11. Review settings and click **Finish** to start IADS.

4.4. Lumistar LS-28-DRSM

To connect to a Lumistar LS-28-DRSM Data Source using Real Time Station:

1. Click the **IADS Real Time Station** icon on the Desktop.

2. Select the **Lumistar LS-28-DRSM** data source option from the drop down menu > click **Next**.


3. Click the ... button to select the instrumentation setup file from the directory.

4. Click the drop down to select a PCM stream. Select your **PCM Source Type** and **PCM Signal Type**.

5. Select your IADS time source. If an External Time Code Generator (TCG) is available, that is your best option > click **Next**.

6. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

7. Enter the path name of the IADS data directory or click the ... button to select it > click **Next**. (See section 1.4.)

8. Select IADS configuration file options > click **Next**. (See section 1.5.)

9. Review settings and click Finish to start IADS.

4.5.   TTC DBS-120 and TTC DBS-140

To connect to a TTC DBS Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **TTC DBS-120 or TTC DBS-140** data source option from the drop down menu > click **Next**.

3. Click the ... button to select the instrumentation setup file from the directory. Currently Acra XidML, TTC XML and TMATS files are supported. This file should contain the parameter definitions of the data stream > click **Next**.

4. Select your *PCM Source* type and *Signal Type* from the drop down menu > click **Next**.
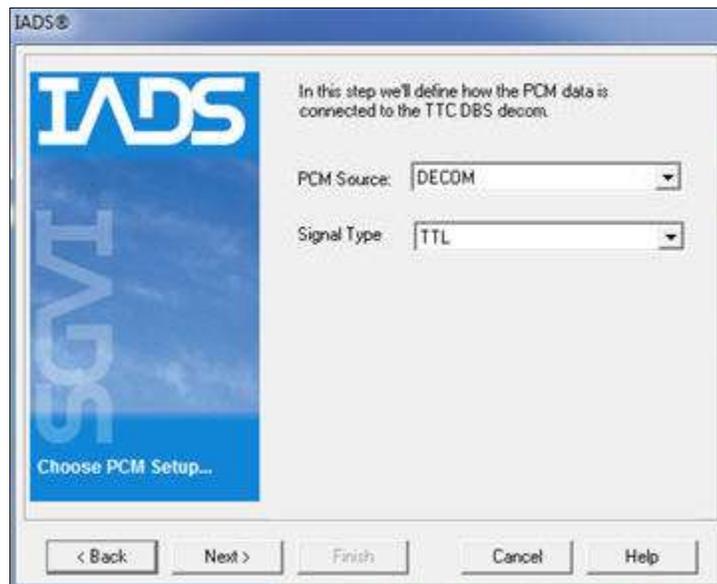

5. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

6. [Optional] Click the Add Embedded PCM > click **Next**. (See section 1.7.)

7. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

8. Select IADS configuration file options > click **Next**. (See section 1.5.)

9. Review settings and click **Finish** to start IADS.

4.6. Acra SAMDEC

To connect to an Acra SAMDEC Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Acra SAMDEC** data source option from the drop down menu > click **Next**.

3. Click the ... button to select the instrumentation setup file from the directory. Click the drop down to select the *data stream* > click **Next**.

4. [Optional] Select SmartEU options > click **Next**. (See section 1.6.)

5. Select your *Input* type from the drop down menu > click **Next**.
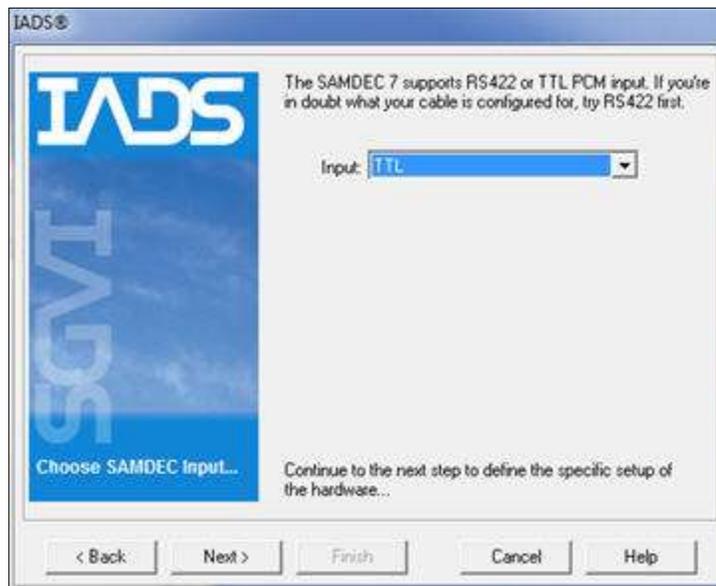
6. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

7. Select IADS configuration file options > click **Next**. (See section 1.5.)

8. Review settings and click **Finish** to start IADS.

5. Composite Data Source

IADS currently supports IENA and iNetX embedded in a Chapter 10 Ethernet channel.

To run a composite data source:

1. Click the **IADS Real Time Station** icon on the Desktop.

2. Click the **Composite File** or **Composite Real Time** *Data Source* option from the drop down menu > click **Next**.

3. Click the DataSource menu at the top > **Add** > **Chapter 10 Real Time** or **Chapter 10 Playback** (file). Note: Only one main source is currently supported; click the *DataSource* drop down to **Remove** an existing data source before adding another.

4. Enter the required information to setup the Chapter 10 data source by clicking in the editable fields at the top of the dialog "**<click to edit>**".

   Note: SmartEU and Embedded PCM are optional fields.

5. After the grid is updated with the channels found on the device using the recorder TMATS, right-click anywhere in the grid to popup the option to **Autopopulate**.

6. Hover over the applicable Ethernet channel in the grid to popup the option to **Add IENA/iNetX** (see picture below).
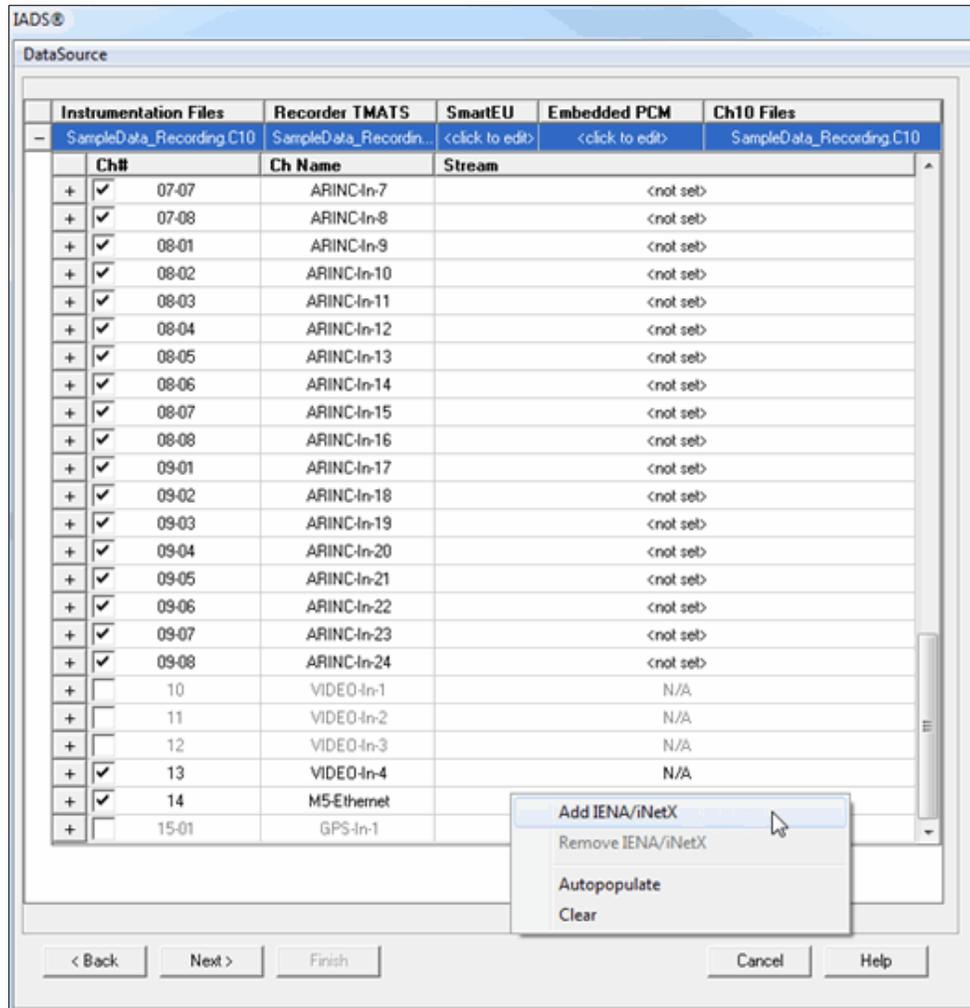
7. Enter the required information to setup the IENA/iNetX data source by clicking in the editable fields at the top of the dialog **"<click to edit>"**.

   Note: The "Add IENA/iNetX" option will only be available for any Ethernet channel.
   The user is required to know which channel has the IENA/iNetX data.

8. Click in the Packages field view the IENA/iNetX packages for that channel (as shown below). Make changes as necessary > click **Ok**.

9. Click **Next** to proceed in the wizard.
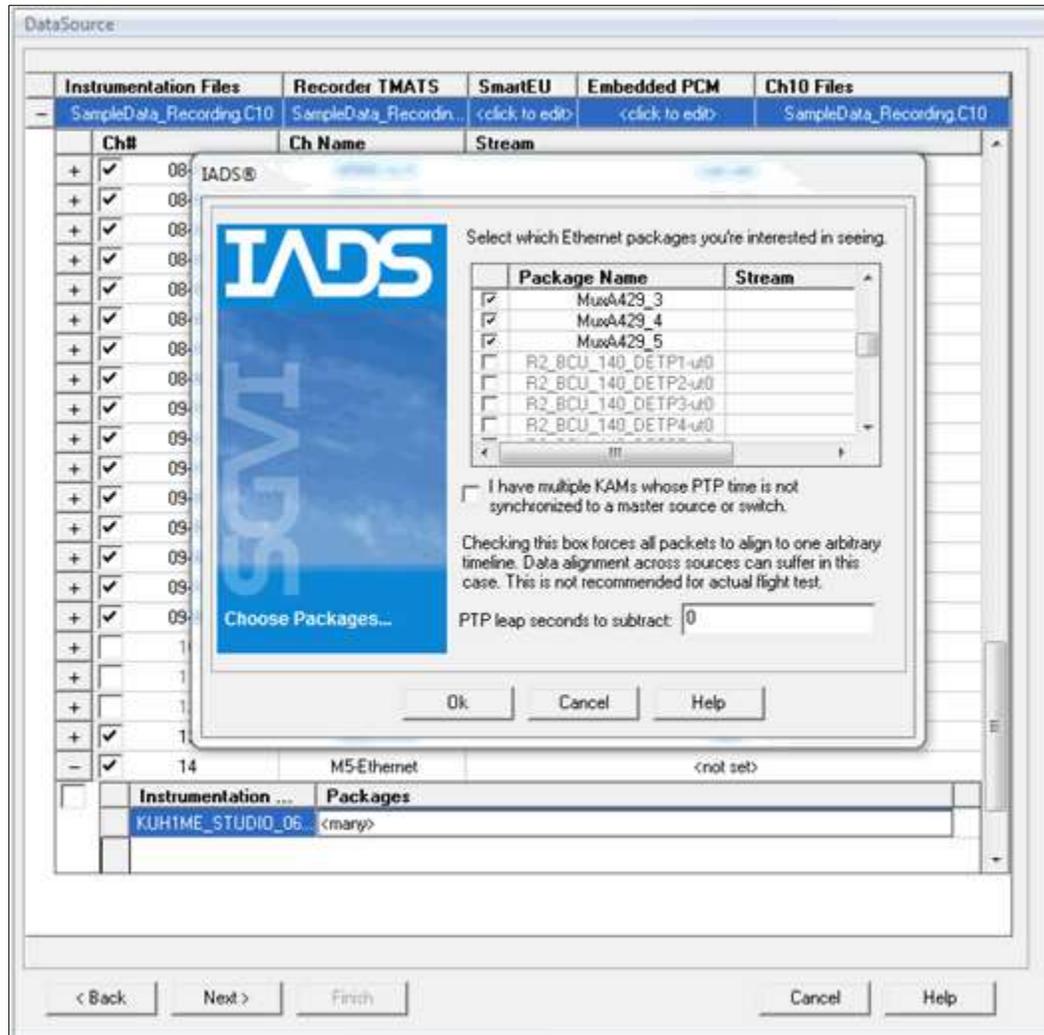
10. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

11. Select IADS configuration file options > click **Next**. (See section 1.5.)

12. Review settings and click **Finish** to start IADS.

6. Classic Sources

6.1. IADS Custom

Note: For use with Acroamatics the IADS Custom data source is selected.

To connect to an IADS Custom Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **IADS Custom** data source option from the drop down menu > click **Next**.

3. Enter the *Host Name* (computer name) of the data source hardware or click the [...] button to select it from the Network. Enter your server's *Port ID* if it is different from the default setting > click **Next**.
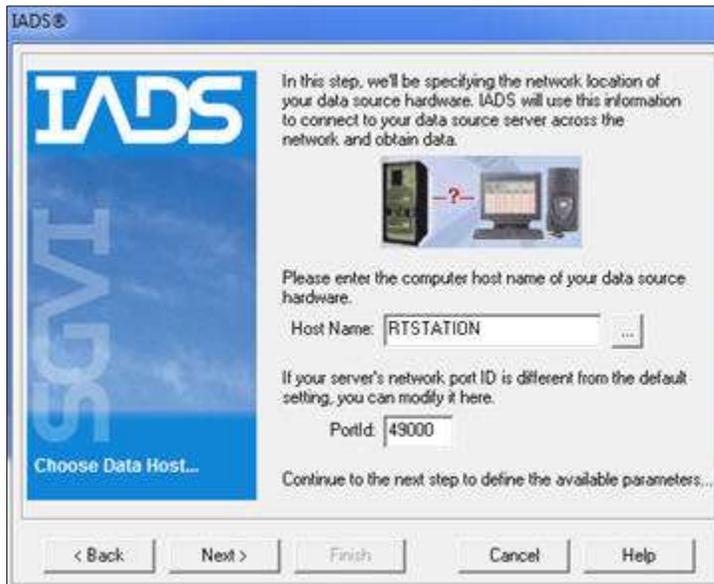
4. Enter the path name of the parameter definition file (PRN) or click the [...] button to select it > click **Next**.

5. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

6. Select IADS configuration file options > click **Next**. (See section 1.5.)

7. Review settings and click **Finish** to start IADS.

6.2. L3 550 System 6/7/8

The L3 550 systems interface relies on setup files with names and in directories that are internally set at installation time. These files are located at:

Program Files (x86)\IADS\ComputeDataServer\parameterDefinitionFiles\550parms.dat

Program Files (x86)\IADS\ComputeDataServer\parameterDefinitionFiles\550toPRN.dat

To connect to a L3 550 System 6/7/8 Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **L3 550 System 6/7/8** data source option from the drop down menu > click **Next**.

3. Enter the *Host Name* (computer name) of your System 550 server hardware, or click the ... button to select it. Enter the *FPP* number > click **Next**.
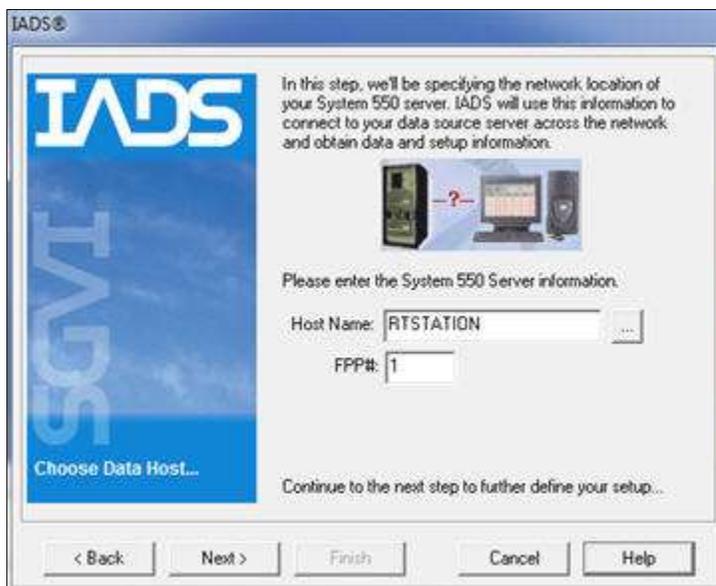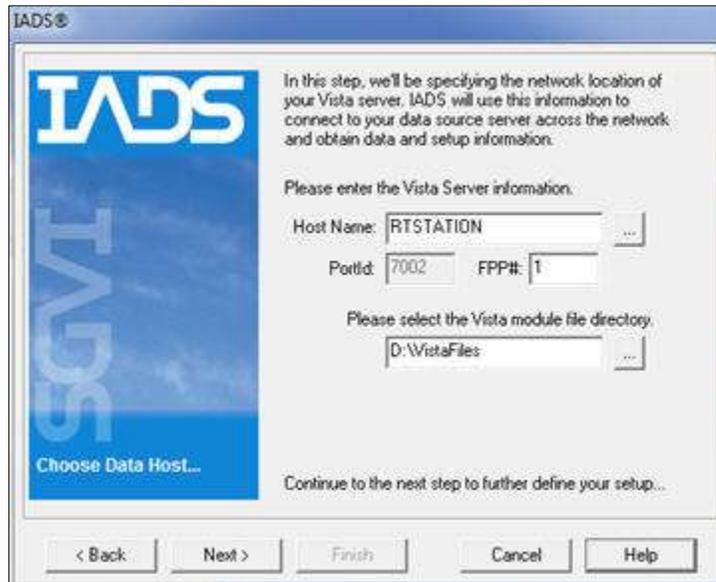

4. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

5. Select IADS configuration file options > click **Next**. (See section 1.5.)

6. Review settings and click **Finish** to start IADS.

6.3.   L3 550 Vista

To connect to an L3 550 Vista Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **L3 550 Vista** data source option from the drop down menu > click **Next**.

3. Enter the *Host Name* (computer name) of the Vista server or click the ... button to select it. Enter the FPP number.

4. Select the Vista module file directory if it is different from the default setting > click **Next**.

5. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

6. Select IADS configuration file options > click **Next**. (See section 1.5.)

7. Review settings and click **Finish** to start IADS.

6.4. L3 S6200

To connect to a L3 S6200 Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **L3 S6200** data source option from the drop down menu > click **Next**.

3. Enter the *Host Name* (computer name) of your data source hardware, or click the ... button to select it from the Network > click **Next**.
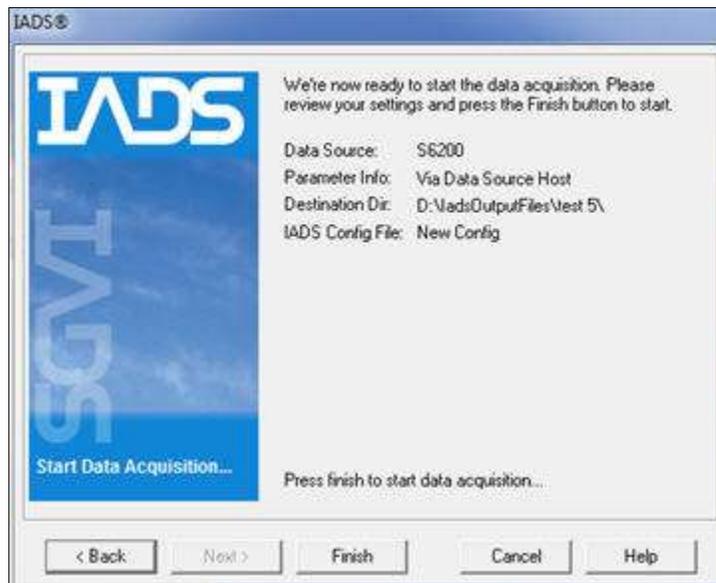
4. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

5. Select IADS configuration file options > click **Next**. (See section 1.5.)

6. Review settings and click **Finish** to start IADS.

6.5. Smartronix Omega 3000

The Omega Manager must be running with a project loaded; and the Omega IOM running with the correct parameter list, and time and status parameters defined.

• Click the IADS Omega IOM icon on the Desktop.

• Setup the Omega IOM per instructions in the Omega 3000 and CDS Setup User Guide.

To connect to a Smartronix Omega 3000 Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **Smartronix Omega 3000** data source option from the drop down menu > click **Next**.

3. Enter the *Host Name* (computer name) of the Omega 3000 server hardware, or click the ... button to select it. Enter the *FPP* number > click **Next**

4. Enter the path name of the IADS data directory or click the [...] button to select it > click **Next**. (See section 1.4.)

5. Select IADS configuration file options > click **Next**. (See section 1.5.)
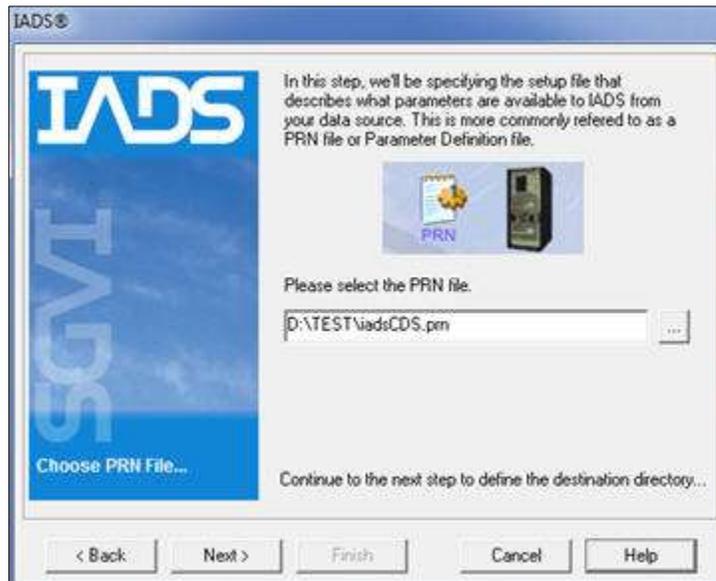
6. Review settings and click **Finish** to start IADS.

6.6. L3 0/S90

Currently the Real Time Station software supports the classic IADS PRN file based interface, and not the RT software interface built specifically for operations at Edwards Air Force Base.

To connect to a 0S90 Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.
2. Select the **O/S90** data source option from the drop down menu > click **Next**.
3. Enter the computer (host) name of your data source hardware, or click the ... button to select it. Enter your data source server's port ID if it is different from the default setting > click **Next**.
4. Enter the computer (host) name of your <u>IADS Data Server</u> hardware, or click the ... button to select it > click **Next**.
5. Enter the path name of your PRN file or click the button to select it > click **Next**.

6. Enter the path name of your destination directory or click the ... button to select it > click **Next**.
7. Select IADS configuration file options > click **Next**.
8. Review your settings and click **Finish** to start IADS.

6.7. EAFB MCS

To connect to an EAFB MCS Data Source using Real Time Station:

1. Click the IADS Real Time Station icon on the Desktop.

2. Select the **EAFB MCS** data source option from the drop down menu > click **Next**.

3. Enter the computer (host) name of your data source hardware, or click the ... button to select it. Enter your data source server's port ID if it is different from the default setting > click **Next**.

4. Enter the path name of your MDT file or click the ... button to select it > click **Next**.

5. Enter the path name of your destination directory or click the ... button to select it > click **Next**.

6. Select IADS configuration file options > click **Next**.

7. Review your settings and click **Finish** to start IADS.

7. Using RT Station as a Secondary Real Time Client

To setup a secondary client connection to a Real Time Station (server) machine:

1. Right-click on the **IADS Real Time Station** icon > **Copy**.

2. Paste the copy of the icon onto your computer desktop and rename to "IADS Real Time Client".

3. Right-click on the new "IADS Real Time Client" icon > **Properties**.

4. At the end of the target line add */server* MachineName, for example, */server* IADS1-3600QC.

   When you click on the "IADS Real Time Client" icon (now a designated real time client) the *IADS Log On* dialog will prompt you to select a User Name and Desktop.

Note: If no server name is specified, a dialog will allow you to select from a list of available servers.

Connection Troubleshooting

- A real time client can only connect to a Real Time Station running a real time data source. For example, a Chapter 10 playback creates an IADS data set and starts the IADS Playback Client (non-real time). In this case you could use the Post Test Data Server to distribute this data to other IADS Playback Clients.

- Perform a ping test by name (not IP) between the Client and the Server. The Client is trying to connect to the server by name if you use the /server <MachineName> command-line option.

- You also need to be able to ping from the Server to the Client. There have been some instances where the communication is unidirectional and that prevents a complete connection.

- It is assumed the server is up with data running when attempting to make the connection to it.

- The server must have the appropriate license to allow additional client connections.

8.   Auto-Launching Real Time Station

8.1.   Auto-launching Real Time Station

IADS Real Time Station (RT Station) can run automatically without the start wizard, from a shortcut on your Desktop, or at power-on by adding it to the Startup folder. Setting up the RT Station shortcut as described below is required in both cases.

To auto-launch RT Station from a shortcut:

1. Click on the **IADS Real Time Station** icon and run through the start wizard (click **Finish**) to establish your desired data source and settings; such as setup file, data directory, config file, etc. These settings will be saved in the "Iads.Client.WizardFile" file in the Program Files, IADS directory which is necessary for step 4.

2. Right-click on the **IADS Real Time Station** icon > **Copy**.

3. Right-click in on an open area of the Desktop and **Paste**. This creates a new *IADS Real Time Station* shortcut on your Desktop. Rename the icon to something applicable.

4. Right-click on the new icon shortcut > **Properties**.

5. At the end of the Target line add the command line arguments: the necessary tag "/rtstation" followed by the data source name (see options below) and path to the Iads.Client.WizardFile file. For example: */rtstation<sp>Custom<sp>"C:\Program Files\IADS\ClientWorkstation\Iads.Client.WizardFile"*

6. Click **OK**.

7. Click the shortcut you edited to start Real Time Station without using the start wizard.

Available data source names - OS90, Sys500, Omega, Vista, S6200, MCS, Custom, MFT800, Lumistar, AcraGTSDEC, AcraIENA, AcraSAMDEC, AcraCF, AcraPCAP, TmNS, TTCDAR3Realtime, TTCDAR3PCAP, TTCChapter4Bin, Chapter10Realtime and Chapter10Playback.

8.2.   Auto-Launching RT Station at Power-On

Note: This is applicable only if your computer is in a workgroup. If your computer is part of a domain, contact your network administrator.

To open the:

12. Follow the steps above to setup your RT Station shortcut.

13. From an Administrator command prompt, enter the command "control userpasswords2" and press ENTER.

14. Uncheck the "Users must enter a user name and password to use this computer" checkbox. Click Apply.

15. In the "Automatically Log On" dialog box, type your password and click OK.

16. In the "Users Accounts" dialog box, click OK.

17. Move (cut and paste) the RT Station shortcut into the following folder (same location as the IADS Commander shortcut; in XP):

C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Startup

XP Path: C:\Documents and Settings\All Users\Start Menu\Programs\Startup

Note: You have manually enter this location in explorer; you cannot drill down to this folder. The next time you start Windows IADS will run automatically.

8.3. Minimize System Resource Usage

To minimize system resource usage when using RT Station as a server

If you want RT Station to act primarily as a server that uses minimal Client display resources, other users should not use the "User1" user name or the "Basic Checkout" Desktop (this user name and Desktop is created automatically by RT Station). Other IADS Clients that will connect to this server should create a <u>new User Name</u> (other than User1) with built-up Desktops and Analysis Windows. This will prevent performance issues on the server machine.