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1. Introduction

The IADS Real Time Station product is sold by SYMVIONICS as a single user real time workstation that can gather data from multiple data source systems; designated as the IADS-TELEM-RTSTATION catalog item. This mode of the IADS Client is meant to provide a single application interface to data sources and server subsystems that would normally be run individually. In order to provide the most intuitive interface possible, the IADS Client has been modified to provide a start wizard to guide the user through the process of selecting the desired data source and required setup information in order to start operation.

1.1. Licensing

Real Time Station is a node-locked license that will require a machine specific System Id using the IADS License manager, and consequently a license key from SYMVIONICS (Please refer to the IADS Installation and Licensing guide for assistance in obtaining a license key). The Catalog item IADS-TELEM-RTSTATION-1 is a single user license, the catalog item IADS-TELEM-RTSTATION is a multi-user license of the same product.

Note: ACRA data sources may require additional license options from SYMVIONICS.

1.2. Prerequisites

Various software dependencies are not included as part of the IADS Real Time Station installation and require the customer to install them separately.

2. Start Wizard

The IADS Start Wizard will automatically run each time the IADS Real Time Station is started. This section details the common settings and their proper values. Each time the wizard is run, previous settings are loaded from the Iads.Client.WizardFile. The Start Wizard also has Data Source specific advanced properties that will occur on additional dialog pages. When the required arguments have been entered in the wizard, click Finish to save the selections and start the IADS Client; the system will automatically startup all the required IADS executables and begin data acquisition. Once complete, the IADS Client will automatically connect to the running data server and start data in real time mode. The setup process for each data source is further defined in the following pages of this user guide.
2.1. Data Source and Setup Files

The Data Source is selected on the first page of the start wizard from the drop down menu. The setup file format is data source dependent. See the table below for a list of all data source options and required setup files.

![Figure 2-1 Data Source and Setup Files](image)

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Setup Files</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3 O/S90</td>
<td>IADS PRN and config files</td>
</tr>
<tr>
<td>L3 550 System 7/8</td>
<td>Parameter Exchange files and IADS config file</td>
</tr>
<tr>
<td>Wyle Omega 3000</td>
<td>None - IADS Omega IOM data server</td>
</tr>
<tr>
<td>L3 Vista</td>
<td>Vista XML module files (Selection is a directory)</td>
</tr>
<tr>
<td>L3 S6200</td>
<td>S6200 Mission Xref file</td>
</tr>
<tr>
<td>MCS</td>
<td>MDT XML File</td>
</tr>
<tr>
<td>IADS Custom</td>
<td>IADS PRN File (Similar format as the OS90 interface)</td>
</tr>
<tr>
<td>MFT800</td>
<td>Vista XML module files (Selection is a directory)</td>
</tr>
<tr>
<td>Lumistar Decom</td>
<td>Acra XidML or TTC XML</td>
</tr>
<tr>
<td>** Acra GTS/DEC</td>
<td>Acra XidML or TTC XML</td>
</tr>
<tr>
<td>** Acra Ethernet</td>
<td>Acra XidML</td>
</tr>
<tr>
<td>** Acra SAMDEC</td>
<td>Acra XidML</td>
</tr>
<tr>
<td>** Acra Compact Flash</td>
<td>Data file &amp; strategy files, extracted or from CF reader; XidML [Opt]</td>
</tr>
<tr>
<td>** Acra PCAP File</td>
<td>Acra XidML</td>
</tr>
<tr>
<td>iNet TmNS</td>
<td>Acra XidML, TTC XML or TMATS</td>
</tr>
<tr>
<td>TTC DAR3 Real Time</td>
<td>TTC XML</td>
</tr>
<tr>
<td>TTC DAR3 PCAP</td>
<td>TTC XML</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>TTC Chapter 4 Binary File</td>
<td>Acra XidML, TTC XML or TMATS</td>
</tr>
<tr>
<td>TTC DBS-120</td>
<td>Acra XidML, TTC XML or TMATS</td>
</tr>
<tr>
<td>TTC DBS-140</td>
<td>Acra XidML, TTC XML or TMATS</td>
</tr>
<tr>
<td>IRIG 106 Chapter10 Real Time</td>
<td>TMATS information from recorder or file</td>
</tr>
<tr>
<td>IRIG 106 Chapter10 Playback</td>
<td>Chapter 10 file and TMATS information</td>
</tr>
<tr>
<td></td>
<td><strong>Acra data sources may require additional license options from SYMVIONICS.</strong></td>
</tr>
</tbody>
</table>

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

### 2.1. Smart EU

The purpose of the SmartEU is to convert raw data into engineering units based on information in the instrumentation setup file. The first time you use the SmartEU feature, it is recommended that you select a new destination directory and create a new config file in the start wizard; this way you can determine if the results of the SmartEU are satisfactory, or if the parameters that are generated compete with existing derived parameter definitions.

**Note:** SmartEU currently supports XidML files only.

---

**Figure 2-2 SmartEU**

**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.

2.2. IADS Data Directory

The data directory you select in the start wizard is where acquired IADS data will be stored on your system. This IADS data output directory will contain the IADS config file (pfconfig), IADS data files and various other internal files. Please select the fastest storage device available on your system, such as a hard drive, since data rates can be fairly large.

**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. The Logs directory and other system files will still be created.

![Figure 2-3 Data Directory](image)

2.3. Configuration File Management

The start wizard has the option to “Create new config file” (for any data source) or "Choose existing config file". When IADS is initially installed, the “Choose existing config file” option will be selected by default in the start wizard with a blank field entry; the user must select an existing configuration file or create a new one. If you select an existing “pfconfig” file (a reserved file type for IADS playback), the system will prompt you to make a copy of the file and save it in your default Public “Iads” folder, available in the Documents library on your computer. This location is suggested for all IADS configuration files. The .iadsConfig file you save is your
‘working’ IADS configuration file. Each subsequent run of the start wizard will show the ‘working’ configuration file name/location in the “Choose existing config file” field. It will contain all configuration changes from previous runs. Keep this option selected (file name and location) to continue with your last saved configuration.

IADS allows auto management of parameter entries in the Parameter Defaults table when selecting an existing config file in the start wizard. Parameters under IADS management will be stamped with an _IadsManaged_ moniker in the ParameterDefaults column of the Parameter Defaults table. "Parameter Management" options are available via the "Choose IADS Config File" page of the start wizard to automatically add entries for data source parameters not currently defined in the Parameter Defaults table and/or remove entries for parameters not found in the data source database.

![Choose IADS Config File](image)

Figure 2-4 Choose IADS Config File

**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 a valid IADS configuration file with the .iadsConfig extension. If a pfConfig file is selected, the system will ask you if you would like to ‘make a copy of this file and use it?’ The *CopiedConfigFile.iadsConfig* (rename to something applicable to your project) will be saved to the "Iads" Public documents folder. This will be the ‘working’ IADS configuration file. Each subsequent run of the start wizard will show the ‘working’ configuration file name/location in the *Choose existing config file* field. It will contain all configuration changes from previous runs. Select this option to continue with your last saved configuration.

Note: In previous versions of IADS, some data sources allowed the user to use a configuration file that existed in the data directory selected in the wizard; thus, leaving the config file selection field blank. This is no longer supported.
Allow IADS to add parameters found in data source [Default] – When selected, add missing data source parameters to the configuration.

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

Note: The IADS data directory (selected in the start wizard) will contain all the parameter data and files necessary to run IADS in the Playback Client after the test is complete. The system will automatically make a copy of your ‘working’ config (.iadsConfig) file and save it to your IADS data directory as pfconfig. When you run the IADS Playback Client, you will still choose the "pfconfig" file in your IADS data archive directory.

2.4. Embedded PCM

This is an Option for Lumistar, Acra GTSDEC, TTC Decoms and Chapter 10 data sources.

To add an embedded PCM definition, click the Add Embedded PCM button in the start wizard. Click the drop down to select the master PCM stream. In the next field, enter a comma-separated list of parameters in the master PCM stream that represents the embedded stream. Click the button in the following field to select the instrumentation setup file for the embedded stream. Click the drop down to select the embedded PCM stream definition. Click the Next button.

Figure 2-5  Embedded PCM
3. **Data Sources**

3.1. **O/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.

**Connecting to an O/S90 Data Source**

1) Click the **IADS Realtime Station icon** on the Desktop.

2) Select the **O/S90** 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. 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 PRN file or click the **...** button to select it; click **Next**.

![Figure 3-1 Select PRN File](image)

5) Enter the path name of your destination directory or click the **...** button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.

6) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.

7) Review your settings and click **Finish** to start IADS.
3.2. **L3 System 550**

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

Program Files\IADS\ComputeDataServer\parameterDefinitionFiles\550parms.dat
ProgramFiles\IADS\ComputeDataServer\parameterDefinitionFiles\550toPRN.dat

**Connecting to a L3 550 System 7/8**

1) Click the **IADS Realtime Station icon** on the Desktop.
2) Select the **System 550** 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**.

![Figure 3-2 System 550 Server Information](image)

4) Enter the path name of your destination directory or click the ... button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.

5) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.

6) Review your settings and click **Finish** to start IADS.
3.3. Wyle 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.
1) Click the IADS Omega IOM icon on the Desktop.
2) Setup the Omega IOM per instructions in the Omega 3000 and CDS Setup User Guide.

Connecting to a Wyle Omega 3000 Data Source
1) Click the IADS Realtime Station icon on the desktop.
2) Select the Omega 3000 data source option from the drop down menu; click Next.
3) Enter the Host Name (computer name) of your Omega 3000 server hardware, or click the button to select it; click Next.

![Omega 3000 Server Information](image)

Figure 3-3 Omega 3000 Server Information

4) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.

5) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.

6) Review your settings and click Finish to start IADS.
3.4. Vista

Connecting to a L3 Vista Data Source

1) Click the **IADS Realtime Station icon** on the Desktop.

2) Select the **Vista** 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.

   Enter the path name of the **Vista module file directory** or click the button to select it from the directory; click **Next**.

![Image showing Vista Server Information dialog box]

   **Figure 3-4** Vista Server Information

3) Enter the path name of your destination directory or click the button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.

4) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.

5) Review your settings and click **Finish** to start IADS.
3.5. L3 S6200

Connecting to a L3 S6200 Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the S6200 data source option from the drop down menu; click Next.
3) Enter the Host Name (computer name) of the S6200 workstation or click the button to select it from the directory; click Next.
4) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
5) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
6) Review your settings and click Finish to start IADS.

Figure 3-5 Review Settings on Finish
3.6. MCS

Connecting to an EAFB MCS Data Source
1) Click the IADS Realtime Station icon on the Desktop.
2) Select the MCS 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 directory. Enter your 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 from the directory; click Next.

![MDT File](image)

Figure 3-6 MDT File

5) Enter the path name of your destination directory or click the ... button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
6) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
7) Review your settings and click Finish to start IADS.
3.7. IADS Custom

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

Connecting to an IADS Custom Data Source
1) Click the IADS Realtime 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) or click the button to select it from the directory. Enter your server’s Port ID if it is different from the default setting; click Next.

![Figure 3-7 Custom Server Information](image)

4) Enter the path name of your PRN file or click the button to select it from the directory; click Next.
5) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
6) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
7) Review your settings and click Finish to start IADS.
3.8. MFT800

Connecting to a MFT800 Data Source

1) Click the **IADS Realtime Station icon** on the Desktop.
2) Select the **MFT800** 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 directory.
   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**.

![Figure 3-8 MFT800 Server Information](image)

4) Enter the path name of your destination directory or click the button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.
5) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.
6) Review your settings and click **Finish** to start IADS.
3.9. Lumistar

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 LDPS software.
- Installation of the Lumistar LS-50 PCI or PCIe decom card.

**Note:** The Lumistar software and the IADS software cannot run simultaneously.

**Connecting to a Lumistar Data Source**

1) Click the **IADS Realtime Station icon** on the Desktop.
2) Select the **Lumistar** data source option from the drop down menu; click **Next**.
3) Enter the instrumentation setup file path or click the ... button to select it from the directory.
   Click the drop down to select the data stream; click **Next**.
4) Select SmartEU options as desired; click **Next**. Click the **Help** button for more information
   on the subject.
5) Select your IADS time source; click **Next**. Note: If an External Time Code Generator (TCG)
   is available, that is your best option.

![Figure 3-9 Lumistar Time Source](image)

6) Select your **PCM Source Type** and **PCM Signal Type** from the drop down menu; click **Next**.
   To rebroadcast the PCM as TmNS UDP packets, select the checkbox. See Section 3.15
7) To add an embedded PCM stream, please refer to section 2.4 for more information.
8) Enter the path name of your destination directory or click the ... button to select it; click **Next**.
   Please refer to section 2.2 **IADS Data Directory** for more information.
9) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration
    File Management** for more information.
10) Review your settings and click **Finish** to start IADS.
3.10. Acra GTSDEC

Connecting to an Acra GTS/DEC Data Source

1) Click the IADS Realtime 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.

Enter the instrumentation setup file path or click the button to select it from the directory. Select the data stream from the drop down menu. 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).

To rebroadcast the PCM as Telemetry Network Server (TmNS) UDP packets, select the checkbox. See Section 3.15 to connect to an iNet TmNS data source.

4) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.
5) To add an embedded PCM stream, please refer to section 2.4 for more information.
6) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
7) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
8) Review your settings and click Finish to start IADS.
3.11. Acra Ethernet (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(s).

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. Please refer to Appendix A. for IENA Troubleshooting.

Connecting to an Acra Ethernet Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the Acra Ethernet (IENA or iNetX) data source option from the drop down menu; click Next.
3) Click the button to select the instrumentation setup file from the directory; click Next.
4) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.
5) Click either the All Packages or Selected Packages option. To select only the IENA packages you are interested in viewing, use the arrow buttons to add them to the right side of the dialog. Select the checkbox if you have multiple KAMS whose PTP time in not synchronized to a master source or switch. Click the Next button.

Figure 3-11 Select Ethernet Packages

6) Select the applicable network configuration (if more than one tab is visible). Make the appropriate Network Interface selection by clicking the drop down. Click the Test Connection button. After validation (all green lights), click the Next button. If the Test Connection fails, click the drop down to try another network interface.
7) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.

8) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.

9) Review your settings and click Finish to start IADS.

3.12. Acra SAMDEC PCMCIA Decom

Connecting to an Acra SAMDEC Data Source

1) Click the IADS Realtime Station icon on the Desktop.

2) Select the Acra SAMDEC data source option from the drop down menu; click Next.

3) Enter the instrumentation setup file path or click the button to select it from the directory. Select the data stream you’re interested in from the drop down menu; click Next.

4) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.

5) Select your Input type from the drop down menu; click Next.

Figure 3-12 SAMDEC PCM Input

6) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.

7) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.

8) Review your settings and click Finish to start IADS.
3.13. Acra Compact Flash

The IADS Real Time Station reads the Acra CF raw data file from either the Compact Flash drive or from a file on the PC file system. In either case, the process requires the ACRA Strategy file for parameter information. The process creates the IADS data files from the Acra CF as fast as possible.

Connecting to an Acra Compact Flash (CF) Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the Acra Compact Flash data source option from the drop down menu; click Next.
3) Select the CF Device option button and choose the device directory from the dropdown; or select the Raw Data File option and select the Data File and Strategy File; click Next.

![Compact Flash Extracted File Selection](image)

4) [Optional] Enter the path name or click the button to select a XidML file from the directory. Note: If the recording contains video, the XidML file will sync the video with other data automatically. If you do not provide a setup file you will have to set the start time of the first frame of video, in the IrigStartTime property in the Video Player properties to synchronize. Use time words option to select an option from the drop down list, or click the Use this start time option and enter the desired start time.

5) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.

6) Select one of the events on the CF device; click Next.

7) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.

8) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.

9) Review your settings and click Finish to start IADS.

The playback of one or more Acra PCAP files.

Connecting to an Acra PCAP Data Source

1) Click the **IADS Realtime Station** icon on the Desktop.
2) Select the **Acra PCAP File** data source option from the drop down menu and click the **Next** button.
3) Click the button to select the Acra XidML file that describe the instrumentation setup and parameter definitions for the data stream and click the **Next** button.
4) Select SmartEU options as desired; click **Next**. Click the **Help** button for more information on the subject.
5) Click either the **All Packages** or **Selected Packages** option. To select only the IENA packages you are interested in viewing, use the arrow buttons to add them to the right side of the dialog. Select the checkbox if you have multiple KAMS whose PTP time in not synchronized to a master source or switch. Click the **Next** button.
6) Click the button to select all the PCAP files you wish to process from one single directory; and represent (as possible) one contiguous time. Click the **Next** button.

![Figure 3-14 Selecting Acra PCAP Files](image)

7) Enter the path name of your destination directory or click the button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.
8) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.
9) Review your settings and click **Finish** to start IADS.
3.15. iNet TmNS
Support for iNet TmNS PCM network packets as a data source.

Connecting to a iNet TmNS Data Source

1) Click the **IADS Realtime Station icon** on the Desktop.
2) Select the **iNet TmNS** data source option from the drop down menu; click **Next**.
3) Enter the instrumentation setup file path or click the **...** button to select it from the directory. Supported file types are Acra XidML, TTC XML and TMATS; click **Next**.
4) Select the appropriate Network Interface by clicking the drop down. Enter the Multicast address (if applicable). Enter a valid Port Id. Click the **Test Connection** button. After validation (all green lights); click **Next**.

![IADS Screen](image)

Figure 3-15 iNet TmNS Source

5) Enter the path name of your destination directory or click the **...** button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.
6) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.
7) Review your settings and click **Finish** to start IADS.
3.16. TTC DAR3 Real Time

Connecting to a TTC Ethernet Data Source

1) Click the **IADS Realtime Station icon** on the Desktop.
2) Select the **TTC DAR3 Real Time** data source option from the drop down menu; click **Next**.
3) Select the TTC XML file that describes the network topology.
   Click the left-hand checkbox in the grid to disable or enable processing for a particular node. Select a TMATS file to describe any derived parameters [Optional].
   Click the **Next** button.

![TTC DAR3 Test Network Connections](image)

4) Review the list of network configurations found in the TTC XML setup file. Click the **Test Connection** button on each node to verify IADS is receiving DAR3 packets; click **Next**.
5) Select SmartEU options as desired; click Next. Click the **Help** button for more information on the subject.
6) Enter the path name of your destination directory or click the **button to select it; click **Next**. Please refer to section 2.2 **IADS Data Directory** for more information.
7) Select IADS configuration file options; click **Next**. Please refer to section 2.3 **Configuration File Management** for more information.
8) Review your settings and click **Finish** to start IADS.
3.17. TTC DAR3 PCAP

Connecting to a TTC DAR3 PCAP Data Source
1) Click the IADS Realtime Station icon on the Desktop.
2) Select the TTC DAR3 PCAP data source option from the drop down menu; click Next.
3) Select the TTC XML file that describes the network topology.
   Click the left-hand checkbox in the grid to disable or enable processing for a particular node.
   Select a TMATS file to describe any derived parameters [Optional].
   Click the Next button.

   ![](image)

   Figure 3-17 TTC DAR3 Network Topology
4) Click the Browse button to select the PCAP files. The files should reside in one directory and represent one contiguous time; click Next.
5) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.
6) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
7) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
8) Review your settings and click Finish to start IADS.
3.18. TTC Chapter 4 Binary File

Connecting to a TTC Chapter 4 Binary File Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the TTC Chapter 4 Binary File data source option from the drop down menu; click Next.
3) Select the TTC XML, Acra XidML or TMATS file that describes the instrumentation setup. This file should contain the parameter definitions of the data stream. Select the data stream from the drop down menu; click Next.
4) Click the browse button to select the TTC Chapter 4 BIN file; click Next.

![Figure 3-18 TTC Chapter 4 Bin File Selection](image)

5) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
6) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
7) Review your settings and click Finish to start IADS.
3.19. TTC DBS-120/140

Connecting to a TTC DBS-120 or TTC DBS-140 Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the TTC DBS-120/140 data source option from the drop down menu; click Next.
3) Select the TTC XML, Acra XidML or TMATS file that describes the instrumentation setup. This file should contain the parameter definitions of the data stream. Select the data stream from the drop down menu; click Next.
4) Select your PCM Source type and Signal Type from the drop down menu; click Next.

![TTC DBS PCM Setup](image)

Figure 3-19 TTC DBS PCM Setup

5) Select SmartEU options as desired; click Next. Click the Help button for more information on the subject.
6) To add an embedded PCM stream, please refer to section 2.4 for more information.
7) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
8) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
9) Review your settings and click Finish to start IADS.
3.20. Chapter 10 Real Time

IADS provides processing for the real time Chapter 10 UDP stream. Real Time Station starts with the an easy to use wizard that allows the user to describe the content of the Chapter 10 source along with a combination of TMATS files and other COTS instrumentation files.

RT Station supports PCM Chapter 10 packets in unpacked and throughput mode. 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, an Acra XidML file or a TTC XML file. You can generate this file by exporting your TTC project into an XML file. Time stamps for this packet type are periodic and will appear every PCM minor frame. Each PCM stream will be processed independently.

![IADS Chapter 10 Processing Diagram](image)

Figure 3-20 Chapter 10 Processing
Connecting to a Chapter 10 Real Time Data Source

1) Click the **IADS Realtime Station icon** on the Desktop.

2) Select the **IRIG 106 Chapter 10 Real Time** data source option from the drop down menu and click the **Next** button.

3) Click the button to select file(s) 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.

   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 the file and click the button.

   Click the **Next** button.

![Figure 3-21 Chapter10 Setup Files](image)

4) Select SmartEU options as desired; click Next. Click the **Help** button for more information on the subject.

   Click the **Next** button.

5) Select an option to get the recorder layout information, either directly from the Chapter 10 device, or from a TMATS or Chapter 10 file. If you are retrieving the TMATS from a recorder, select the associated COM port from the dropdown menu. If you are retrieving the recorder layout from a TMATS or Chapter 10 file, click the **Browse** button to select the file. This information will be used to determine the channel mapping.

   Click the **Update Channels** button. Channels/tracks found for the device are displayed in the window.

   Click the **Next** button.
Figure 3-22 Chapter10 TMATS Input

6) Click the **Auto-populate** button to automatically map matching data stream names to channels with the exact same name; the dialog will update to display the mapping. For those channels that are active (black) but **not set**, you can click the **Stream** drop down next to the **Ch Name** entry and select the desired stream. Repeat as necessary.

To de-select an active channel, click the checkbox next to the channel number.

To remove all mapping, click the **Clear Selected Streams** button.

Click the **Next** button.

Figure 3-23 Chapter10 Channel Mapping

7) To add an embedded PCM stream, please refer to section 2.4 for more information.
8) Select your **Network Interface** from the dropdown.

Enter the **Port Id** of the UDP post that the data will be coming in on. If you are using a Heim data recorder you can use the ConfigC10DC utility to control the data flow and set the Port Id. Click the **Test Connection** button.

After validation (all green lights), click the **Next** button.

9) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.

10) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.

11) Review your settings and click **Finish** to start IADS.
3.21. Chapter 10 Playback

This option allows you to process a Chapter 10 file in post test. Requires instrumentation setup files (Acra XidML, TTC XML, TMATS, and Chapter 10) to describe the data content and the recorder layout information. All information may be contained in the Chapter 10 file.

Connecting to a Chapter 10 Playback Data Source

1) Click the IADS Realtime Station icon on the Desktop.
2) Select the IRIG 106 Chapter 10 Playback data source option from the drop down menu. Click the Next button.
3) Click the button to select the Chapter 10 playback file(s). If more than file is selected, they must be in the same directory and represent one contiguous time. Click the Next button.
4) Click the button to select file(s) 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.

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 the file and click the button.

Click the Next button.
5) Select an option to get the recorder layout information, either directly from the Chapter 10 device, or from a TMATS or Chapter 10 file. If you are retrieving the TMATS from a recorder, select the associated COM port from the dropdown menu. If you are retrieving the recorder layout from a TMATS or Chapter 10 file, click the Browse button to select the file. This information will be used to determine the channel mapping.

Click the Update Channels button. Channels/tracks found for the device are displayed in the window. Click the Next button.
6) Click the Auto-populate button to automatically map matching data stream names to channels with the exact same name; the dialog will update to display the mapping. For those channels that are active (black) but <not set> click the drop down next to the channel name to select a stream name identified in your instrumentation setup files. Repeat as necessary. To de-select an active channel, click the checkbox next to the channel number.

Click the Next button.
7) To remove all mapping, click the Clear Selected Streams button.
8) Enter the path name of your destination directory or click the button to select it; click Next. Please refer to section 2.2 IADS Data Directory for more information.
9) Select IADS configuration file options; click Next. Please refer to section 2.3 Configuration File Management for more information.
10) Review your settings and click Finish to start IADS.
4. **Using Real Time Station as a Secondary Client**

To setup a secondary client connection to a Real Time Station server machine:
1) Right-click on the IADS Real Time Station icon on the machine designated as the secondary client, click Properties.
2) Add `/Server machineName` to the Target line, for example, `/rtstation /Server IADS1-3600QC`

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

5. **Auto Real Time Station**

*Command Line DataSourceNames (no spaces):*
OS90, Sys500, Omega, Vista, S6200, MCS, Custom, MFT800, Lumistar, AcraGTSDEC, AcraIENA, AcraSAMDEC, AcraCF, AcraPCAP, PCMOverIP (iNet TmNS), TTC DAR3Realtime, TTC DAR3PCAP, TTCChapter4Bin, TTCDBS120, TTCDBS140, Chapter10Realtime, Chapter10Playback.

5.1. **To launch IADS when you click the Real Time Station icon:**
1) Right-click on the IADS Realtime Station icon > Create Shortcut. This creates a new IADS Realtime Station (2) icon on your Desktop. Rename the icon to something applicable.
2) Right-click on the new icon shortcut > Properties.
3) At the end of the Target field after `/rtstation` add:
   The DataSource followed by the path to the Iads.Client.WizardFile. For example:
   ```
   AcraIENA "C:\Program Files\IADS\ClientWorkstation\Iads.Client.WizardFile"
   ```
4) Click OK.
5) Click the icon shortcut you created in step 1 to start IADS without running through the start wizard.

**Note:** Prior to running from the command line, run through the start wizard with the desired data source so the Iads.Client.WizardFile path you point to has the correct settings (setup file, data directory, config file, etc.).

5.1. **To launch IADS when you login to your workstation/laptop:**
1) Navigate to C:\ProgramFiles\IADS\Clientworkstation.
2) Right-click on the Iads.exe > Create Shortcut. This creates a new file called Shortcut to Iads.exe in the directory.
3) Right-click on the Shortcut to Iads.exe > Properties.
4) At the end of the Target field (space after the quotation mark) add /RtStation *DataSourceName* Iads.Client.WizardFile (it will run off the settings in this wizard file in \Program Files\IADS\ClientWorkstation).
5) Click OK.
6) Right-click on the Shortcut to Iads.exe > Cut.
7) Click the Start button, click All Programs, right-click the Startup folder, and then click Open.

8) Right-click in this directory > Paste. The Shortcut to the Iads.exe is now in the Startup folder.

9) Set Windows to automatically login on reboot.

6. Post Test IADS

After shutdown, all IADS files created during the run are placed in the user designated destination directory. This directory and all sub-directories complete a single test. IADS data files are created into a series of sub-directories called Data(0..n) and have an iadsData extension. The Post Test Configuration file is called pfConfig and a duplicate is created for backup purposes (pfConfig.orig). These files can be used for IADS playback mode. If collecting multiple tests on a post test server, you might consider using a hierarchical structure with the notation of the flight test program, for example: “2007 / Aircraft1 / Flight2”.

To playback the data, click Start > All Programs > IADS > IADS Playback Client. The IADS Startup dialog will allow you to choose the data archive directory to playback the data.

The following table is a complete list of all files found in the user selected destination directory. The files designated as “internal” are for IADS system use and must not be modified or deleted by the end user. Please note that these files may be requested from the IADS team for support purposes.

<table>
<thead>
<tr>
<th>Directory</th>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DestDir\Data</td>
<td>Data(0..n)</td>
<td>User</td>
<td>IADS binary data files</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>CDS.ComputeDataServer.IadsStartupFile</td>
<td>Internal</td>
<td>CDS startup file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsCDS.prm</td>
<td>Internal</td>
<td>CDS parameter setup file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsCdsLog.txt</td>
<td>Internal</td>
<td>CDS log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsClientLog.txt</td>
<td>Internal</td>
<td>Client log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsConfigLog.txt</td>
<td>Internal</td>
<td>Config file copy</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsDataSource0Log.txt</td>
<td>Internal</td>
<td>Data source log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsIapLog.txt</td>
<td>Internal</td>
<td>IAP log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>IadsTppLog.txt</td>
<td>Internal</td>
<td>IadsTpp log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>pfParameterAttributes.BTD128</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>pfParameterAttributes.BTK128</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>timeOut0.txt</td>
<td>Internal</td>
<td>Time validation log file</td>
</tr>
<tr>
<td>DestDir\Logs</td>
<td>TPP.IadsTpp.IadsStartupFile</td>
<td>Internal</td>
<td>IadsTpp startup file</td>
</tr>
<tr>
<td>DestDir</td>
<td>IadsArhchiveInfo.txt</td>
<td>User</td>
<td>Post Test Configuration file. This is the IADS config file to use for post test playback</td>
</tr>
<tr>
<td>DestDir</td>
<td>pfConfig</td>
<td>User</td>
<td>Exact duplicate of the pfConfig file for backup purposes</td>
</tr>
<tr>
<td>DestDir</td>
<td>pfConfig.orig</td>
<td>User</td>
<td>Exact duplicate of the pfConfig file for backup purposes</td>
</tr>
<tr>
<td>DestDir</td>
<td>Pf(DataSourceType)-(0..n)StreamNames.txt</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>DestDir</td>
<td>VideoChannel(1..n).avi</td>
<td>User</td>
<td>Video files</td>
</tr>
</tbody>
</table>
7. Appendix A

7.1. Error Logging

The IADS Server (WinCDS) and the IadsTpp both create log files in the user selected destination directory, in the Logs sub-directory. The IADS Server creates the log file called IadsCdsLog.txt; the IadsTpp creates a log file called IadsTppLog.txt. Both files are ASCII and can be examined by the user for error conditions. Please See Appendix A for an example of log files that indicate a successful startup.

![Figure 7-1 Server Initialization Error](image)

![Figure 7-2 IadsTpp Data Source Startup Error](image)
7.2. Log File Examples

Figure 7-3 WinCDS Log File

Figure 7-4 IadsTpp Log File
7.3. Acra IENA Troubleshooting Guide

These following instructions assume that the user has some familiarity with basic networking tools and terminology such as IP address, ping and Wireshark. For more information on these subjects please consult an online reference such as Wikipedia.

1) Make sure you can communicate with the ETH card on the KAM. Find the IP address on the ETH card if you do not already know it.
   a. In KSetup, double-click on the ETH card in question in the hardware tree. Click the Setup tab to view the Module IP Address in the text field. Close KSetup.
   b. In kWorkBench, you will find it as the IP Address when the Configuration Link drop down is set to Ethernet. The Host IP entry is the address of the PC that will be used to “talk” to the ETH card.
   c. In the XidML, you can find the ETH card’s IP address by looking under /xidml/Instrumentation/InstrumentSet/InstrumentSet/SubLocation/X-Module-Ethernet-Out-1.1/Settings/Module-Ethernet-1.1/IPAddress. There will several ‘SubLocation’ branches so you will have to find the right one, depending on where the ETH card is located in the hardware setup.
   d. Ping the KAM by IP address.

2) Make sure you are getting data packets from the ETH card.
   a. Use Wireshark to see if UDP packets are coming in from the PC’s network interface.

3) Make sure the data packets are going to the correct PC network interface.
   a. The IadsTpp log (in the IADS destination directory) will list which network interface (by IP address) it is expecting to see IENA packets on. If this is not the network interface the ETH card is connected to, manipulate the PC’s network interface order so that the correct one is listed first and re-start IADS. To do this go to Start Menu | Control Panel | Network Connections | Advanced | Advanced Settings and push the wired network interface (generally called something like ‘Local Area Connection’) to the top of the list.
   b. We suggest you avoid wireless interfaces for any type of UDP work.

4) Make sure you are using the correct xidml file when you start IADS.
   a. If you are getting warning statements in the IadsTpp log that it has encountered and unknown IENA packet type, you could be using the wrong XidML file.

5) Make sure your IENA packets are well-formed.
   a. All packets must have a unique key id. kSetup will not enforce this behavior but you will see an error later.

6) Make sure if you’re using a video stream in an IENA packet that you have an equivalent stream defined in the PCM as well.
   a. Both “embedded” streams have to represent the exact same aggregate sample rate for the video parameters.

   The order of the parameter has to be the same for the IENA packet as the PCM stream. This is an easy mistake to overlook because the “auto-populate” feature of the two data sources sort the video parameters differently and hence may auto-insert them into the streams in a different order.