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Ovation™

High Speed Data Recorder User Guide

EMERSON™

About this manual

Welcome to the Emerson Ovation distributed control system. Ovation is a highly reliable and responsive real-time plant monitoring and process control system that uses commercially available hardware platforms, operating systems, and open network technology.

This manual provides an overview of High Speed Data Recorder (HSDR), which is used to record point values from Ovation Controllers at a defined control task frequency. It can be used for applications that require capturing and recording high speed control task data for the purpose of control logic troubleshooting, device commissioning, and trip analysis.

Summary of changes

- Version 3 of the *High Speed Data Recorder User Guide* has been updated to include a note that the OCC100 Compact Controller is not supported.

Versions and software requirements

The *High Speed Data Recorder User Guide* is not tied to a specific Ovation software release and is updated on a periodic basis. See Minimum software requirements [11] for more information.

Conventions used in this manual

For security purposes, actual IP addresses are not used in Ovation user manuals. The IP addresses used in this manual are for example purposes only and should not be used in an actual system.

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Contents

1 Introduction to the Ovation High Speed Data Recorder (HSDR)

Topics covered in this section:

1.1 What is the Ovation High Speed Data Recorder (HSDR)?

The Ovation High Speed Data Recorder (HSDR) records point values from Ovation Controllers at the defined control task frequency. This means the HSDR does not require the broadcast frequency of a point to be set to 100 milliseconds to record the data at a high speed. It can be used for applications that require capturing and recording high speed control task data for the purpose of control logic troubleshooting, device commissioning, and trip analysis.

To begin, an end user working with the HSDR application manually selects the Controller points to be collected and starts a data recording session. The Controller streams the points at a high speed to the HSDR. There is no predefined event that begins the data recording, nor is there a predefined list of points.

HSDR stores the data for a defined number of days before it is deleted or until the free system disk space reaches a minimum limit. A large amount of disk space (approximately 1 TB) must be available so that data can be recorded for longer sessions.

A separate network is recommended for those deployments in which the HSDR records multiple points from multiple Controllers (1000 or more points each from 5 or more Controllers). In such deployments, the HSDR must have at least two network connections — one for Ovation and another for a separate data recording. Configuration and file retrieval occur on the Ovation network connection, while the high-speed data recording occurs on the other network connection. If possible, connect the Controller's N1 port to the separate data recording network. For smaller deployments, the HSDR can share the Ovation network. The Controller software is limited to approximately 2 Mb per sec of streaming for HSDR data.

The High Speed Data Recorder offers the following features and functions:

- Captures and records high speed control task data.
- Troubleshoots the control logic that is assigned to a fast control task.
- Stores point data that can be reviewed after an event.
- Allows analysis of equipment performance by storing the point data at control logic frequency.

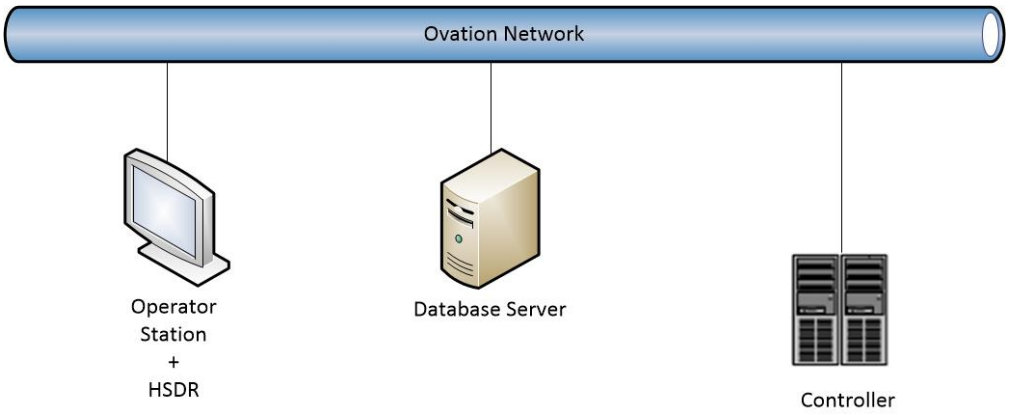
- Records data directly from the Ovation Controller instead of from the network traffic.
- Allows to record the data without loading the Controller from the Ovation Developer Studio.

1.2 Use cases and deployment scenarios

You can use and deploy the HSDR in different scenarios. A few examples are as follows:

- **During Factory Acceptance Testing (FAT) or Commissioning that helps in troubleshooting:** Troubleshooting control logic may be necessary during FAT testing or commissioning. It is possible that the OPH may not be configured or available during the troubleshooting process. In such situations, you can use the HSDR for basic historical capturing. You can also use it specifically to troubleshoot the control logic that is assigned to fast control tasks. In these tasks, the point values are often changing faster than the update rate of the Ovation network or may be beyond the resolution of the OPH.
- **Permanent Installation on an Ovation Workstation:** You can install the HSDR permanently on an Ovation workstation to record and store points at a certain control logic frequency. These points can then be reviewed later for equipment performance analysis.

Figure 1. HSDR setup for permanent installation



- **Local Recording at Controller:** HSDR network traffic can account for up to 2Mb per sec. load per Controller. To avoid network traffic congestion while troubleshooting, it is preferable to record directly from the Ovation Controller. In such situations, you can create a configuration from the Database Server, or supply a separate connection between the HSDR and the Database Server.

1.3 How does the High Speed Data Recorder fit into Ovation?

Emerson's Ovation control system scans or processes the input/output from field devices, calculated values, and internal system information. The control system converts this information to engineering units and stores it in point records. These point records are used within each drop to communicate with other drops over the Ovation network.

The points are scanned from the Ovation network on a periodic point broadcast rate of 1 second for slow points, and 100 milliseconds for fast points. Safety critical logic is often stored at faster scan rates, but these rates can limit the maximum resolution available to the Trend and the Ovation Process Historian (OPH) applications. The Ovation High Speed Data Recorder (HSDR) solves this issue by recording and capturing data faster than the point broadcast rate. Therefore, it provides greater resolution when analyzing Ovation point values.

1.4 High Speed Data Recorder components

HSDR includes the following four components to record the high speed data:

- *Controller [9]*
- *High Speed Data Recorder Service [9]*
- *High Speed Data Recorder Configuration Editor [10]*
- *Event Trend [10]*

1.4.1 Controller

The Controller (OCR1100 or OCR3000) is updated to stream Ovation points data value at a high speed to the HSDR (external application).

Note

The OCC100 Compact Controller is not supported.

The Controller performs the following functions to support data recording:

- The Controller sends the high speed data in real-time to the HSDR through UDP messages, and then HSDR records the data on a large storage device (hard drive) that is not available on the Controller.
- The Controller allows the HSDR to define the points that are to be transmitted between the Controller and HSDR. You can select any point on the Controller. The HSDR is dynamic and does not require you to configure the Controller (through drop load) before capturing the data for recording.
- The Controller allows the HSDR to select the speed at which data is to be transmitted. The transmission speed can be selected based on the speed of the control tasks.
- The Controller automatically terminates the on-demand data transmission on a 30-second interval when it detects that the HSDR application is no longer capturing the data. It prevents the Controller from sending data when the HSDR is not recording it.
- The Controller timestamps the data samples sent to the HSDR application. It timestamps at 1 msec resolution for the fast control task frequency.
- The Controller limits the data streaming rate to approximately 2Mbit/sec. It prevents the Controller from overwhelming the Ovation network.

1.4.2 HSDR Service

HSDR Service is a Windows service that allows a workstation to record a high speed data stream from the Controller. This service is recommended to have a large amount of available disk space (for example, 1 TB) so tata can be recorded for longer time periods.

The HSDR service reads the configuration file to determine which points values are to be recorded. It records and saves the data in 1 hour blocks. You can view the recorded data in the Event Trend [10] application.

Note

The HSDR Configuration Editor [10] creates a configuration file for the HSDR Service to process.

The HSDR saves the data in files that are organized by 1 hour increments. The data files start at the top of the hour and finish at the bottom of the hour. The HSDR service records and saves its most recent data in 3-minute intervals to the current file. This allows access to the data without waiting for 1 full hour.

1.4.3 HSDR Configuration Editor

The HSDR uses the High Speed Data Recorder Configuration Editor to select the points that are to be recorded from the Controller. The editor has filtering/search functions that allow you to easily find the points of interest. It also allows you to perform the following operations:

- Check the Available Points file [39], which displays the list of available points in the system.
- Configure the data recording settings [35] related to managing disk space.
- Create, edit, and save [41] the configuration file. The HSDR Service uses the configuration file to determine the list of points to be recorded from the Controllers.
- Move [43] the selected points from the Available Points list to the Recorded Points list.
- Check the recording status [45]of the HSDR Service.
- View the HSDR data files [50] under the active and data directories.
- Export the HSDR data in CSV format [55].

Note

The HSDR editor runs on the Ovation MMI where it is installed.

1.4.4 Event Trend

The Event Trend is used to access and display data from the HSDR service. It displays the HSDR data in a format similar to other high speed trending data such as DEC oscillography and Controller Triggered Events.

2 Hardware, software, and licensing requirements

Topics covered in this section:

2.1 Minimum hardware requirements

The minimum hardware requirements for the Ovation High Speed Data Recorder (HSDR) are:

- Ovation workstation or Non-Ovation laptop
- An Ovation workstation with a minimum of a two-terabyte hard drive

> Note
>
> The hard drive is not needed on a Non-Ovation laptop.

2.2 Minimum software requirements

The software required to install the Ovation High Speed Data Recorder (HSDR) is located on the **Ovation Data Analysis Product Suite DVD**.

The HSDR supports Ovation 3.6 FP4 and later releases, and their supported operating systems.

The operating system requirements for the HSDR are as follows:

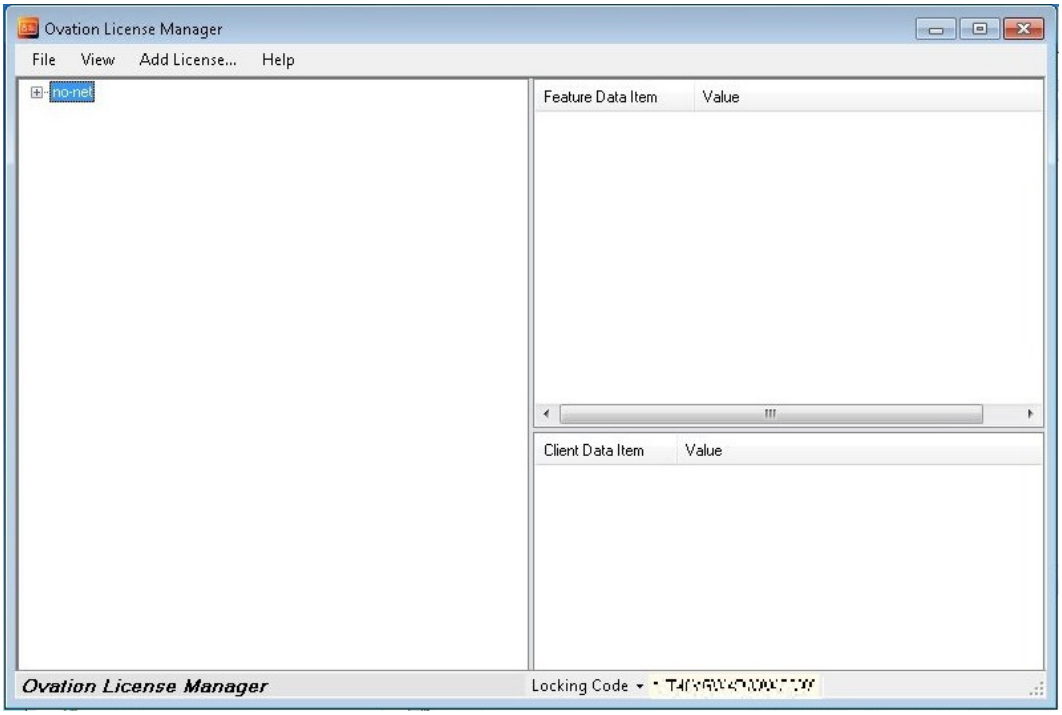
- Windows 7
- Windows 10
- Windows Server 2008
- Windows Server 2012
- Windows Server 2016
- Windows Server 2019

2.3 Licensing requirements

The Ovation HSDR requires a license, which can be obtained from the Ovation Software Licensing group. For the HSDR, the license is a **Standalone** license that is associated with the computer that it is installed on.

When the Standalone license is required, access the Ovation License Manager from **{HSDR_HOME}\bin\license.exe**. The Ovation License Manager main window appears with **no net** in the left pane of the window.

Figure 2. Ovation License Manager main window



You are allowed a 10-day trial license to use the HSDR. After 10 days, you must fully license the HSDR with a normal license to continue using it.

There are two codes associated with licensing:

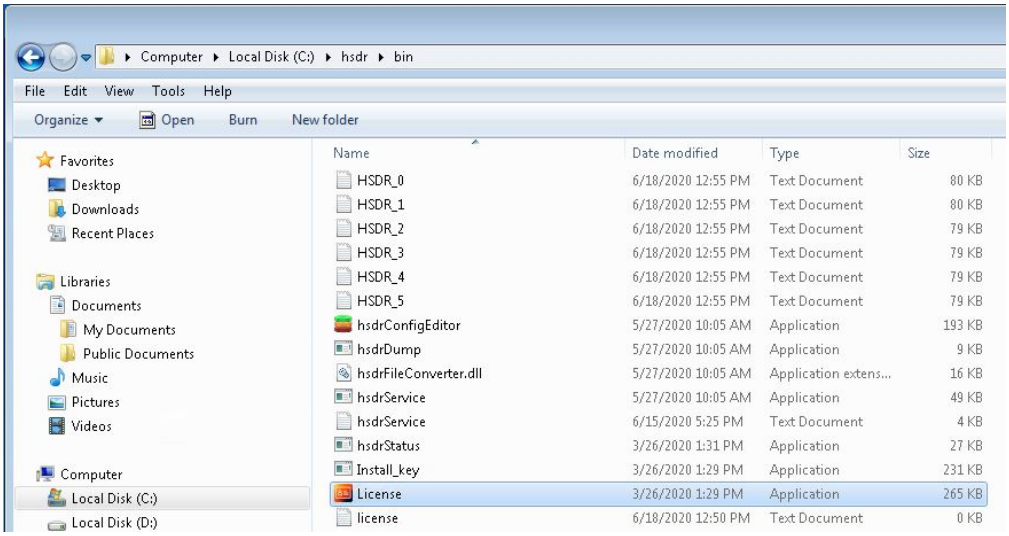
- **Locking Code** - Received with your initial software installation.
- **License Code** - Received by contacting Emerson Software Licensing group.

2.3.1 To obtain the locking code

Perform the following steps to obtain the locking code:

1. Run the license manager program (License.exe) from {HSDR_HOME}\bin.

Figure 3. Accessing Ovation License Manager main window



Note

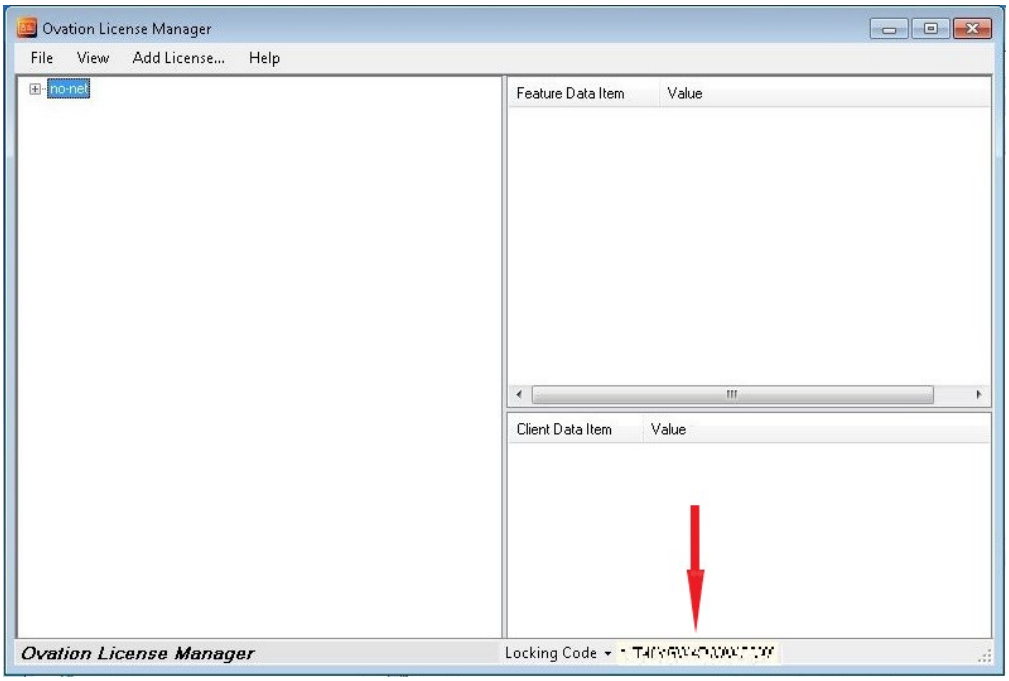
The directory that stores the License.exe file is normally C:\hsdr\bin\.

2. The Ovation License Manager opens and searches for License Servers before displaying the main window.

Figure 4. Opening Ovation License Manager

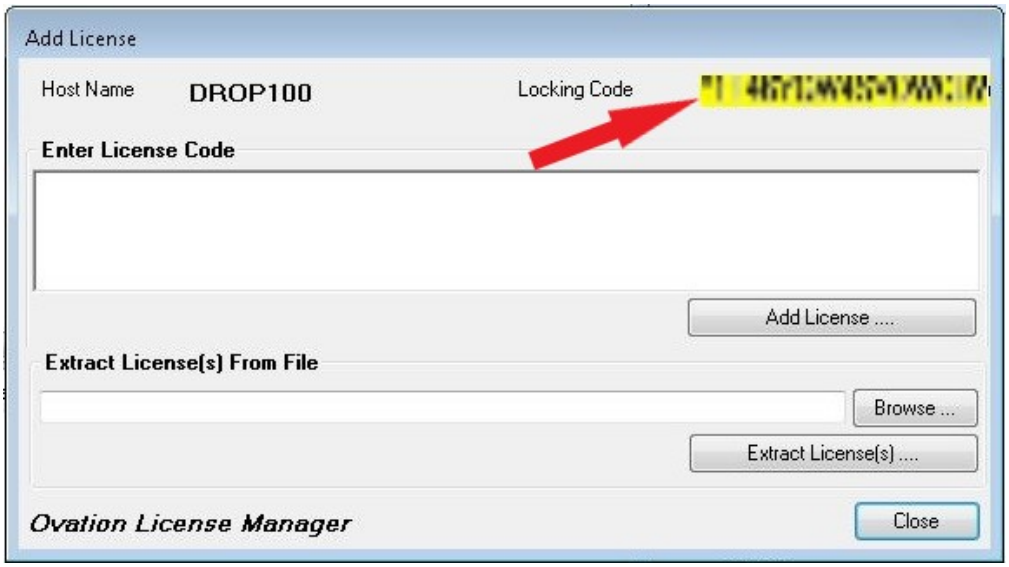
3. The Ovation License Manager window appears. Note the Locking Code displayed in this window.

Figure 5. Ovation License Manager window



You can also obtain the locking code by clicking **Add License** from the menu bar. The Add License window appears.

Figure 6. Add License window



4. Record and send the Locking Code to Emerson Software Licensing to obtain a License Code [15].

2.3.2 To obtain the license code

To obtain the License Code [13] for a normal license, record and share your individual Locking Code with Emerson Software Licensing group or your Emerson representative. Contact your Emerson representative during normal working hours (8 am to 4 pm Eastern local time).

Depending on your situation, your Emerson representative could be one of the following:

- Project engineer.
- After-market sales representative.
- Field Service engineer.

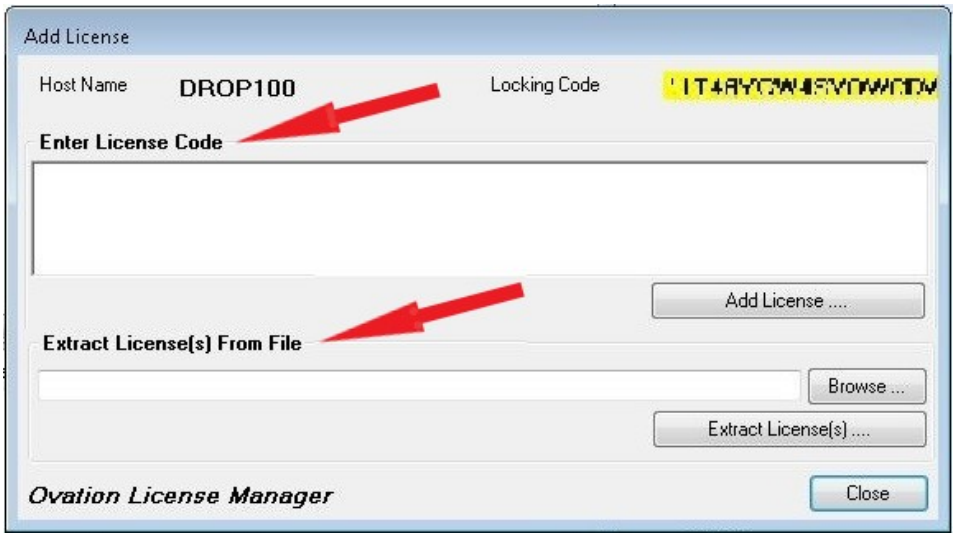
Contact Emerson prior to any installation or upgrade to ensure the availability of required key codes or licenses. Once the License Code is obtained, enter it into the Ovation License Manager to enable the license [15].

2.3.3 To enable the license

Perform the following steps to enable the license:

1. Run the license manager program (License.exe) from {HSDR_HOME}\bin.
2. The Ovation License Manager window appears. Click **Add License**.
3. The Add License window appears. You can add the license keys in two ways:
   - Enter License Code (see Step 4).
   - Extract License(s) From File (see Step 5).

Figure 7. Add License window

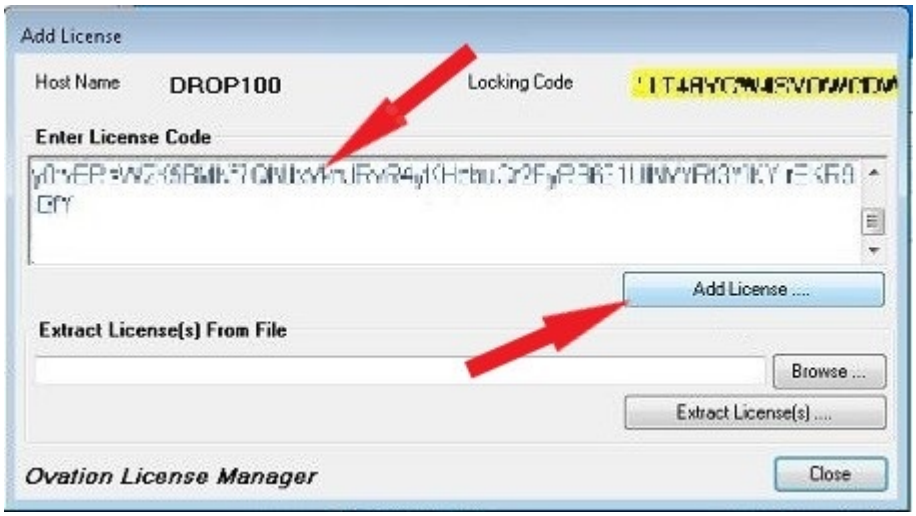


4. To use the Enter License Code option:
   a. In the Enter License Code field, enter the **License Code** provided by your Emerson representative.

> **Note**
>
> To receive a valid License Code, email the Locking Code displayed in the upper-right corner of the Add License window to Emerson.

   b. Click **Add License**.

Figure 8. Using the Enter License Code option

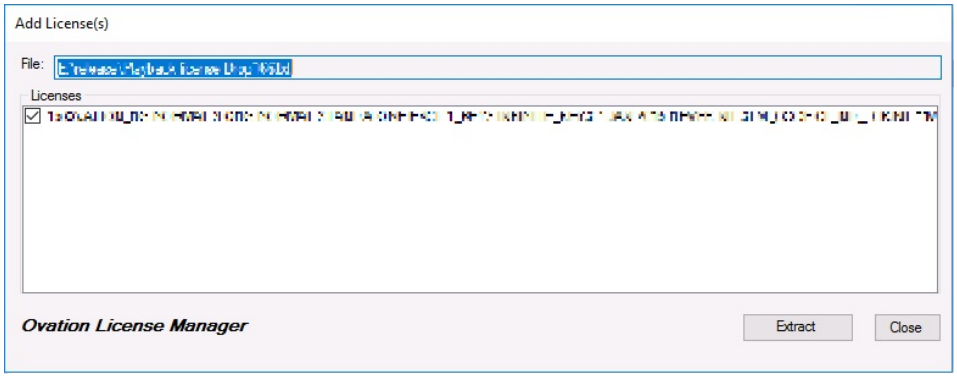


5. If the License Code is provided in a file, you can use the **Extract License(s) From File** option. To use this option:
   a. Click **Browse**.
   b. Navigate to the **file** containing the License Code. The path of the text file appears in the field adjacent to the Browse button.
   c. Click **Extract License(s)**.

Figure 9. Using Extract License(s) From File option

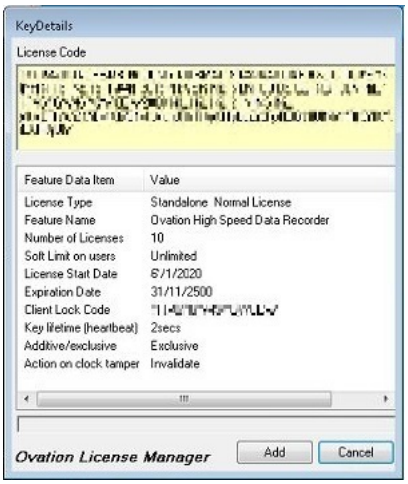
   d. The Add License(s) window displays the licenses available from the text file.
   e. Select the **check box** for the license code that you want to extract.
   f. Click **Extract**.

Figure 10. Add License(s) window



6. The KeyDetails window appears. Verify the license details and click **Add** to install the license.

Figure 11. KeyDetails window



7. The Add License dialog box appears stating that your 'License Installed Successfully'. Click **OK**.

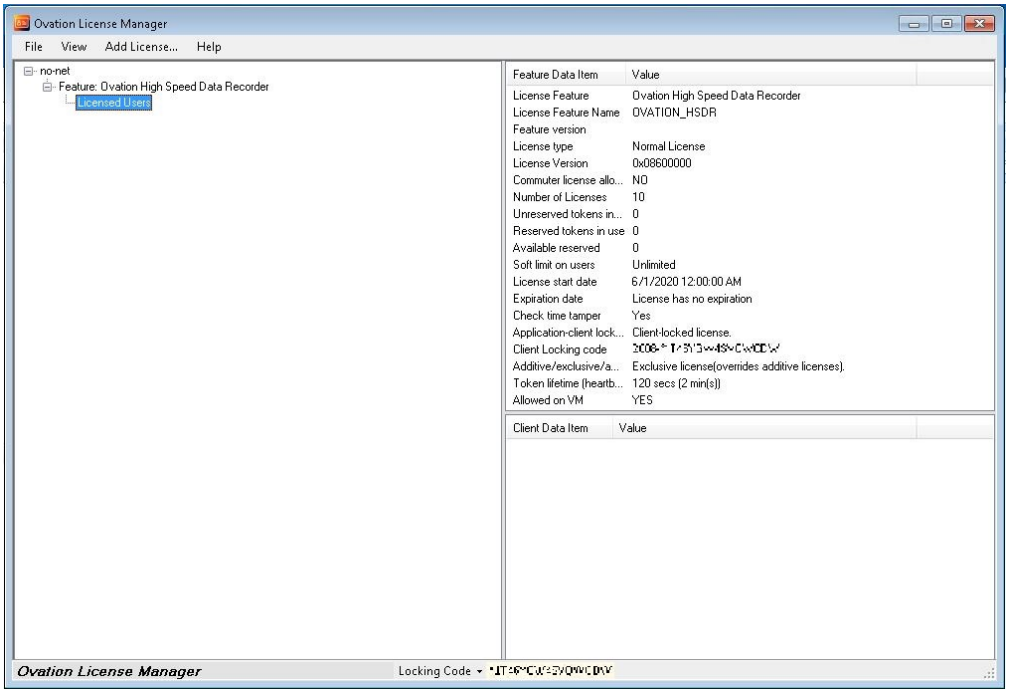
Figure 12. Add License dialog box

2.3.4 To verify the installed license

Perform the following steps to verify the installed license:

1. Run the license manager program (License.exe) from {HSDR_HOME}\bin.
2. The Ovation License Manager window appears.
3. In the left pane of the window, select the license feature. The right pane displays the license details.

Figure 13. Ovation License Manager window displaying the license details information



3 Getting started with the High Speed Data Recorder

Topics covered in this section:

3.1 Prerequisites for installing HSDR

The prerequisites for installing HSDR are as follows:

- HSDR can be installed on Ovation 3.6 FP4, Ovation 3.7 FP1, Ovation 3.8 and later systems.
    - Ovation 3.6. requires the OVA360076 patch or later (September 2018 update or later).
    - Ovation 3.7 requires the OVA370060 patch or later (September 2020 update or later).
- HSDR can be used on a laptop (standalone PC) or on the Ovation network.
- HSDR can be installed either on an Ovation Workstation or non-Ovation Laptop.
    - The Ovation Workstation installation is used when the HSDR is required to be installed permanently on a customer system.
    - The Non-Ovation laptop installation is used when the HSDR is required to be installed for device/system commissioning but is not required afterward. It may be useful for field support and/or project engineering.
- HSDR requires a license. It is provided with a 10-day trial license. See the minimum licensing requirements [11] section for more information about the HSDR licensing.

3.2 Basic HSDR installation

Note the following basic information related to the HSDR installation:

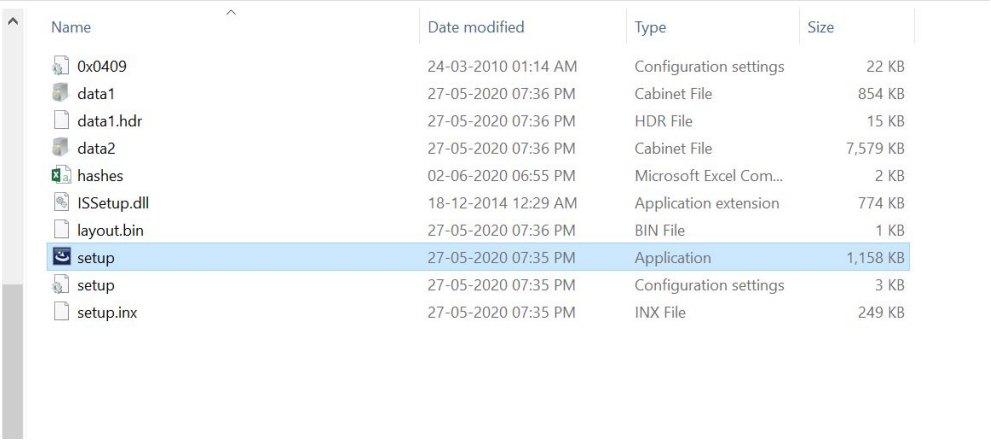
- Environment variable *HSDR_HOME* is set during installation.
- Executables are installed at *HSDR_HOME/bin*.
- A Windows Firewall exception is added for *HSDR_HOME/bin/hsdr.exe* .
- A Windows service *OvationHSDR* is installed on installing the HSDR. This service starts automatically upon system restart. It can be disabled or set to manual startup, if manual execution is preferred.

3.3 To install High Speed Data Recorder

Perform the following steps to install the High Speed Data Recorder:

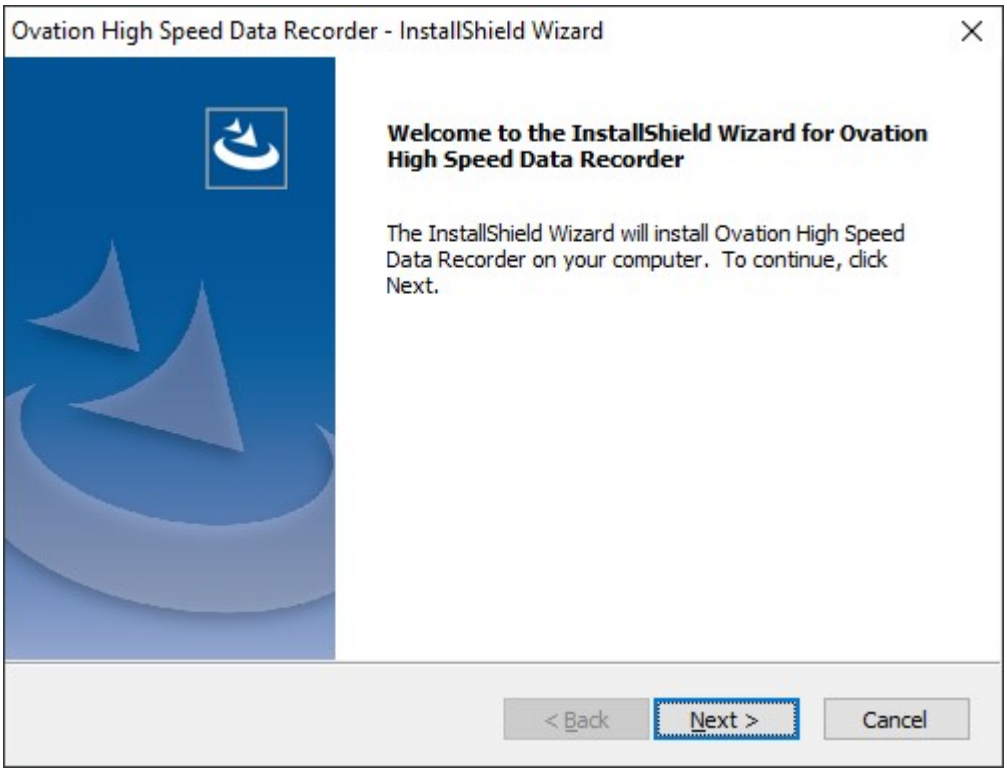
1. Insert the **Ovation High Speed Data Recorder DVD** into the disk drive.
2. Locate and double-click the **setup.exe** file from the DVD.

Figure 14. Running the HSDR setup file



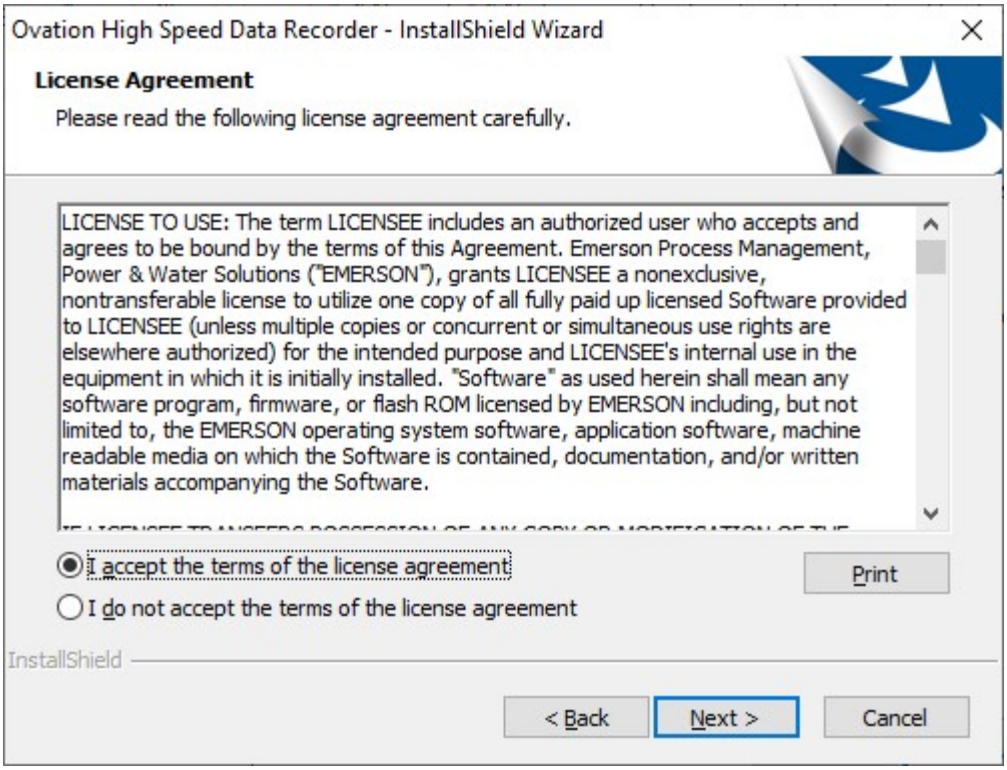
3. The Ovation High Speed Data Recorder - InstallShield Wizard appears with the Welcome page. Click **Next**.

Figure 15. Ovation High Speed Data Recorder InstallShield Wizard - Welcome page



4. The License Agreement page appears. Click **I accept the terms of the license agreement**, and then click **Next**.

Figure 16. License Agreement page

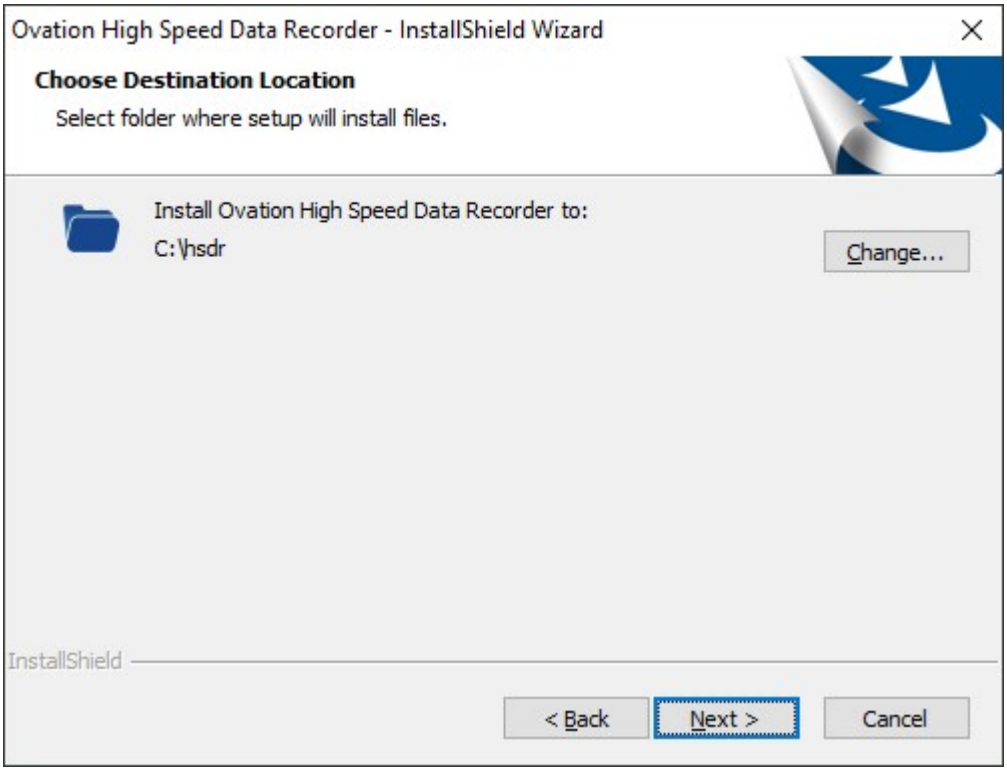


5. The Choose Destination Location page appears. Accept the default setting, and then click **Next**.

Note

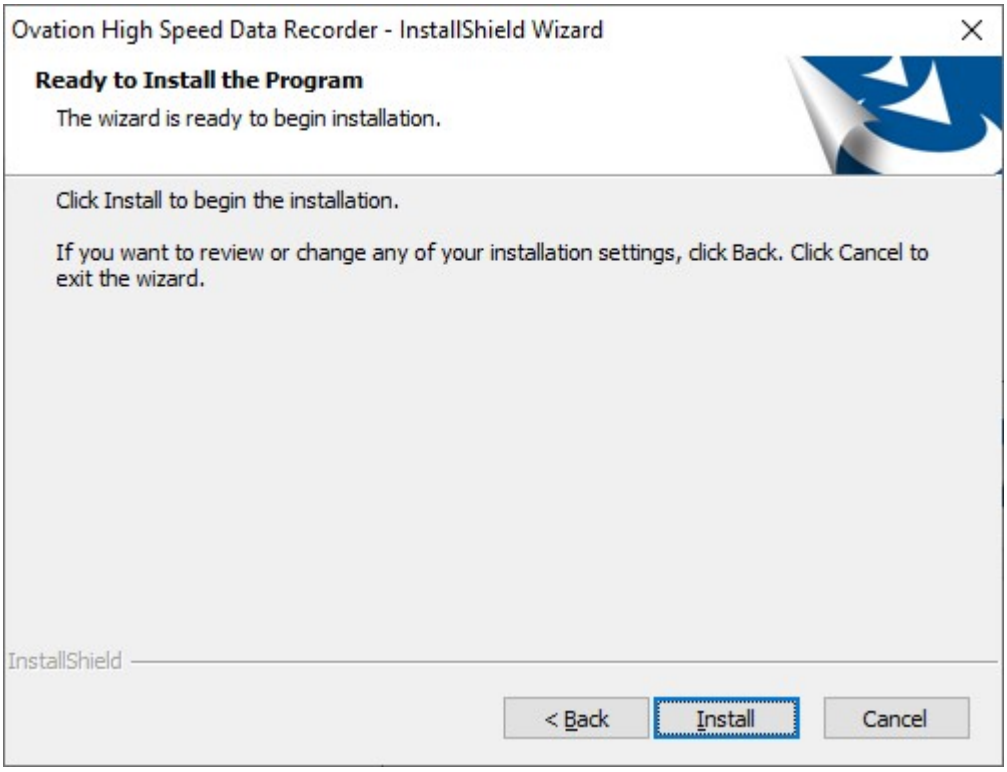
If you wish to install the High Speed Data Recorder on a drive that has a large amount of free disk space, click **Change** and then designate a new folder location.

Figure 17. Choose Destination Location page



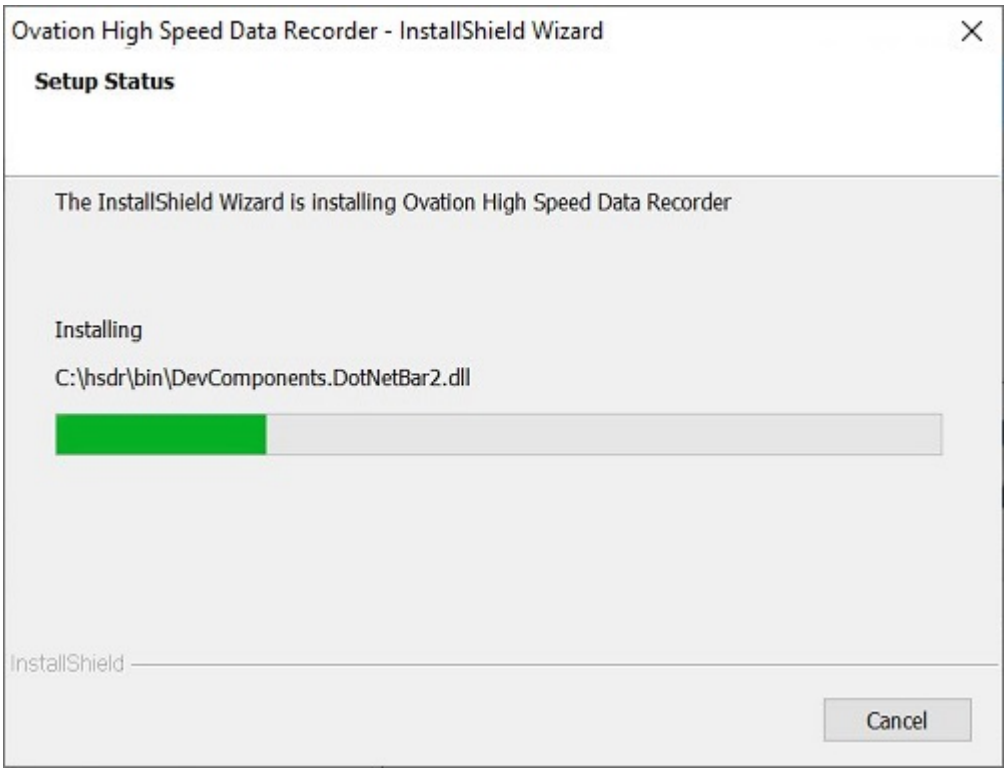
6. The Ready to Install the Program page appears. Click **Install** to begin the installation.

Figure 18. Ready to Install the Program page



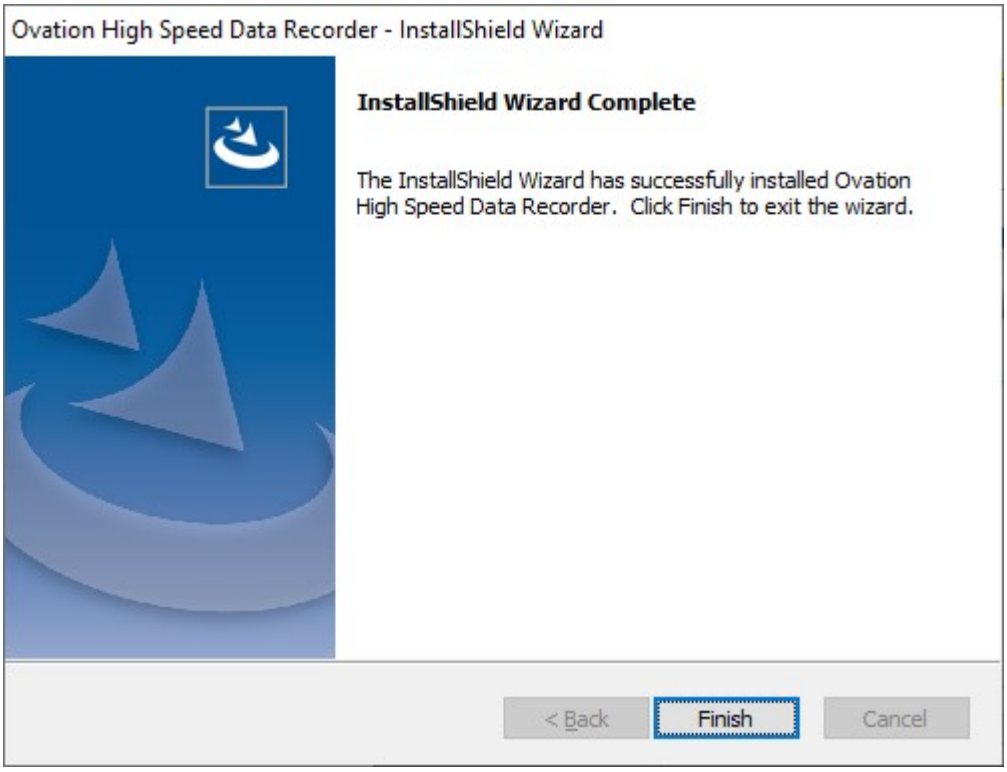
Setup Status page appears displaying the installation progress.

Figure 19. Setup Status page



7. When the installation is complete, the InstallShield Wizard Complete page appears. Click **Finish** to exit the wizard.

Figure 20. InstallShield Wizard Complete page



3.4 Uninstalling the High Speed Data Recorder

You can uninstall the High Speed Data Recorder using one of the following methods:

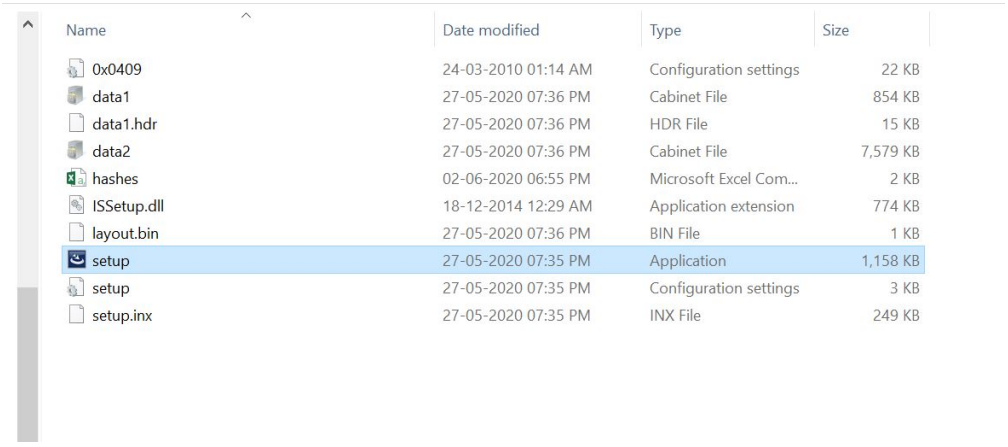
- *To uninstall High Speed Data Recorder using setup.exe file* [27]
- *To uninstall High Speed Data Recorder using Control Panel* [29]

3.4.1 To uninstall High Speed Data Recorder using setup.exe file

Perform the following steps to uninstall the HSDR using setup.exe file:

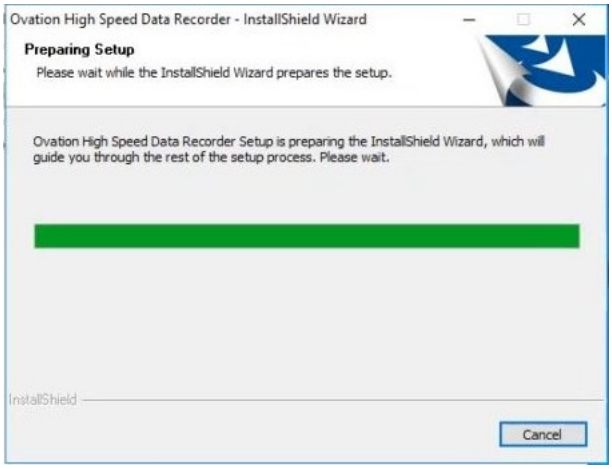
1. Insert the **Ovation High Speed Data Recorder DVD** into the disk drive.
2. Locate and double-click the **setup.exe** file from the DVD.

Figure 21. Running the HSDR setup file



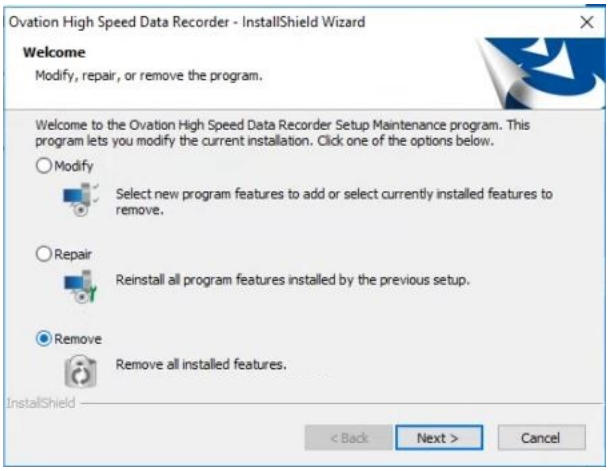
The Ovation High Speed Data Recorder - InstallShield Wizard appears with Preparing Setup page.

Figure 22. Preparing Setup page



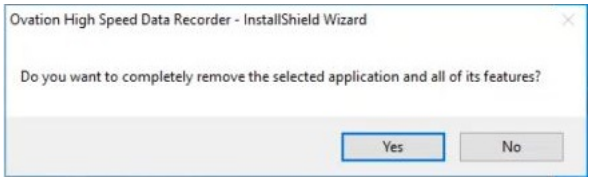
3. When the setup is prepared, the Welcome page appears. Select **Remove**, and then click **Next**.

Figure 23. Welcome page



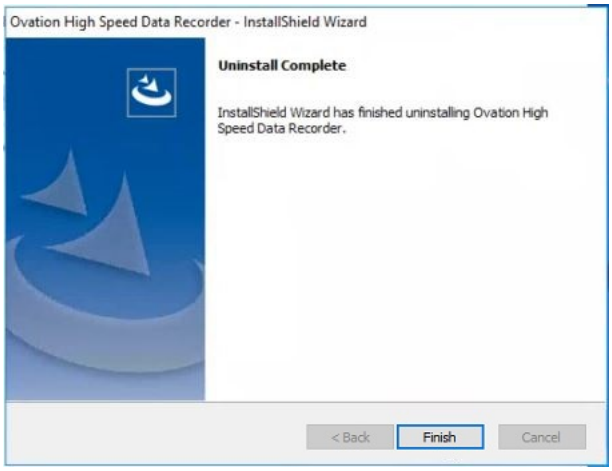
4. A confirmation message appears asking you to remove the application. Click **Yes**.

Figure 24. Confirmation message to uninstall the HSDR



5. The Uninstall Complete page appears. Click **Finish** to uninstall the HSDR.

Figure 25. Uninstall Complete page



3.4.2 To uninstall High Speed Data Recorder using Control Panel

To uninstall the HSDR using Control Panel, navigate to the following path:

Start > Control Panel > Programs > Programs and Features > Ovation High Speed Data Recorder

Two options are displayed with the HSDR program:

- **Uninstall:** This option removes all of the HSDR components completely. A prompt will check whether you are sure that you want to remove all features. Select Yes or No.
- **Change:** This option enables you to modify, repair, or remove the HSDR components.

4 Configuring the High Speed Data Recorder

Topics covered in this section:

4.1 HSDR configuration overview

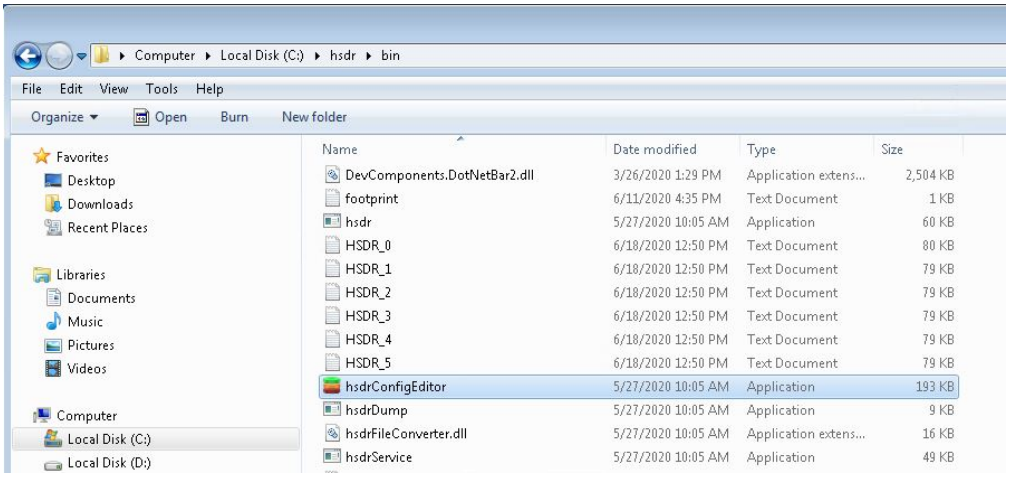
The HSDR requires a configuration file to identify the points to be recorded, as well as the speed at which they should be broadcast by the Controller. Additionally, there is supplementary information used for the Ovation Event Trend, such as point description and high and low limits. You can use the HSDR Configuration Editor to build a configuration file.

4.2 To access the High Speed Data Recorder window

Perform the following steps to access the High Speed Data Recorder window:

1. Navigate to the HSDR Configuration Editor from the following location: **{HSDR_HOME}/bin/hsdrConfigEditor.exe**

Figure 26. Accessing the HSDR Configuration Editor



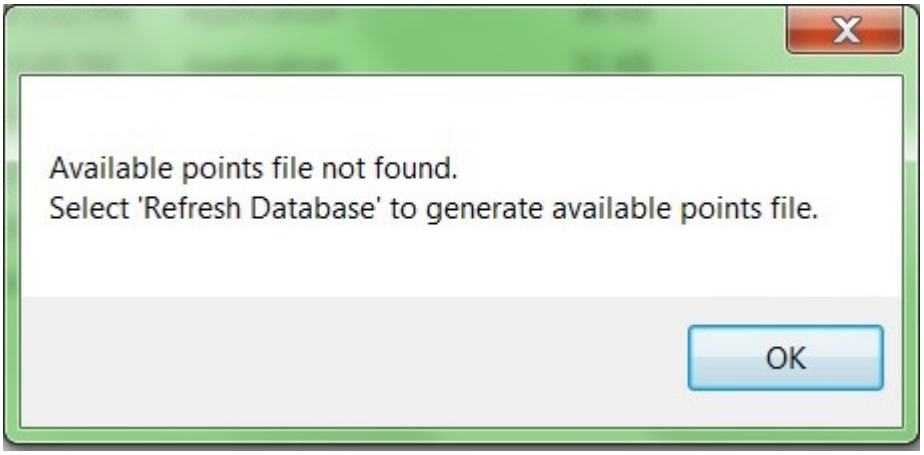
2. Double-click the **hsdrConfigEditor.exe** file.
   a. If you are accessing the HSDR Configuration Editor for the first time, build the configuration [32].
   b. If the configuration file already exists, the High Speed Data Recorder window appears. Reload the configuration [33].

4.3 To build the configuration for the first time

Perform the following steps to build the configuration for the first time:

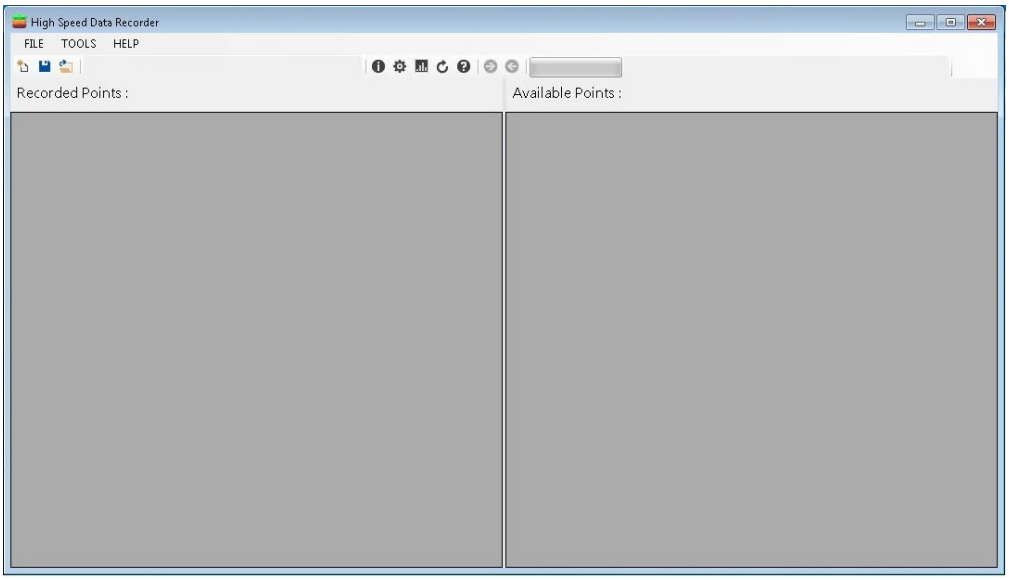
1. *Access the High Speed Data Recorder window* [31].
2. The Available points file not found pop-up appears. Click **OK**.

Figure 27. Available points file not found pop-up message



3. The High Speed Data Recorder main window appears.

Figure 28. High Speed Data Recorder main window



4. *Apply the Advanced Settings* [35].

5. *Reload the configuration* [33].
6. *Save the basic configuration* [41]. It saves the settings so that you do not need to redo the settings next time the HSDR Configuration Editor is used.

4.4 To reload the configuration

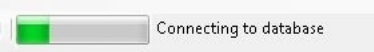
Perform the following steps to reload the configuration:

1. *Access the High Speed Data Recorder window.* [31]
2. Click the **Refresh database** button to reload the configuration and generate the list of available points in the system.

Figure 29. Refresh database button

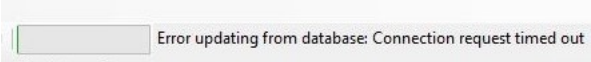
3. The Progress Bar in the main toolbar displays the status of database connection.

Figure 30. Progress Bar displaying the database connection status



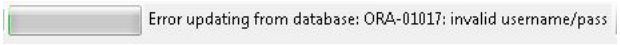
a. If the Progress Bar indicates the status as *Connection request timed out*, check if the Database Server IP address provided in the Advanced Settings [35] is correct, and the Database Server can be pinged from the workstation.

Figure 31. Connection request timed out



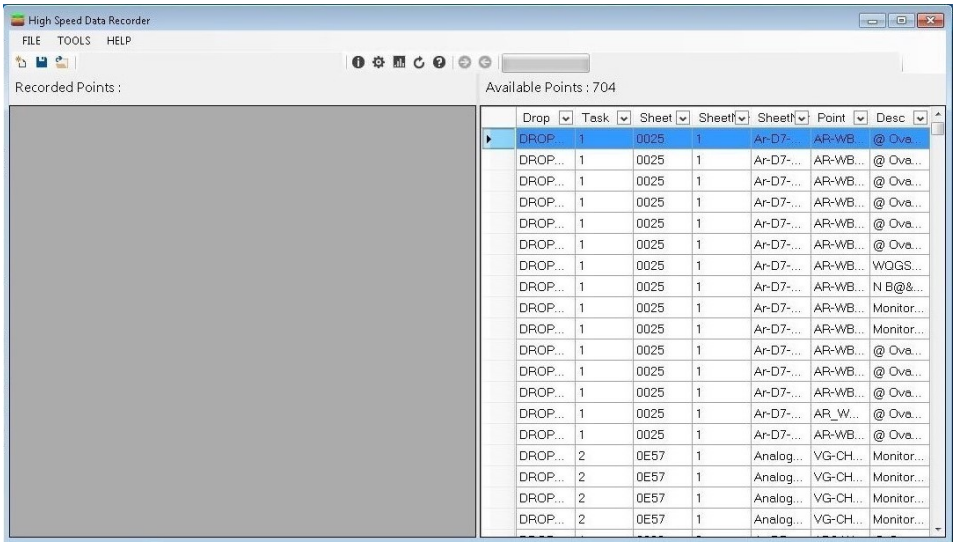
b. If the Progress Bar indicates the status as *ORA-01017: invalid username/password; logon denied*, check if the Database Username or Database Password provided in the Advanced Settings [35] is correct.

Figure 32. ORA-01017: invalid username/password; logon denied



c. If the database connection is successful, the Available Points list appears in the right pane of the window.

Figure 33. Available points list shown with points



Note

When Database is refreshed, the *.tab files are created under HSDR\config.

4.5 To apply the Advanced Settings

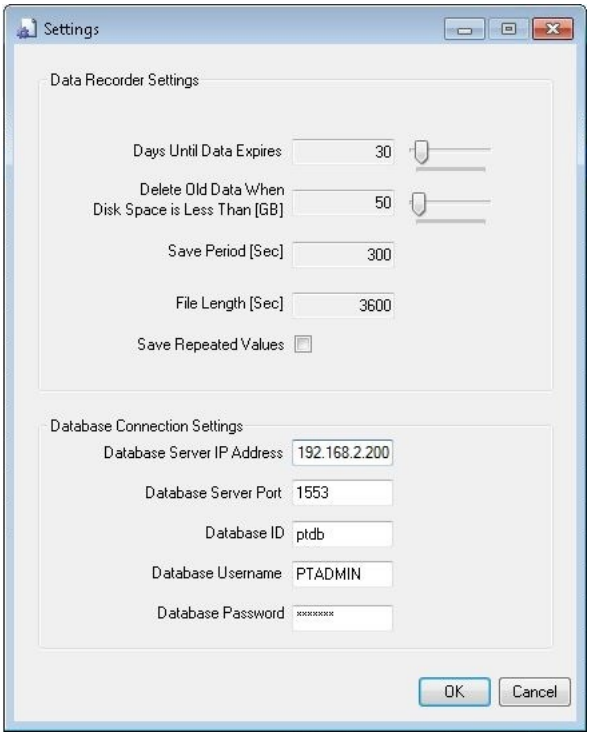
Perform the following steps to apply the Advanced Settings:

1. *Access the High Speed Data Recorder window.* [31]
2. Click the **Advanced Settings** button.

Figure 34. Advanced Settings button

3. The Settings window appears.

Figure 35. Settings window



Note

The HSDR and Database Server can be installed on the same machine, but it is preferred to install them on different machines.

4. Enter the Database Recorder Settings and Database Connections Settings, as described in the following table.

Table 1. Settings description

Setting	Default Value	Description
Days Until Data Expires	30	Recording data can consume a large amount of disk space, because of this the recorder deletes the oldest data (for example, data older than 30 days).
Delete Oldest Data When Disk Space is Less Than [GB]	50	To protect the hard disk from becoming full, you can configure the HSDR to delete the oldest data once the hard disk free space becomes less than this amount.
Save Period [sec]	300	The period upon which data is saved from internal data recorder memory to the files on the hard disk.
File Length [sec]	3600	The length of time during which a given data recording file contains data before starting a new file.
Save Repeated Values	Unchecked	When not selected, the data recording files do not contain entries for repeated values. This is more efficient for saving disk space.
Database Server IP Address	192.168.2.200	The IP Address of the Ovation Database (Oracle) where the HSDR builds the list of available points. Note this is only used when you select the **Refresh Database** button. **Note** Locate the database server drop in the Ovation Developer Studio to get the Database Server IP Address.
Database Server Port	1553	The listener port for the database server Oracle services.
Database ID	ptdb	The database ID.
Database Username	PTADMIN	The database username.
Database Password	**********	The password for the database user.

5. Click **Apply**.
6. Close the Settings window.

Note

The advanced settings of HSDR are performed for the very first time. These settings are saved in the hsdrConfig.xml [39] configuration file.

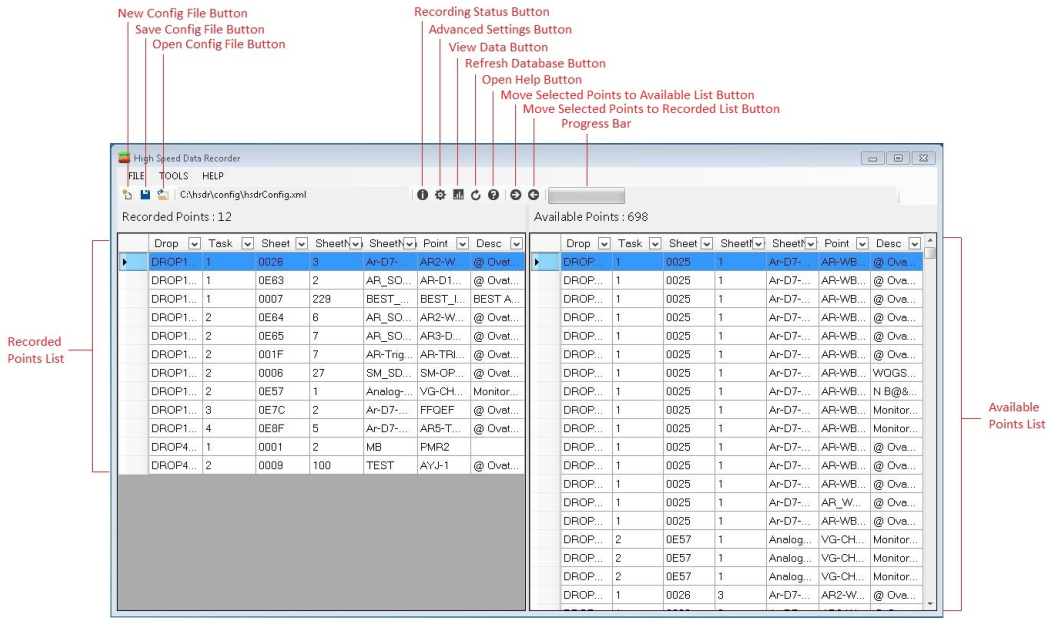
5 Working with High Speed Data Recorder

Topics covered in this section:

5.1 Understanding the HSDR main interface

The following figure depicts the main interface of the High Speed Data Recorder with various window components labelled.

Figure 36. HSDR main interface



The menu bar of the High Speed Data Recorder window also includes the following three menu:

- **File menu:** The FIle menu includes the New, Open, and Save As functions.

Figure 37. File menu

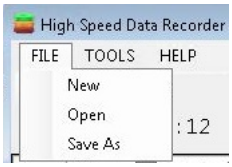


Table 2. Functions in the File menu

Function	Description
New	Creates a new configuration file.
Open	Opens an existing configuration file.
Save as	Saves the configuration file.

- **Tools menu:** The Tools menu includes the Status, Settings, Refresh Database, and View Data functions.

Figure 38. Tools menu

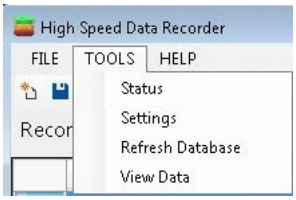


Table 3. Functions in the Tools menu

Function	Description
Status	Displays the recording status of HSDR.
Settings	Displays the advanced settings.
Refresh Database	Reloads the configuration file.
View Data	Displays the HSDR data files.

- **Help menu:** The Help menu includes View Help, and About functions.

Figure 39. Help menu

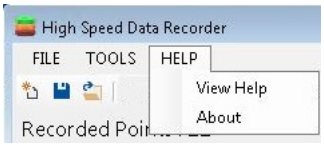


Table 4. Functions in the Help menu

Function	Description
View Help	Opens the help page.
About	Displays the information about HSDR.

5.2 What is Available Points file?

The Available Points file is a group of files that displays the list of points that can be recorded in the system without requiring a constant connection to the Ovation database. These files are saved with *.tab extension in the **{HSDR_HOME}/config** directory.

The Available Points file is created from the Ovation database. It can be copy and pasted to other machines for offline work.

For points to be included in the Available Points file, the points must have System IDs (SIDs). This means that they need to be loaded to the Controller at some point in the past. The points that have been created in the database but have never been loaded to the Controller do not appear in the Available Points list.

5.3 What is the hsdrConfig.xml file?

The hsdrConfig.xml is a configuration file that the HSDR Service [9] uses to determine the list of points to be recorded from the Controllers. This file is required to be named as *hsdrConfig.xml*.

Note that the HSDR Configuration Editor [10] can load and save the configuration file with any name other than hsdrConfig.xml, allowing you to create separate configurations for different purposes. However, the HSDR executables that record data from the Controller only reads the file named *hsdrConfig.xml* located in *{HSDR_HOME}/config/* directory.

5.4 Service Mode vs. Desktop Mode

The High Speed Data Recorder can also be used to check the recording status of the HSDR service. The HSDR can record the data using one of the following modes:

- **Service mode** – Service mode is used for permanent high-speed data recording. This mode can be used for a dedicated workstation. When configured for Service mode, the HSDR always continues the recording, even after the workstation is rebooted.
- **Desktop mode** – Desktop mode is used for temporary high-speed data recording. This mode can be used for a laptop. When configured for Desktop mode, data recording does not resume automatically after the workstation or laptop is rebooted.

Note that if multiple users are logged onto the laptop or workstation in Desktop mode, only one user can use the HSDR application at a time.

To configure the OvationHSDR service on a workstation or laptop, open the command prompt with an Administrator privilege and install or create the OvationHSDR service by using the **sc** command. By default, the HSDR is installed in Service mode.

To switch from Service mode to Desktop mode, you must delete the OvationHSDR service from the workstation or laptop.

Use the following commands to create or delete the OvationHSDR service:

- To configure the OvationHSDR service for Service mode:
  ```
  sc create OvationHSDR binPath="%HSDR_HOME%
  \bin\hsdrService.exe" start=auto
  ```

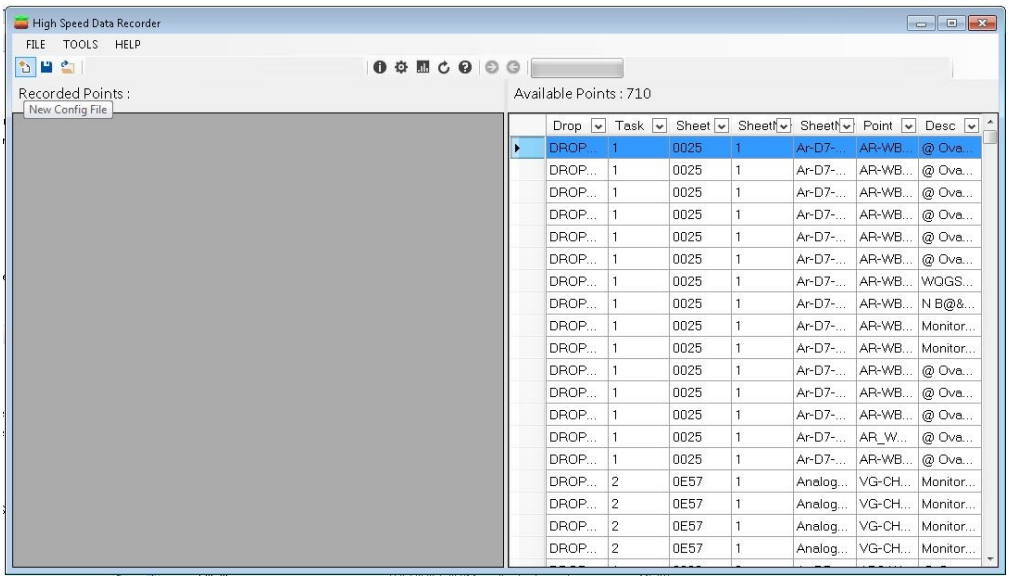
- To configure the OvationHSDR service for Desktop mode:
  `sc delete OvationHSDR`
- To confirm if the OvationHSDR service is installed:
  `sc query OvationHSDR`

5.5 To save the basic configuration

Perform the following steps to save the basic configuration:

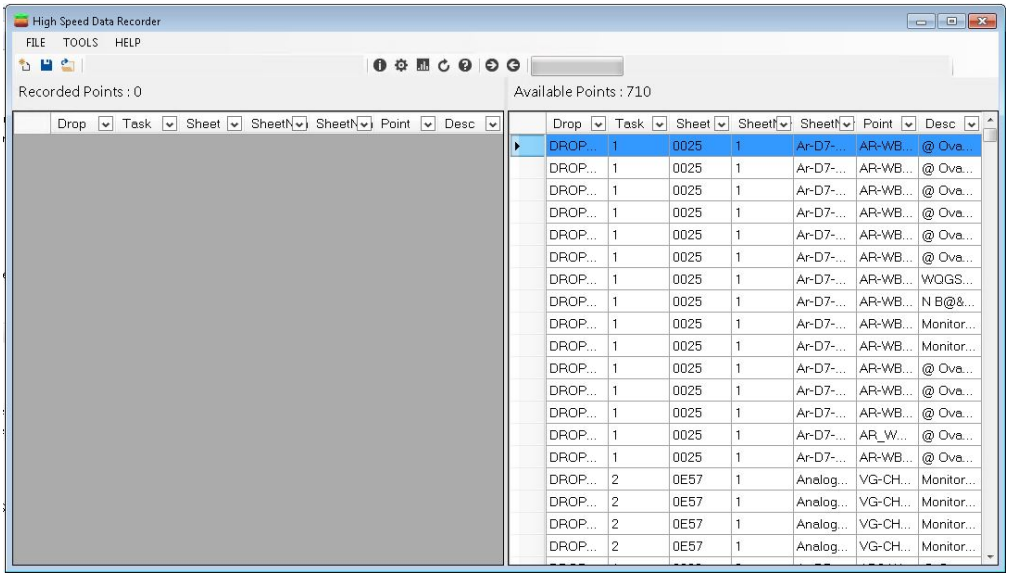
1. *Access the High Speed Data Recorder window* [31].
2. Click the **New Config File** button.

Figure 40. Creating a new configuration file



The Recorded Points list initializes without containing any points.

Figure 41. Recorded Points list initialized

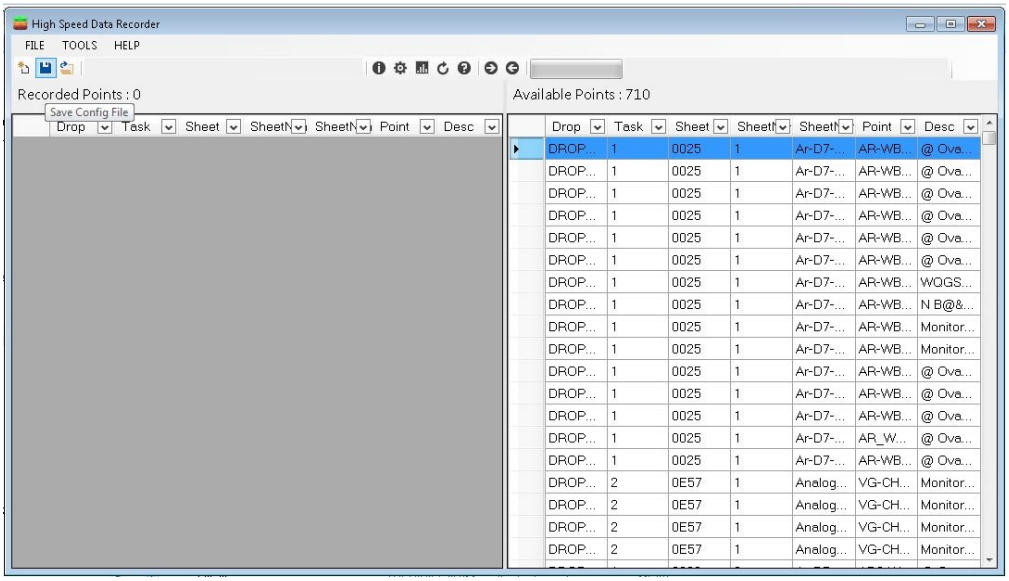


Note

You can also move the selected points from Available Points list to the Recorded Points list [43] before saving the configuration file.

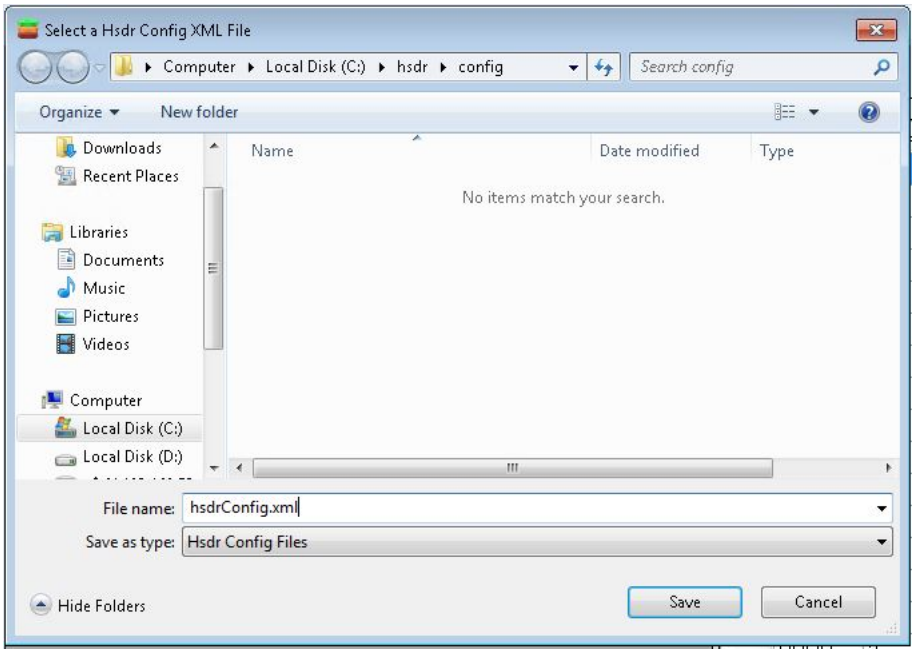
3. Click the **Save Config File** button.

Figure 42. Saving the configuration file



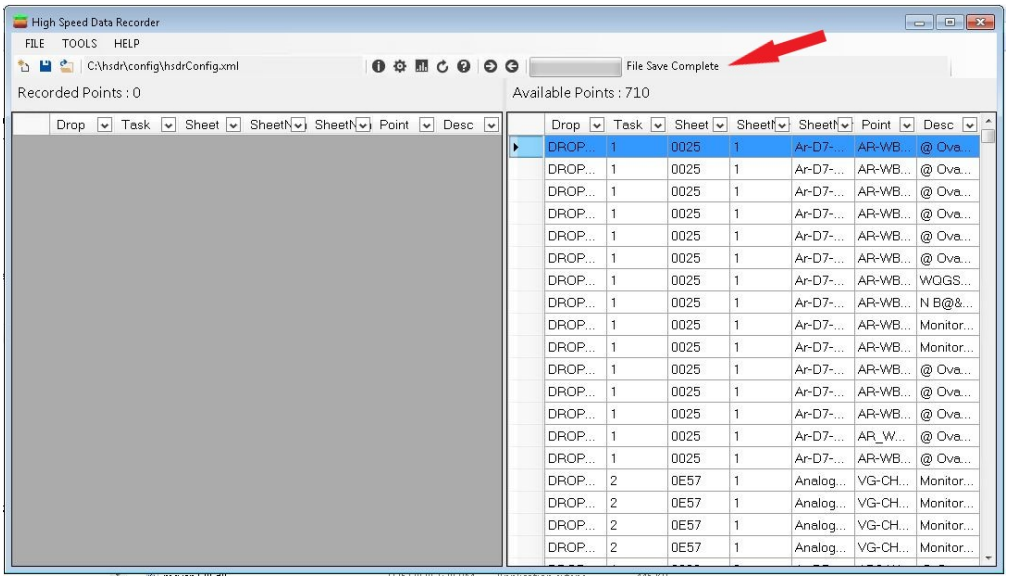
4. The File Save dialog box appears. Perform the following steps:
   a. Select the location where you want to save the configuration file. By default, the configuration file is saved at *[HSDR_HOME]/config*.
   b. Enter the file name as hsdrConfig.xml [39] in the file name text box.
   c. Select the file type as **Hsdr Config Files** from the Save as type drop-down list.
   d. Click **Save**.

Figure 43. File Save dialog box



5. The Progress bar in the main toolbar displays the status as File Save Complete.

Figure 44. Progress bar displaying the file save status



5.6 To move Available Points to the Recorded Points list

Perform the following steps to move Available Points to the Recorded Points list:

1. *Access the High Speed Data Recorder window* [31].
2. *Reload the configuration* [33].

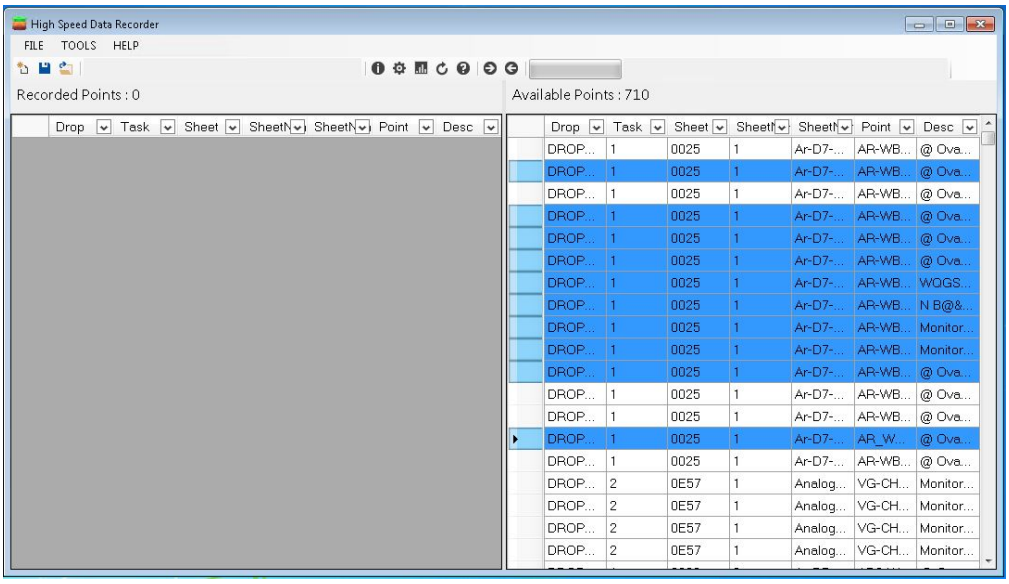
3. Select the points that you want to move from the Available Points list to the Recorded Points list.

Note

You can use the Filtering or Sorting options of the Available Points list to clarify the point list if needed, and then highlight each point that you want to add to the Recorded Point list.

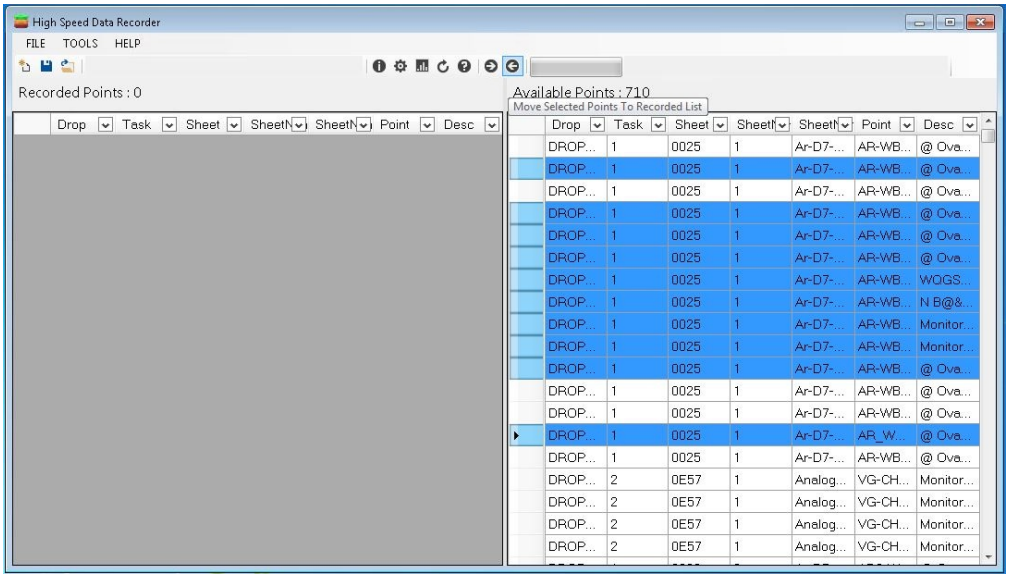
Hold the **Ctrl** key to select multiple points, and the **Shift** key to select a range of points.

Figure 45. Selecting points from Available Points list



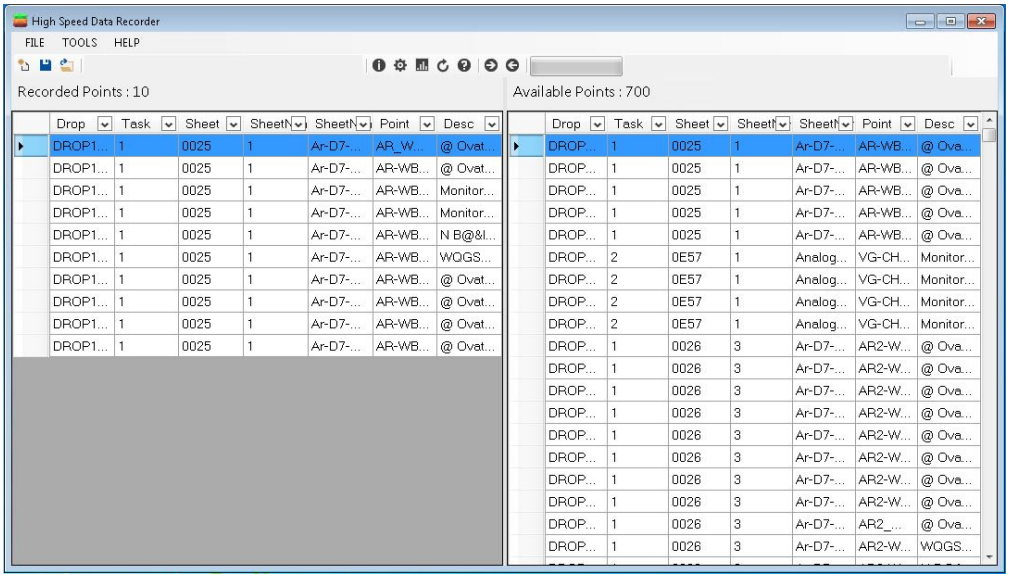
4. Click the **Move Selected Points to Recorded List** button.

Figure 46. Moving selected Available Points to Recorded Points list



5. The Recorded Points list gets populated with the selected points from the Available Points list.

Figure 47. Recorded Points list



Note

If you want to move some points back from the Recorded Points list to the Available Points list, you can select those points and click the **Move Selected Points to Available List** button.

Note

When the points are moved back and forth between the Recorded Points list and Available Points list, the point counts of both the lists are updated.

6. Click the **Save Config File** button to save the configuration file [41] along with the Recorded Points list.

5.7 To access the High Speed Data Recorder Status window

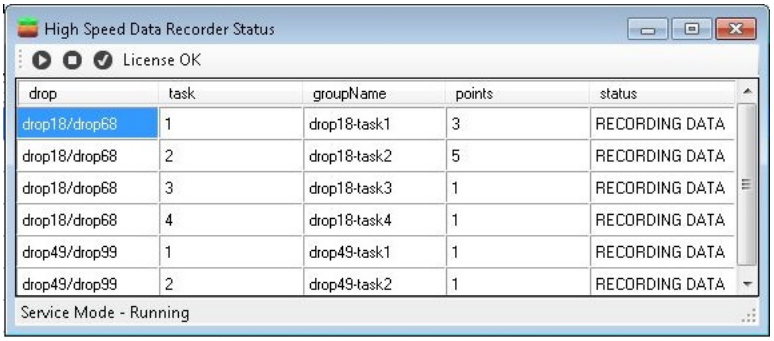
Perform the following steps to access the High Speed Data Recorder Status window:

1. *Access the High Speed Data Recorder window* [31].
2. Click the **Recording Status** button.

Figure 48. Recording Status button

3. The High Speed Data Recorder Status window appears.

Figure 49. High Speed Data Recorder Status window



As the HSDR is recording data from the Controllers, the HSDR status displays as RECORDING DATA. At this time, data is stored in a memory buffer of the HSDR. After 5 minutes, the data is saved to the Active directory located at *{HSDR_HOME}/active/*.

After some time, the data is moved from the *{HSDR_HOME}/active/* directory to the *{HSDR_HOME}/data* directory. You can use the Event Trend feature of the Ovation Trend application to view the data available in *{HSDR_HOME}/data* directory.

If you want to view the latest data before it is available in the Ovation Trend, you can save the recorded data forcefully [50].

The High Speed Data Recorder Status window allows you to perform the following functions:

- *To check the mode and status of HSDR service* [47].
- *To view the Controller communication status of the HSDR Service* [48].
- *To start the recording* [49].
- *To stop the recording* [49].
- *To save the recorded data forcefully* [50].

5.7.1 To check the mode and status of the HSDR service

Perform the following steps to check the mode and status of the HSDR service:

1. *Access the High Speed Data Recorder Status window* [45].
2. The HSDR Status window displays the mode and status of the HSDR Service in the lower left corner of the window.

Figure 50. Running status

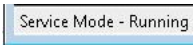
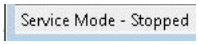


Figure 51. Stopped status



The following table describes the status and mode of the HSDR Service.

Table 5. HSDR Service status and mode descriptions

Status	Description
Service Mode – Stopped	The HSDR has been installed and is configured to run as a Windows Service named *OvationHSDR*. The current state of the service is **Stopped**.
Service Mode – Running	The HSDR has been installed and is configured to run as a Windows Service named *OvationHSDR*. The current state of the service is **Running**.
Desktop Mode – Stopped	The HSDR is not configured as a Windows Service. The HSDR is not running.
Desktop Mode – Running	The HSDR is not configured as a Windows Service. The HSDR is running.

Note

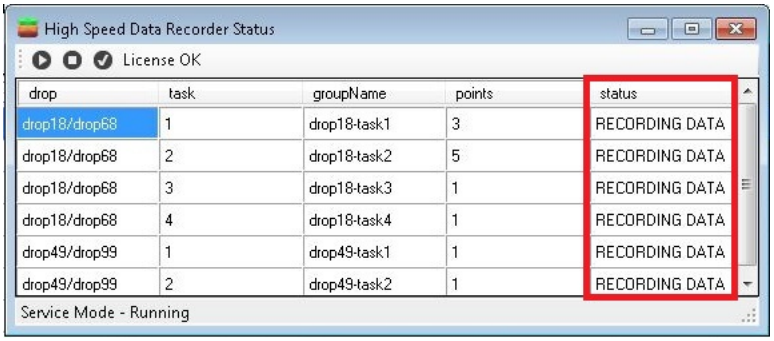
See the *Service Mode vs. Desktop Mode* [39] section for the information of Service mode and Desktop mode.

5.7.2 To view the Controller communication status of the HSDR Service

Perform the following steps to view the Controller communication status of the HSDR Service:

1. *Access the High Speed Data Recorder Status window* [45].
2. The High Speed Data Recorder Status window displays the Controller communication status of each group of points.

Figure 52. Controller communication status



Note

In HSDR Status window, the points are grouped by drop and task.

The following table describes possible values of the Controller communication status.

Table 6. Controller Communication Status descriptions

Status	Description
UNKNOWN	No communication with the HSDR service (service not running).
READY	HSDR is ready to communicate with the Controller.
STARTING COMMS	HSDR is initiating communication with the Controller.
WAITING FOR ACK	HSDR is waiting for the Controller to acknowledge the request.
WAITING FOR REPLY	HSDR has received the acknowledgment and is now waiting for the request to be sent.
RECORDING DATA	HSDR is receiving high speed data from the Controller.
SAVING TO FILE	HSDR is momentarily busy saving data to hard disk.
TIMEDOUT	HSDR communications with the Controller have stopped.
ERROR	HSDR has encountered an internal error or an error from the Controller.

5.7.3 To start the recording

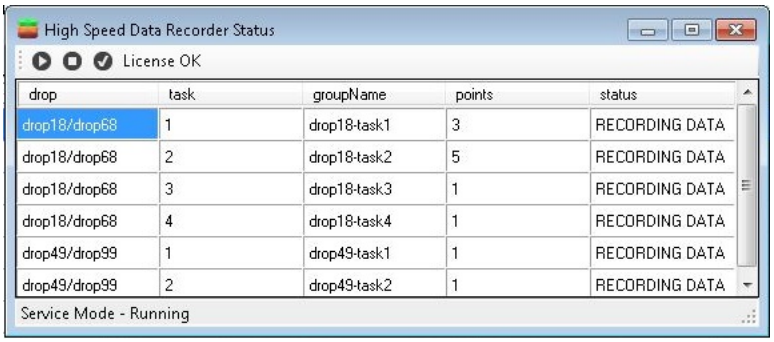
Perform the following steps to start the data recording:

1. *Access the High Speed Data Recorder Status window* [45].
2. Click the **Start** button to start the recording.

Figure 53. Start button

3. HSDR starts recording the data.
   - The Controller communication status displays as **RECORDING DATA**.
   - HSDR Service status displays as **Service Mode - Running**.

Figure 54. Data recording started



5.7.4 To stop the recording

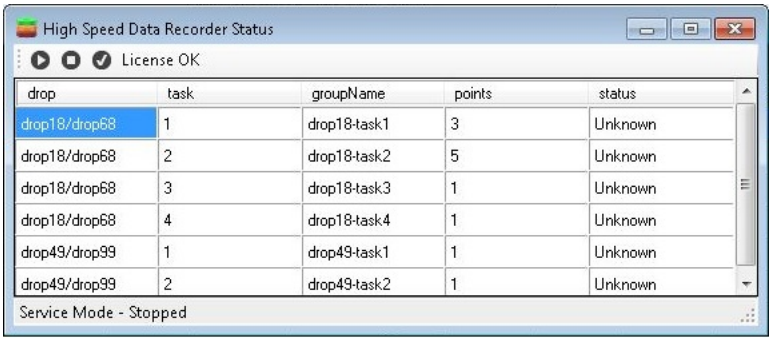
Perform the following steps to stop the data recording:

1. *Access the High Speed Data Recorder Status window* [45].
2. Click the **Stop** button to start the recording.

Figure 55. Stop button

3. HSDR stops recording the data.
   - The Controller communication status displays as **Unknown**.
   - HSDR Service status displays as **Service Mode - Stopped**.

Figure 56. Data recording stopped

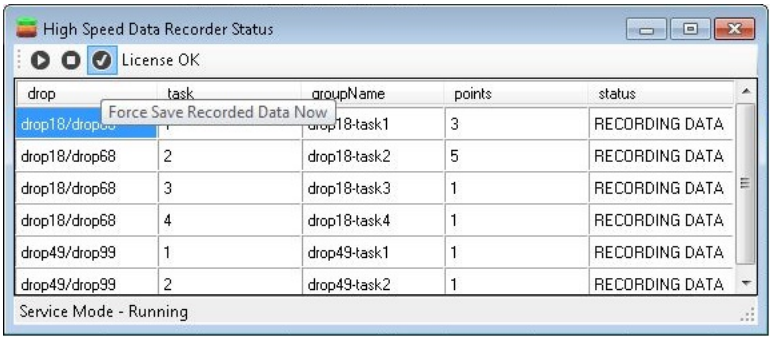


5.7.5 To save the recorded data forcefully

Perform the following steps to save the recorded data forcefully:

1. *Access the High Speed Data Recorder Status window* [45].
2. Click the **Force Save Recorded Data Now** button.

Figure 57. Forcefully saving the recorded data



3. The current data in HSDR memory is saved to the *{HSDR_HOME}/active* directory in CSV format, which is later moved to the *{HSDR_HOME}/data* directory. You can view the latest data in the Ovation Trend.

User can also view the HSDR data files saved in the active and data directories using the View Data [50] button available on the toolbar of main HSDR window.

5.8 To view HSDR data files in the View Data window

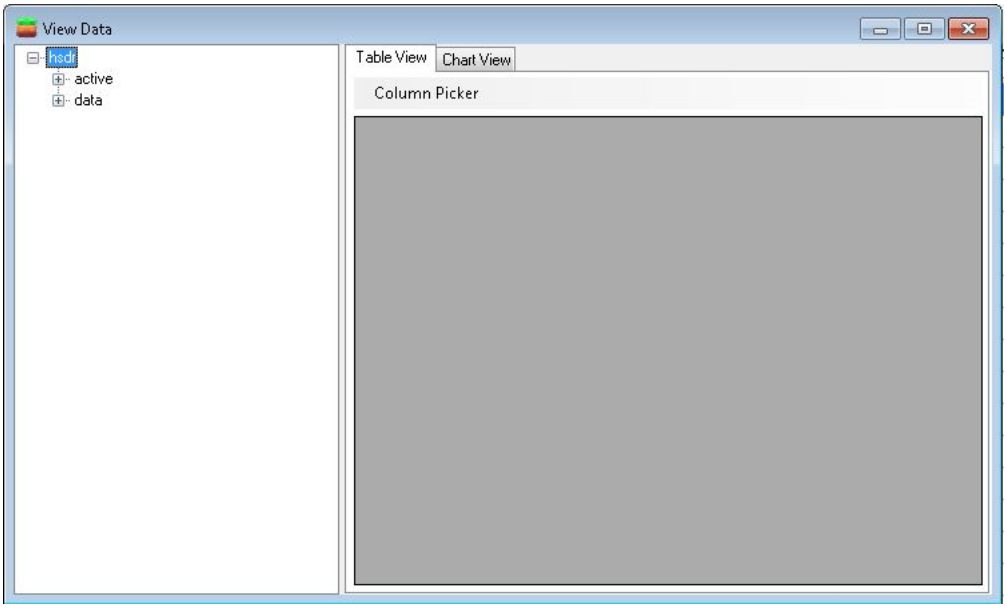
Perform the following steps to view HSDR data files in the View Data window:

1. *Access the High Speed Data Recorder window* [31].
2. Click the **View Data** button to view the HSDR data files under active and data directories.

Figure 58. View Data button

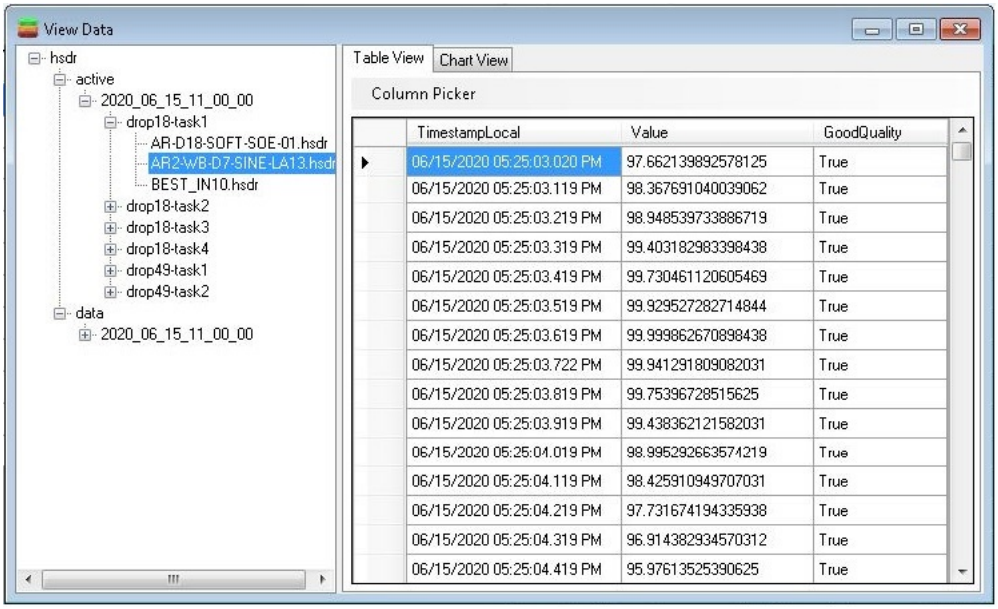
3. The View Data window appears. Expand the **hsdr hierarchy** tree in the left pane of the window to view the HSDR data files under active and data directories.

Figure 59. View Data window



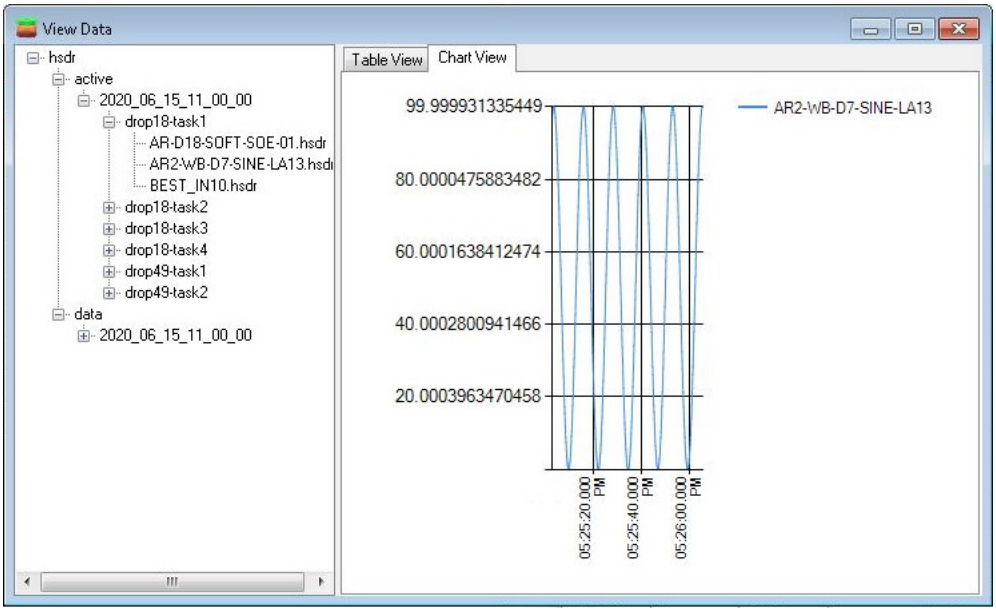
4. Select a file (point name) from a directory. The HSDR data appears in a tabular form under the Table View tab in the right pane of the window.

Figure 60. Table View



5. Click the **Chart View** tab to view the HSDR data in the chart form.

Figure 61. Chart View

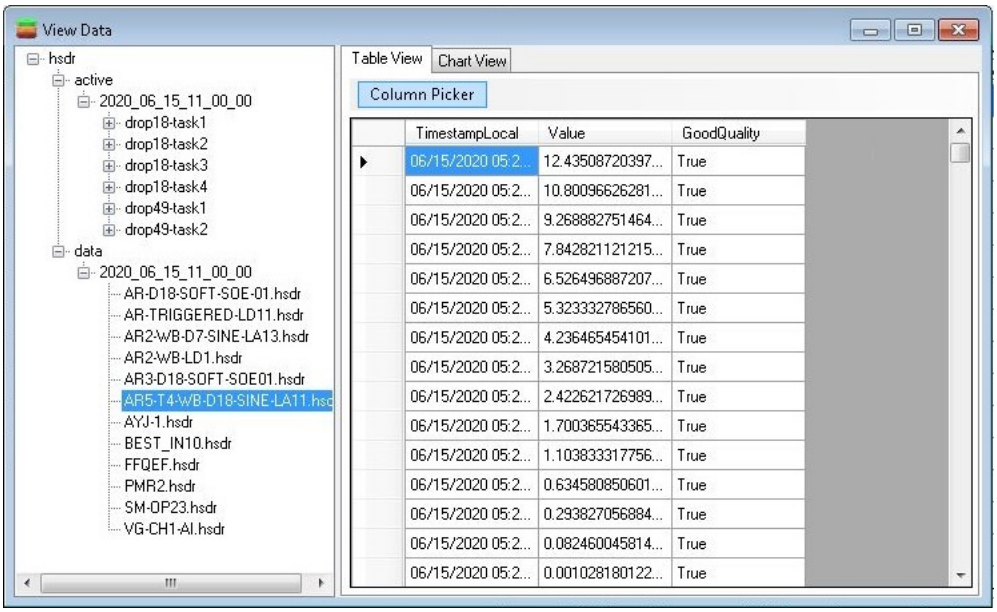


5.8.1 To use Column Picker

Perform the following steps to use Column Picker:

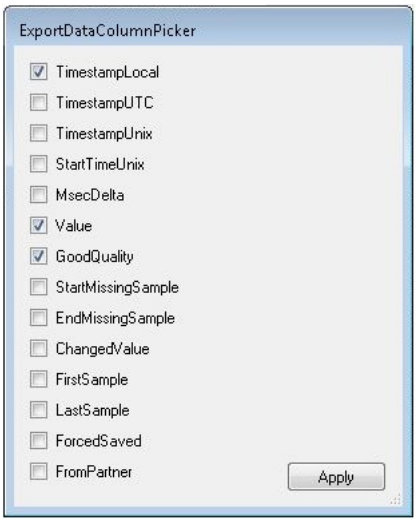
1. *Access the View Data window* [50].
2. Click the **Column Picker** button.

Figure 62. Clicking Column Picker button



3. The ExportDataColumnPicker dialog box appears with a checklist of column pickers.

Figure 63. ExportDataColumnPicker dialog box



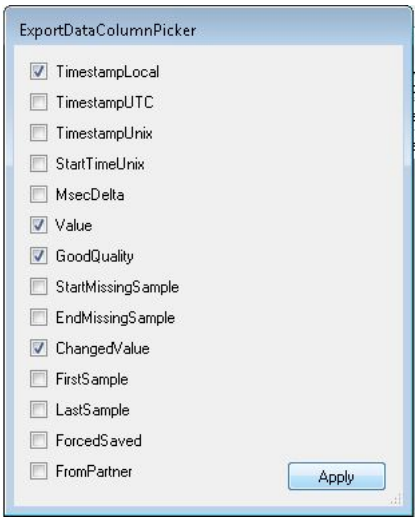
The following table describes various column pickers available in the ExportDataColumnPicker dialog box.

Table 7. Column Picker descriptions

Column	Description
TimestampLocal	The timestamp of the data sample interpreted using the timezone information of the current computer.
TimestampUTC	The timestamp of the data sample interpreted using the UTC (Universal Coordinated Time).
TimestampUnix	The UNIX (epoch) based timestamp (from the Controller).
MsecDelta	The sample time difference from this timestamp to the first timestamp in the file.
Value	The Ovation point value.
GoodQuality	True if the Ovation point was good quality (false otherwise).
StartMissingSample	The last known value before the point was not received for three times the expected rate, for example,a 25 msec point will be considered missing after 75 msec.
EndMissingSample	The first sample received after a period of missing samples.
ChangedValue	Indicates that the value has changed since the previous sample
FirstSample	Indicates that the sample is the first sample in the file.
LastSample	Indicates that the sample is the last sample in the file.
ForcedSaved	Indicates that the sample was saved as a forced saved.
FromPartner	Indicates that the sample was received from the partner Controller, as opposed to the primary Controller.

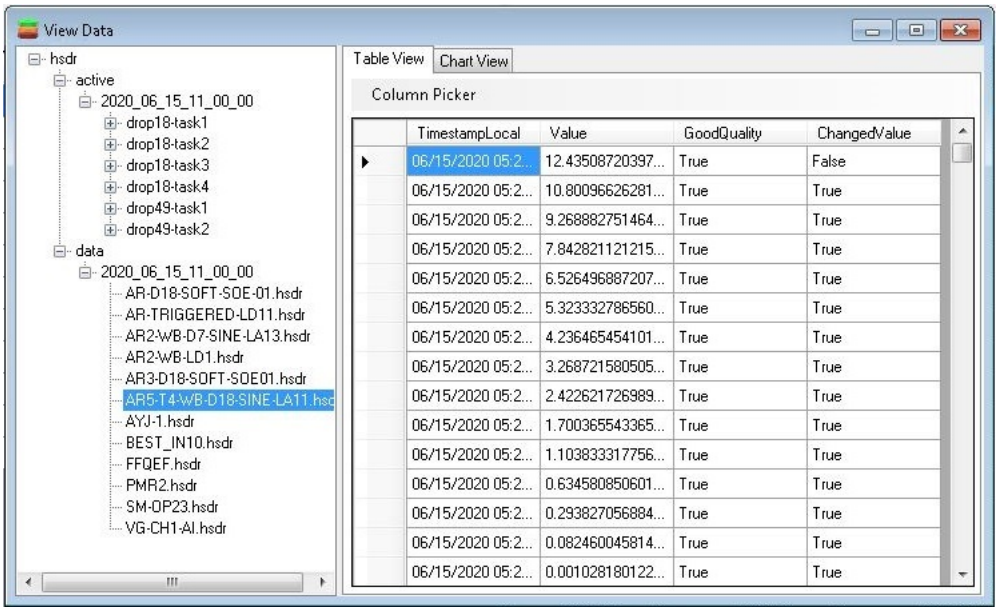
4. Select the column pickers from the checklist to specify which columns must be displayed under the Table View tab. Click **Apply**.

Figure 64. Selecting the column pickers



5. The selected column pickers are added to the table.

Figure 65. New column added to the table

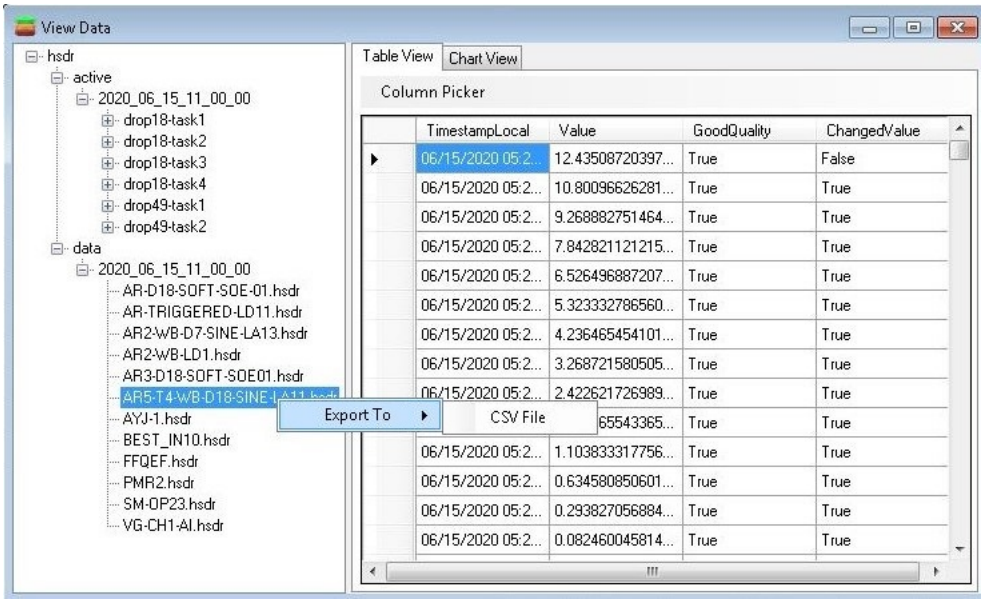


5.8.2 To export the HSDR data in CSV format

Perform the following steps to export the HSDR data in CSV format:

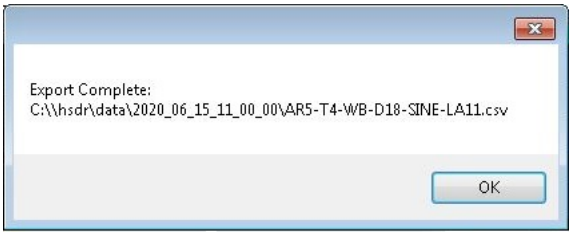
1. *Access the View Data window* [50].
2. Right-click on a file (point name) from the hierarchical tree view on the left pane of the window.
3. Click **Export to** from the menu that appears, and then click **CSV File**.

Figure 66. Clicking CSV File



4. A message box appears displaying the 'Export Complete' message. Click **OK**.

Figure 67. Export complete dialog box



The file format of the selected file changes to CSV.

6 Viewing the recorded data in Ovation Trend application

Topics covered in this section:

6.1 To set the environment variable on an Ovation Workstation

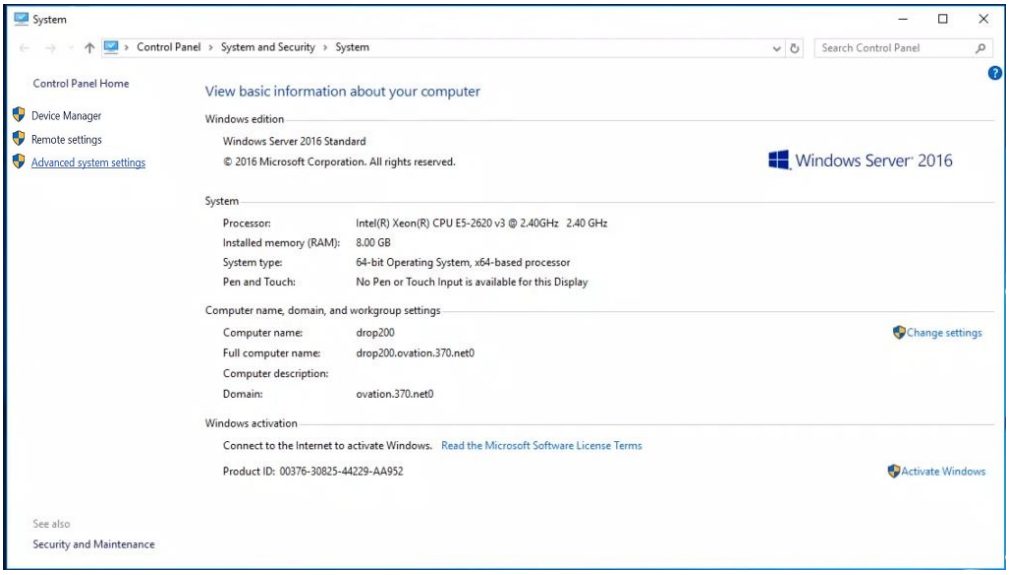
To view the HSDR data in Ovation Trend application, you need to set the **HSDR_Home** environment variable manually on an Ovation Workstation.

You can also map the HSDR to a network drive on Ovation machine and then set the environment variable to the mapped HSDR drive.

Perform the following steps to set the environment variable on an Ovation Workstation:

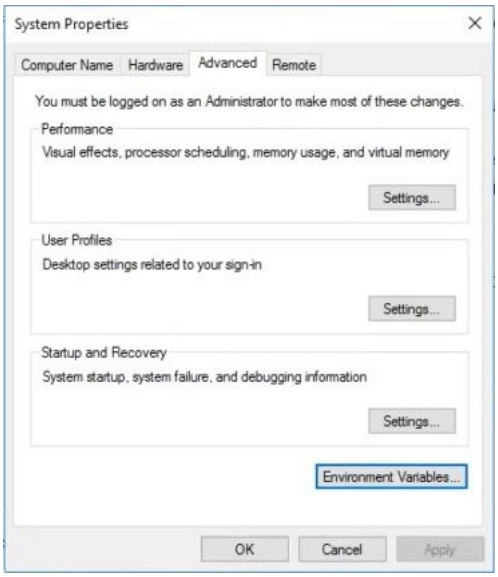
1. Log on to an Ovation Workstation.
2. Navigate to the System settings in the Control Panel.
   Start > Control Panel > System and Security > Sytem
3. Click the **Advanced system settings** link.

Figure 68. Accessing Advanced system settings



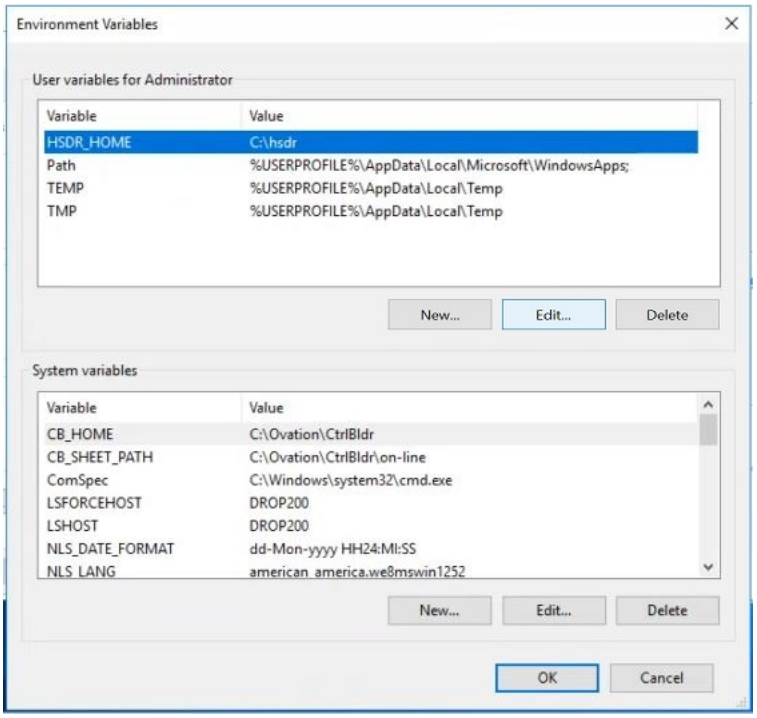
4. The System Properties dialog box appears. Perform the following steps:
   a. Select the **Advanced** tab and then click the **Environment Variables...** button.

Figure 69. System Properties window



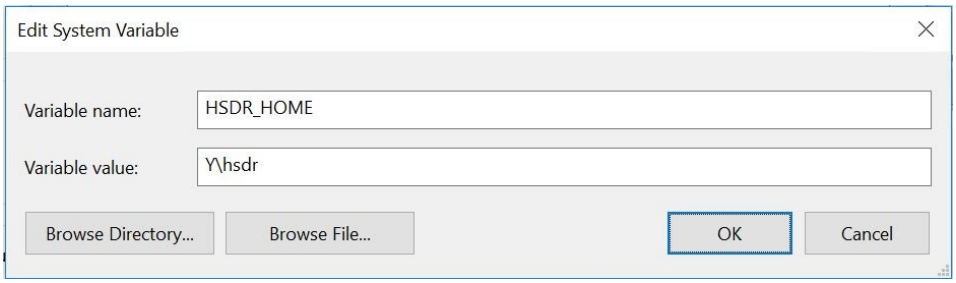
   b. Environment Variables dialog box appears. Select the **HSDR_Home** variable, and click the **Edit..** button.

Figure 70. Environment Variables window



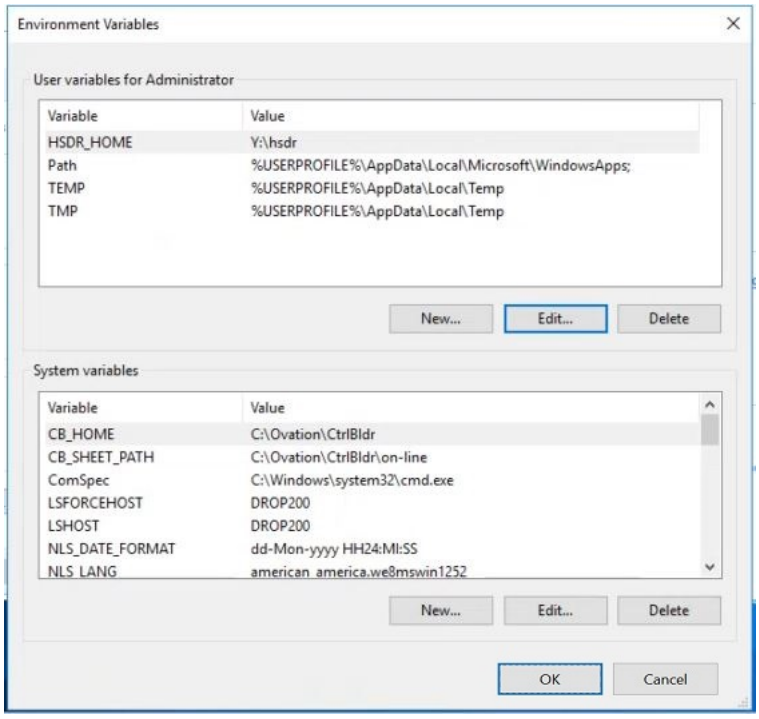
   c. The Edit User Variable dialog box appears. Enter the **mapped drive name** in the Variable value box to manually set the environment variable to the mapped HSDR drive. Click **OK**.

Figure 71. Edit User Variable dialog box



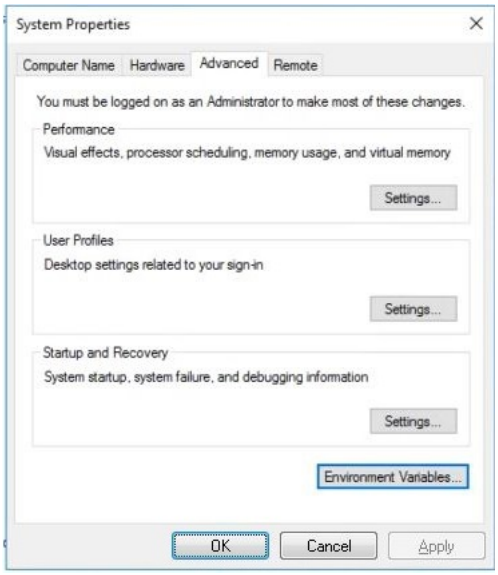
d. The *HSDR_Home* environment variable mapped to the HSDR network drive. Click **OK**.

Figure 72. Environment variable mapped



5. Click **OK**.

Figure 73. Environment variable set



6.2 To view Event Trends in Ovation Trend application

You can use the Ovation Trend application to view the latest data recorded by HSDR. For this, you must enable the data recorder event type in the Ovation Trend application to display the data recorded by an external HSDR.

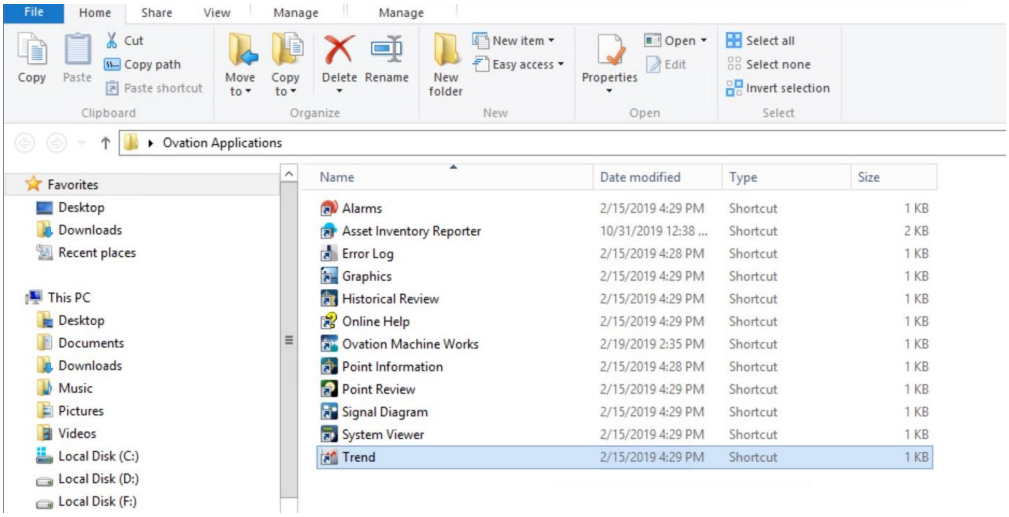
Perform the following steps to view Event Trends in the Ovation Trend application:

1. Log on to a Non-Ovation workstation.
2. Open the **Ovation Applications** folder.

Figure 74. Ovation Application folder

3. Double-click the Trend icon.

Figure 75. Accessing the Trend application

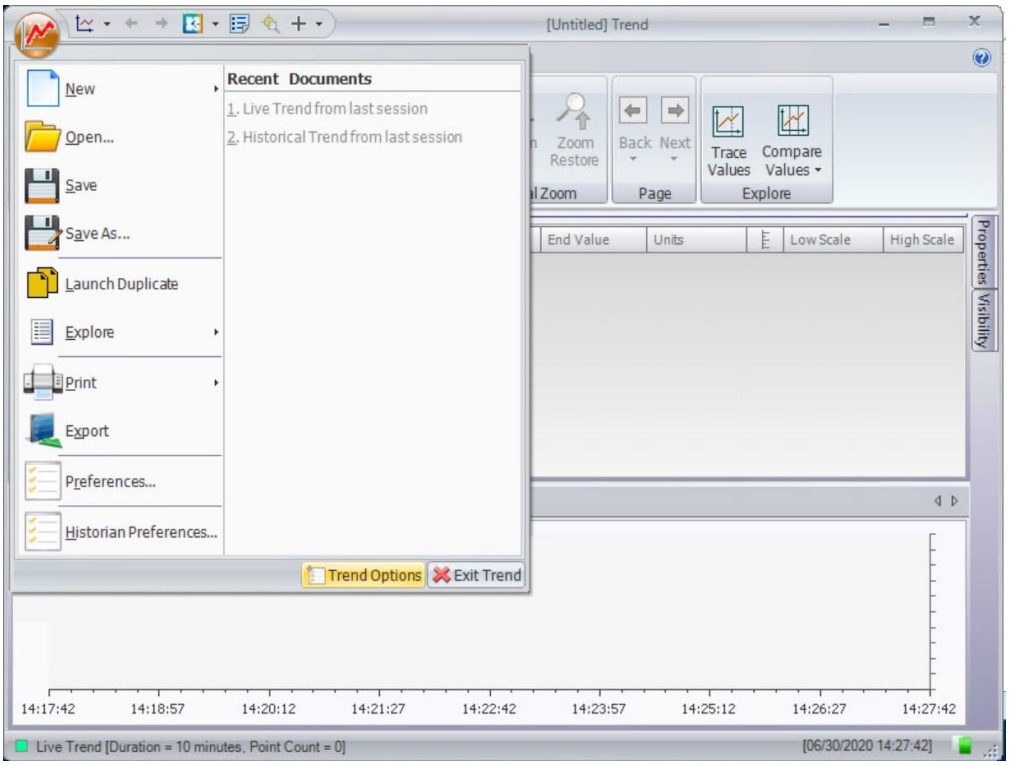


Ovation Trend application starts.

Figure 76. Starting Ovation Trend application

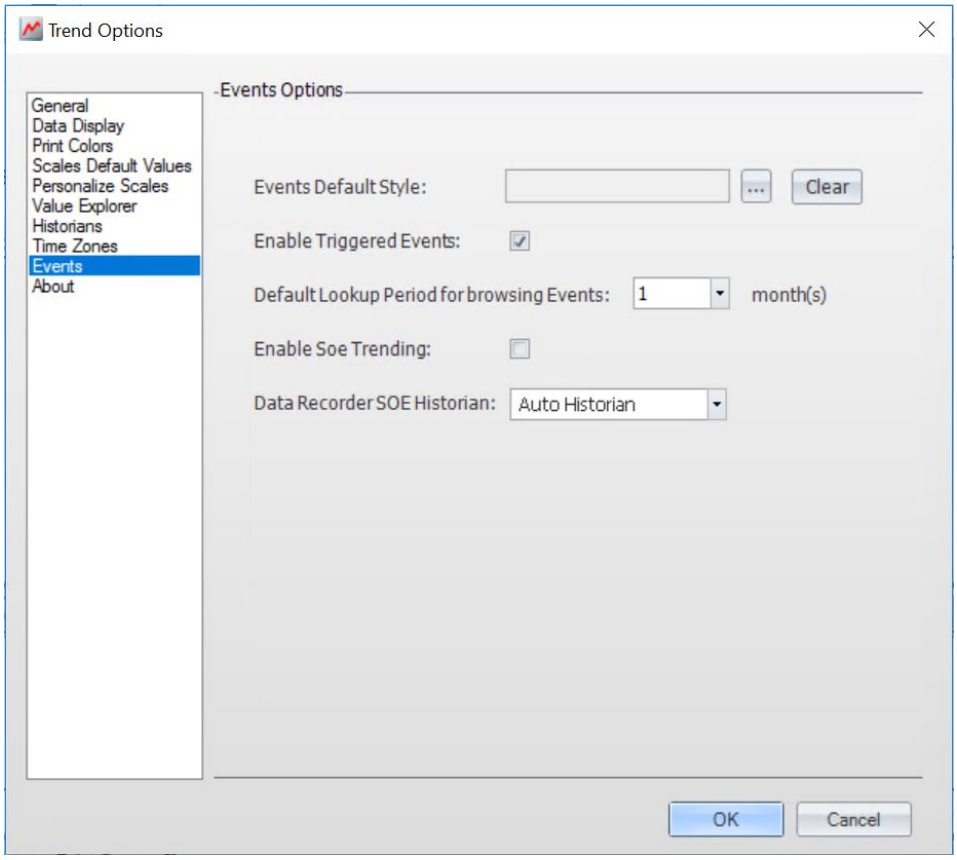
4. The Ovation Trend main window appears. Click the **Ovation Trend Menu** button, and click the **Trend Options** button.

Figure 77. Ovation Trend Menu



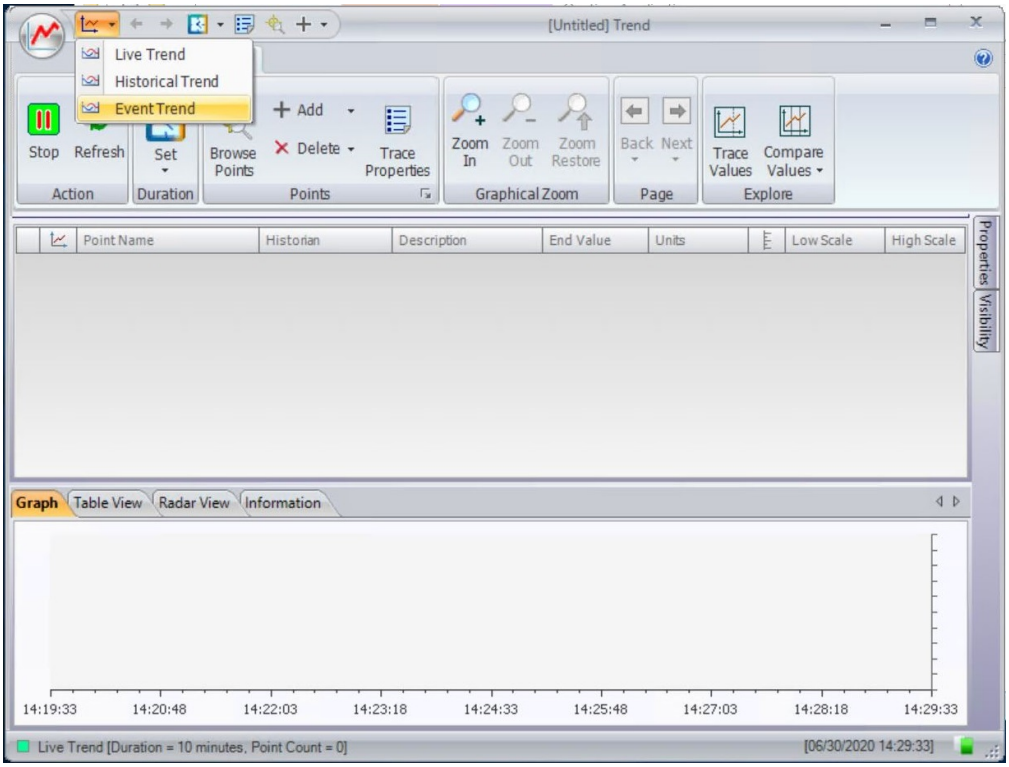
5. The Trend Options dialog box appears.
   a. Select the **Events** option from the list in the left pane of the window.
   b. Select the **Enable Triggered Events** check box.
   c. Click **OK**.

Figure 78. Trend Options dialog box



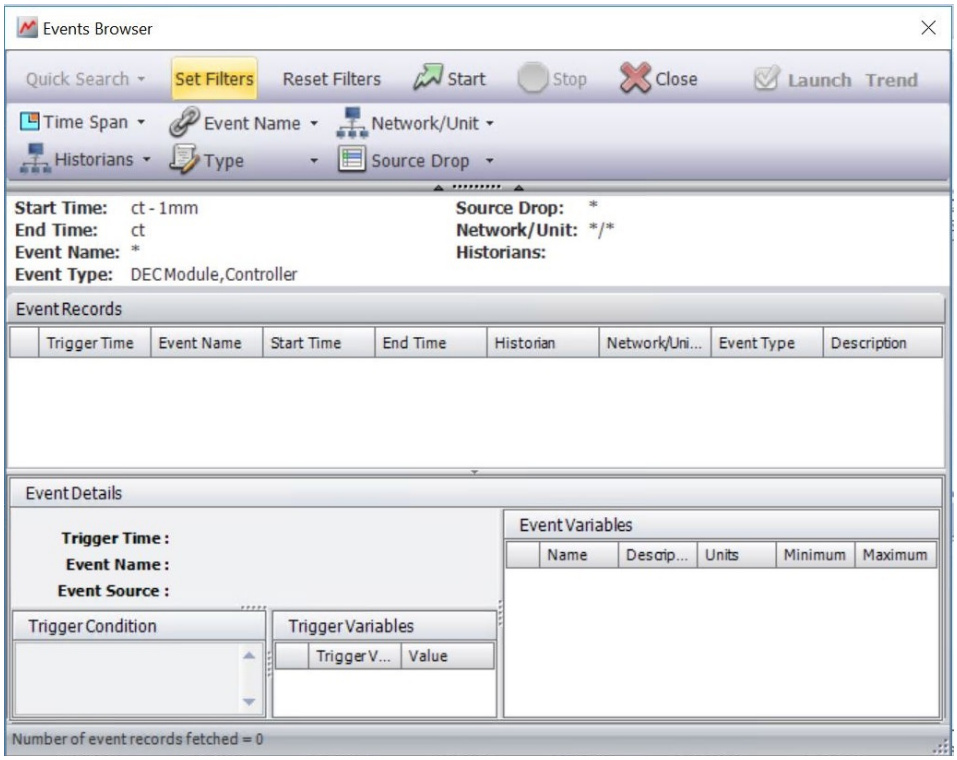
6. Click the **Trend Type** button. Click **Event Trend**.

Figure 79. Trend Type



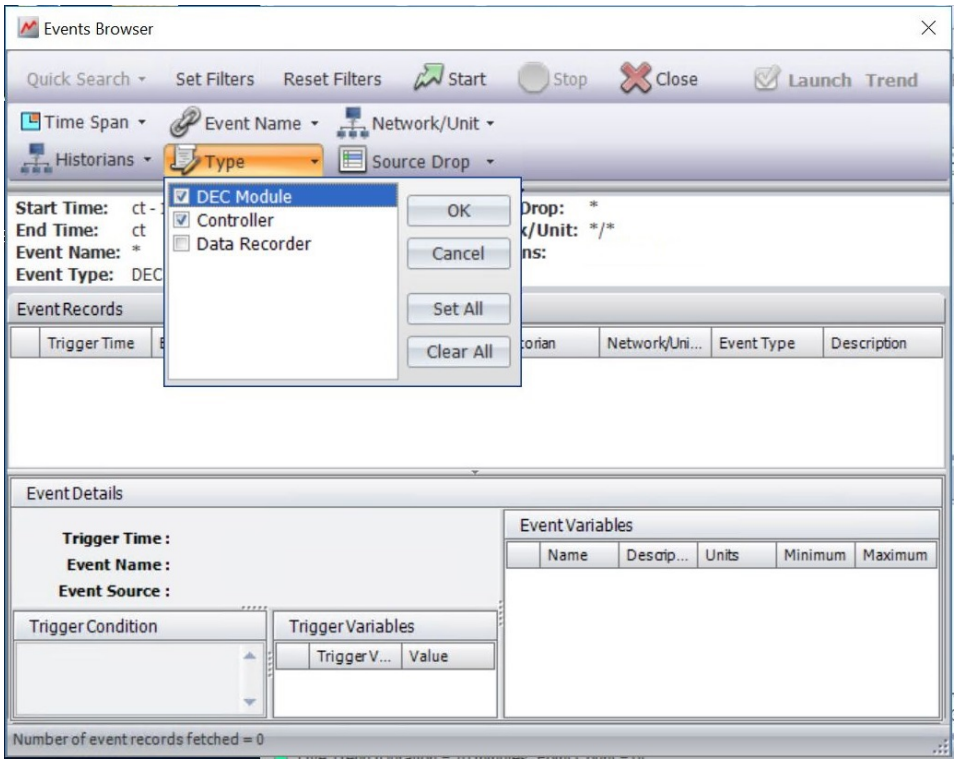
7. The Event Browser dialog box appears. Perform the following steps:
   a. Click the **Set Filters** button.

Figure 80. Setting the filter



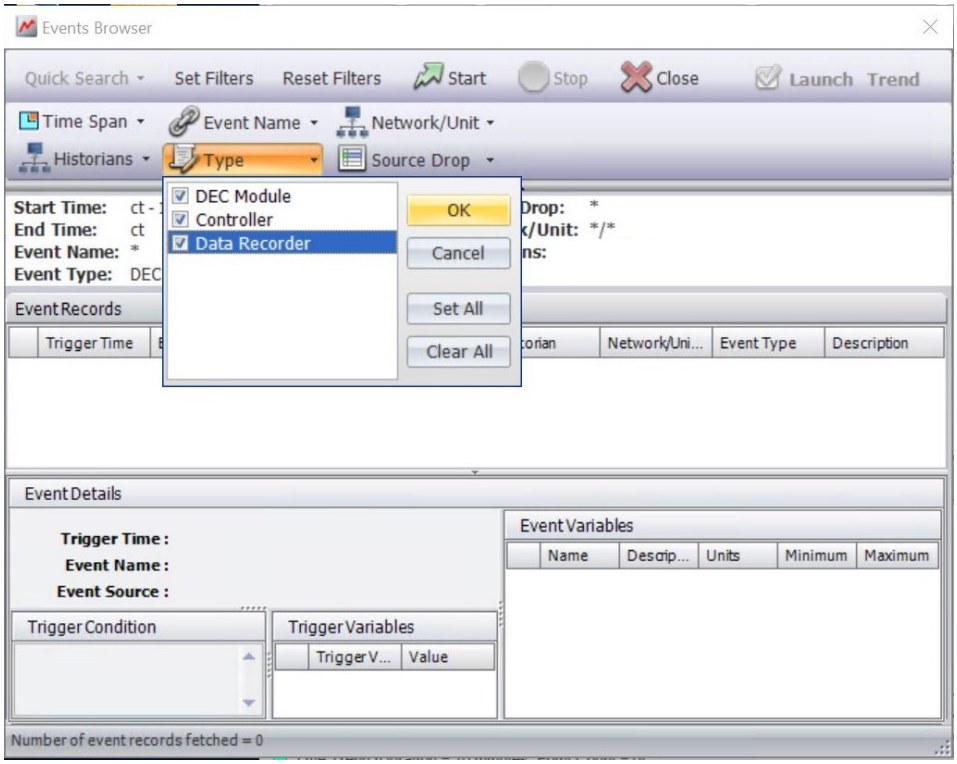
   b. Click the **Type** button. A list of event types appears.

Figure 81. List of event types



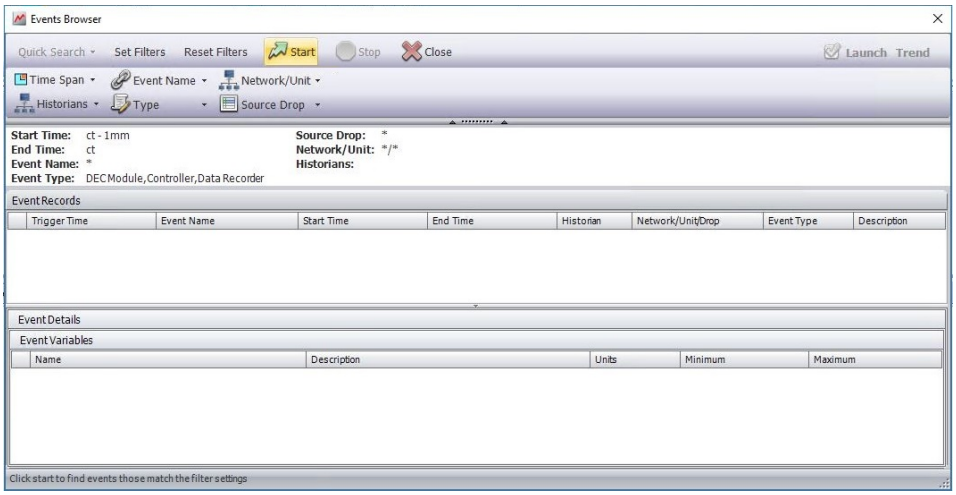
c. Select the **Data Recorder** check box, and click **OK**.

Figure 82. Selecting the Data Recorder event



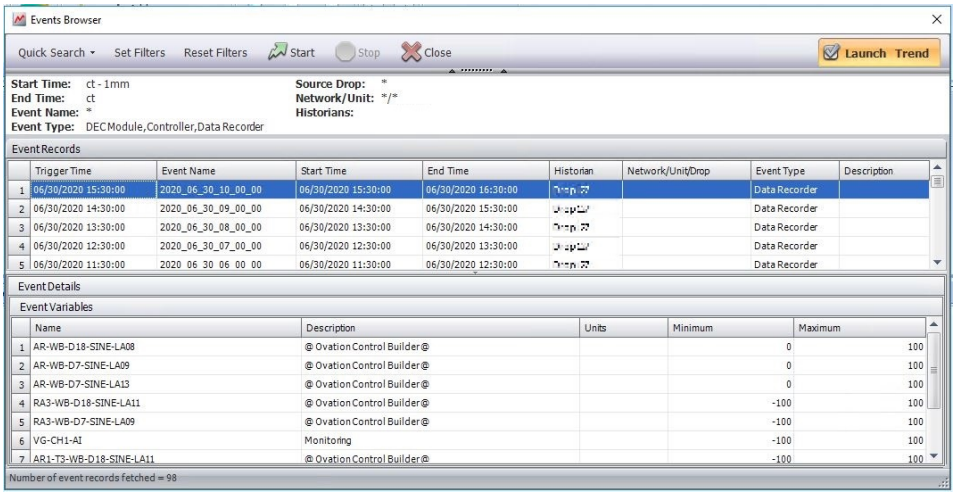
d. Click the **Start** button.

Figure 83. Starting the data recorder events



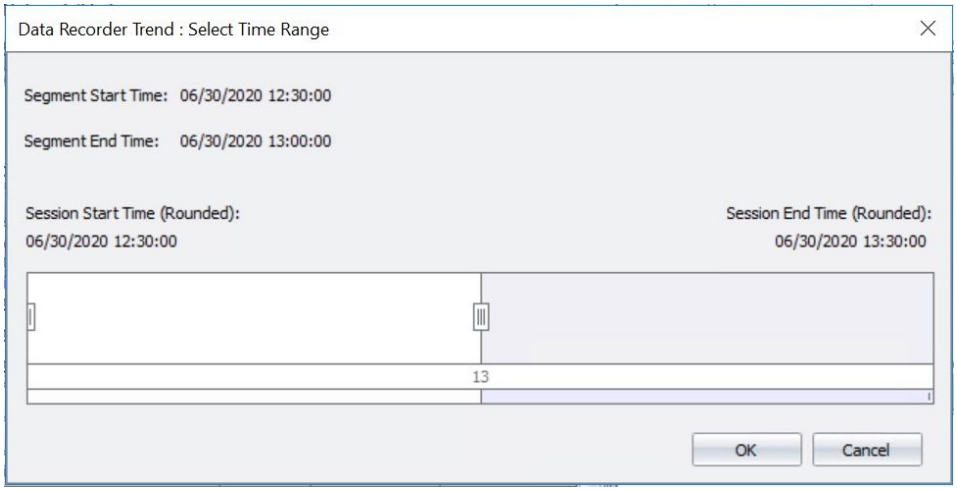
The recorded events of the HSDR data display in the Event Records box.

Figure 84. Event Records



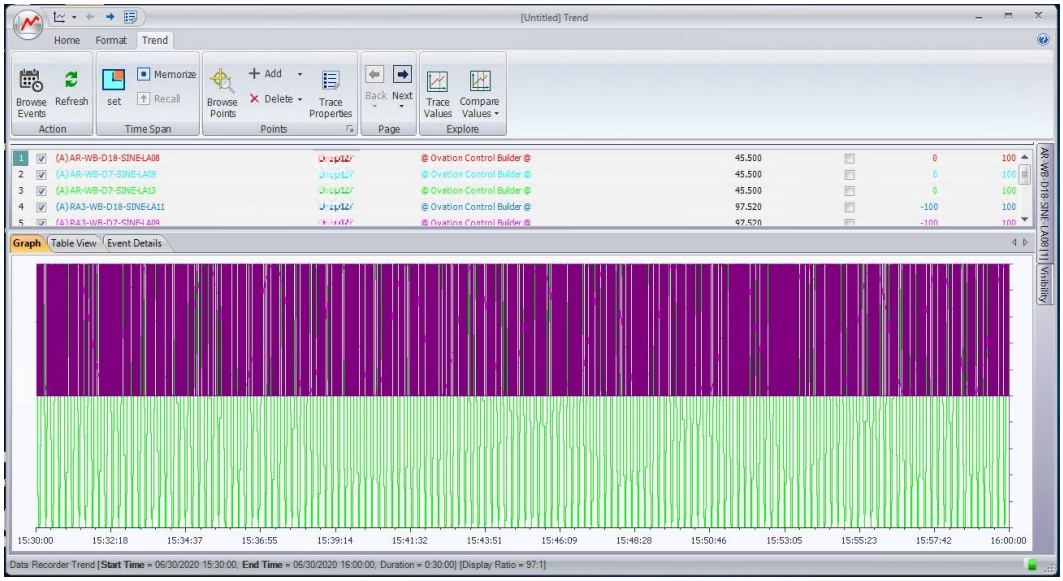
e. Double-click the event. A Data Recorder Trend: Select Time Range dialog box appears. Select the time range to view the data within that range, and then click **OK**.

Figure 85. Data Recorder Trend: Select Time Range dialog box



The HSDR Event Trend appears under the Graph tab of Ovation Trend application.

Figure 86. Viewing the HSDR Event Trend



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