Orion

Real-time Content Monitoring

Installation Guide

Installing Orion on Windows Platform

interra systems

Installation Guide for installing Orion on Windows platform.

Version: 2.0.3

Open Source Acknowledgement:

Database
Following open source database management system is required for storing the data of Orion:

- PostgreSQL 9.2

Java Libraries
Following open source Java libraries have been used in the development of Orion:

- Apache Tapestry 5.3.5
- Apache log4j 1.2.17
- Hibernate 3.6.0
- jCIFS 1.3.17
- JBoss (RestEasy) 2.0.1.GA
- Tynamo (RestEasy) 0.3.0
- Apache Commons Latest
- Apache OpenEJB 1.3
- Java Anti Template Language 0.2.2
- Protocol Buffers 2.4.1
- javatuples 1.2
- ini4j 0.5.2
- JasperReports 5.0.0

JavaScript Libraries

Following open source JavaScript libraries have been used in development of Orion:

- DOJO Toolkit 1.8

C++ libraries

Following open source C++ libraries have been used in development of Orion:

- Protocol Buffers 2.4.1
- WinPcap 4.1.3
- Boost 1.47
- SOCI 3.1.0
- cpp-netlib 0.9.4
- crashrpt 1.4.0

Additional information

WinPcap

- Copyright (c) 1999-2005 NetGroup, Politecnico di Torino (Italy)
- Copyright (c) 2005-2010 CACE Technologies, Davis (California)

For further questions and support:
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Web: http://www.interrasystems.com

Table of Contents

Chapter 1: Introduction

Media professionals from cable, satellite, broadcast, IPTV, and digital video equipment industries work with real-time Transport streams. Monitoring feeds in real time often becomes a critical factor to ensure content quality, interoperability, and standards compliance. Interra's Orion is a software-only, web-based real-time media content monitoring solution.

Orion analyzes Transport streams over IP and reports comprehensive diagnostic information, such as erroneous channels, bit rate, PCR inaccuracy, and more. The user-friendly interface makes monitoring a feed and its channles very intuitive.

Read on to know about:

- Orion Environment
- Orion Setup

Orion Environment

Orion consists of the following main components:

- Orion Manager
- Orion Monitor Unit

Orion Manager

The Orion Manager is the central component of Orion and runs as a service on a server. The Orion Manager co-ordinates the various functions of Orion and interfaces between the browser application and the Orion Monitor Units.

Orion Monitor Unit

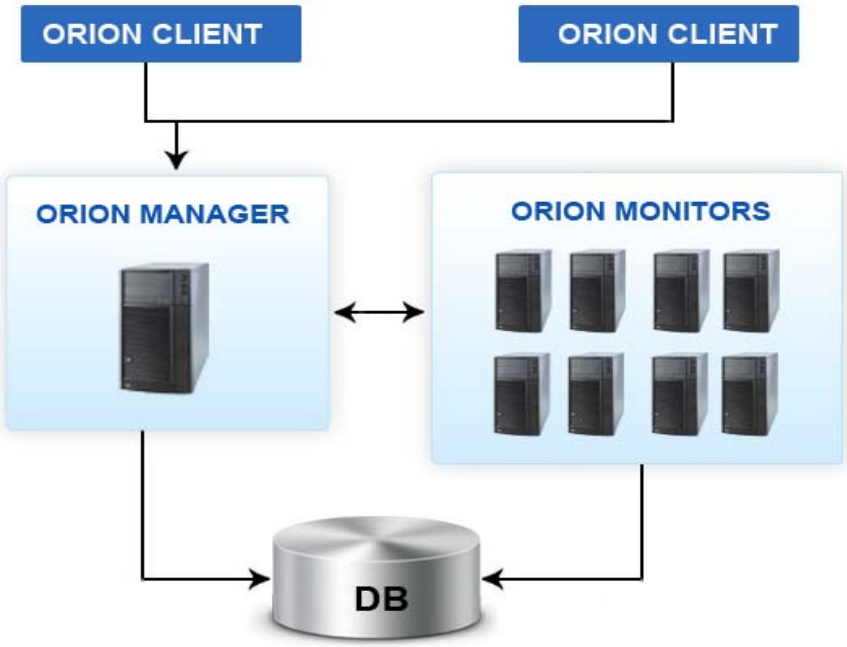
The Orion Monitor Unit is a service that runs on an independent server or on the same server where the Orion Manager is hosted. In Orion, you can have one or more Orion Monitor Units. The monitor units run the media analysis and verification tasks. Additionally, there is an application for detailed monitoring of feeds.

Note: You can access the web-based interface of the Orion application by using any standard web browser. The user interface of Orion provides a window to the various functions that you can execute.

Orion Setup

The Orion setup consists of an Orion Manager and one or more Orion Monitor Units. Both Orion Manager and Orion Monitors are connected to a central database. The Orion clients interact with the Orion Manager that forwards the monitoring tasks to various Orion Monitors.

The following illustration depicts the Orion environment.



Chapter 2: Getting Started

This chapter lets you know how to get started with installation of Orion.

Read on to know about:

- Recommended System Requirements
- System Tuning Guidelines
- Choosing the Orion Components to Install
- Planning Orion Components

Recommended System Requirements

To install Orion, your system needs the following:

- Hardware Requirements
- Software Requirements
- Database Requirements

Note: Orion is supported with 64-bit systems only.

Hardware Requirements

The hardware requirements for Orion are as follows:

	Recommended
Processor	Intel Xeon processor 6 core @ 3.5 GHz
RAM	16 GB
Disk Space	160 GB or more
Disk Speed	7200 RPM
Network/ASI Card	DekTec DTA-2162 NIC Card DekTec DTA-2160 for ASI (DTA Driver Version: 4.14.6.205) **Note:** Ensure that the DTA drivers are installed with these cards. **Note:** DekTec DTA-2160 not recommended for monitoring feeds over IP. **Note:** No extra DekTec software packages are required.
Other Requirements	15” or larger SVGA display (1042*768)

Software Requirements

The software requirements for Orion are as follows:

	Recommended Version
Operating Systems	Windows 7 Professional, 64 Bit
	Windows 2012 R2 Standard
Mozilla Firefox	41.0.1 (32 bit)
Google Chrome	45.0.2454.101 (32 bit)

Note: It is recommended to use Firefox inplace of Chrome for accessing Orion UI due to high memory usage observed in Chrome over long browser session runs.

Database Requirements

The database requirements for Orion are as follows:

	Recommended Version
PostgreSQL	9.2

Note: Since Orion uses PostgreSQL based database, therefore, while installing Orion, PostgreSQL database is installed by default. However, if you do not want to install database along with Orion, you are advised to seperately install the recommended version of PostgreSQL.

System Tuning Guidelines

In order to tune the system performance, the following settings are recommended to be done on the machine on which ORION is installed. However, these are not mandatory.

These settings are:

- **Setting Network Card Properties and Power Management options**:

1. Go to **Control Panel > Network and Internet > Network Connections**.
2. Right-click the network card and open **Properties**.
3. Click **Configure**.
4. Go to the **Advanced** tab and set the **Receive Buffers** property to either Maximum or a value of 1024.
5. Go to the **Power Management** tab and uncheck the **Allow the Computer to turn off this device to save power** option.

- **Disable Network Throttling**:

To disable throttling, change the value of the NetworkThrottlingIndex registry entry under the following registry subkey:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\ CurrentVersion\ Multimedia\ SystemProfile\

Name : NetworkThrottlingIndex

Value type : DWORD

Value data : FFFFFFFF (hexadecimal)

Restart the machine after doing this change.

For more details refer http://support.microsoft.com/kb/948066.

- **Tune Computer Power Management options**:

1. Go to **Control Panel > System and Security > Power Options**.
2. Click **Change** when the computer sleeps and set **Put the computer to sleep** option to **Never**.
3. Set the **Power Plan** to **'High Performance'**. On some machines, this will also require setting the **'System profile'** to **'High Performance'** in BIOS.

- **Disable UAC Control**:

1. Go to **Control Panel > System and Security > Action Center**.
2. Click **Change User Account Control Settings** and set the value to **Never Notify**.

- **Disable any Screen Saver functions**:

1. Go to **Control Panel > Appearance and Personalization > Personalization** and set **ScreenSaver** to **None**.

- **Enable Hyperthreading on the machine on which Orion Monitor is installed. This needs to be done from the BIOS settings.**

Choosing the Orion Components to Install

When you run the Orion Setup, you have the option of installing the following Orion components:

Components	Purpose
Orion Manager	Installs the Orion Manager service on the computer where the installer is run
Orion Monitor Unit(s)	Installs the Orion Monitor unit service on the computer where the installer is run
Orion Database	Installs Orion database service on the computer where the installer is run

Planning Orion Components

Before installing **Orion** you need to plan for the installation.

Typically, you may need to plan the following:

- Which computer would be the Orion Manager?
- Which computer would be the Orion Monitor unit?
- Which computer would have the database?

Note: In a typical Orion stand-alone installation, all Orion components can be installed on a single machine.

For more information on Orion Setups, refer Orion Setup.

Chapter 3: Installing Orion

This chapter lets you know how to install Orion and its various components.

Read on to know about:

- Installing Orion

Installing Orion

For installing Orion, you need to ensure some pre-requisites. These pre-requisites are installed automatically while installing Orion.

The various pre-requisites are:

- Microsoft Visual C++ 2010 redistributable package
- WinPcap 4.1.3
- Mozilla Firefox 41.0.1 (optional)

To install Orion:

1. Run ***OrionInstaller.exe***.

   This file has the icon  .
2. Mozilla Firefox is installed by default with Orion. However, if you do not want to install it, click the **Options** button and disable the check box for the same.
3. Click terms and conditions to agree to the license agreement.
   The **Install** button is enabled.
4. Click **Install.**
5. If WinPcap is not installed on the system, the Orion installer shows a message for installing WinPcap.
6. After installing WinPCap, Orion installation wizard opens.
7. Click terms and conditions to accept the license agreement.
8. Click **Next** to continue.
   The Orion installation starts.
9. Select the component(s) of Orion that you want to install, Orion Manager, Orion Monitor, Orion Database or all of them.

Note: By default, all the three components, Orion Manager, Orion Monitor, and Orion Database are selected for installation.

Note: Incase, you choose not to install Orion database along with the installation, you need to provide the database details of your exisiting PostGreSQL installation. For further details, refer Configuring Database Settings.

10. Incase you want to install only one component, click the drop-down of the non-required component and click **Entire Feature will be unavailable**. For example, if you want to install only Orion Manager, click drop-down of Orion Monitor and click **Entire Feature will be unavailable**. This would ensure that only Orion Manager is installed on the computer.
11. In **Location**, select the destination drive to install Orion. By default the destination drive is “C:\Program Files\”. To change the destination, click **Browse** next to Location.The **Change Destination Folder** page is displayed. Select the destination folder and click **OK**.

12. Click **Next**.
13. In **Orion Manager Port Settings**, change the port for the Orion Manager, if required. By default, it is 1729.
14. Click **Next**.
15. In **Orion Monitor Port Settings**, change the port for the Orion Monitor, if required. By default, it is 1749.
16. Click **Next**.
17. In **Orion Service Manager Port Settings**, change the port for the Orion Service Manager, if required. By default, it is 1769.
18. Click **Next**.
19. In **Orion Database Port Settings**, change the port for the Orion Database, if required. By default, it is 1789.
20. Click **Next**.
21. Click **Install**.

Note: In case the hyperthreading is disabled, your installation gets prompted with the following: **Hyper threading is off for this machine. Do you still want to continue?** Click **Yes**, if you want to resume your installation and enable the hyperthreading post installation. In case you click **No**, the installation aborts and you have to enable hyperthreading on your machine.

22. Click **Finish**.
23. After Orion is installed, the Orion Service Manager is launched in a browser. Oherwise, you can start it explicitly as well, by clicking **Start > Programs > Orion > Orion Service Manager**.
24. Once the installation is complete, you need to configure the Orion services. Refer Configuring Orion for details.

Chapter 4: Configuring Orion

After installing Orion components, you need to explicitly start the services to be able to start using the components.

Read on to know about:

- Configuring Common Settings
- Starting Orion Services
- Logging on to Orion
- Configuring Capture Interface Settings
- Configuring Orion Monitor Services
- Configuring Orion Licenses

Configuring Common Settings

You can specify common database and default storage location settings while configuring Orion. The databse settings enable you to specify the name of the database, IP address on which the database server is running, and more. You can also specify the default location settings where the recorded clips and thumbnails will be stored.

It is mandatory to configure the database and default location settings before configuring the Orion Manager services. Orion provides you default database settings. However, if you want to configure database settings as per your requirement, you can do that by performing the following steps.

Configuring Database Settings

To configure database settings:

1. Click **Start**-->**Orion**-->**Orion Service Manager**.

1. Click **Applications**-->**Orion**-->**Orion Service Manager**.

2. In **Step 1**, specify the database configuration details.

3. In **IP Address**, specify the IP address of the database server.

Note: It is recommended to use localhost or 127.0.0.1 as the IP address if the database server is installed on the same machine as Orion Manager or Monitor.

4. In **Port**, specify the port of the database server.

Note: 1789 is the default port of the database server.

5. In **Username** and **Password**, specify the login details for accessing the database.

Note: orion and admin are the default username and password respectively.

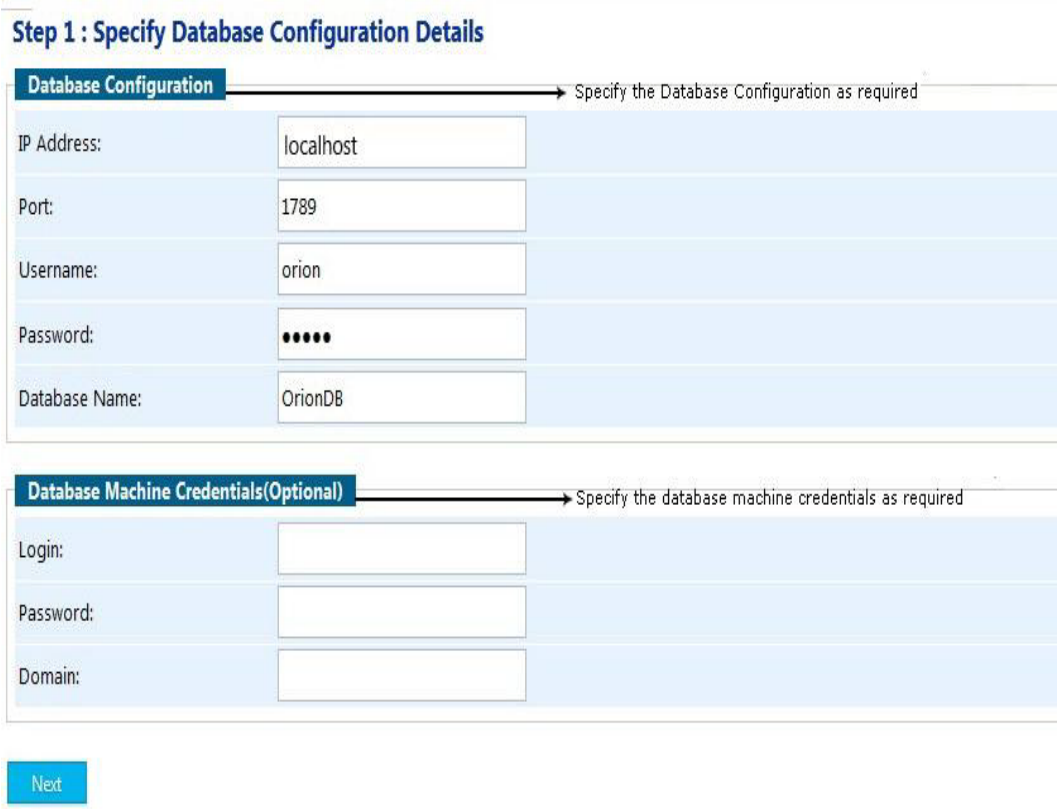
6. In **Database Name**, specify a name with which you want to identify the database.

Note: orion is the default database name.

7. In **Database Machine Credentials(Optional)**, specify the machine crdentials for the database.

Note: The **Database Machine Credentials** are required to monitor the database disk space availability and this section is available only if Orion Manager is installed on this machine.

8. Click **Next**.


Step 1 : Specify Database Configuration Details
Database Configuration
Specify the Database Configuration as required
IP Address:
localhost
Port:
1789
Username:
orion
Password:
Database Name:
OrionDB
Database Machine Credentials(Optional)
Specify the database machine credentials as required
Login:
Password:
Domain:
Next

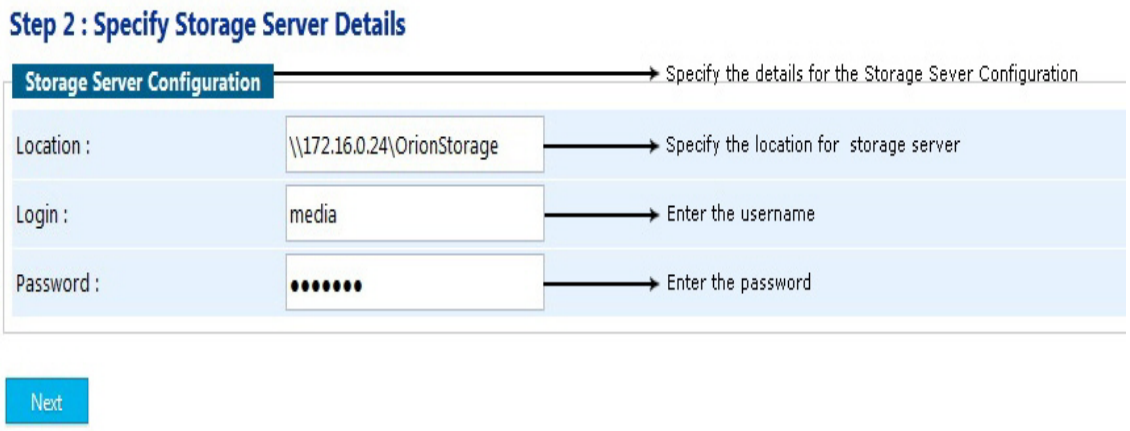
Configuring Default Storage Settings

Next, you need to configure the storage server settings:

1. In **Location**, specify the default location where you want to save the recorded clips and thumbnails.
2. In **Login** and **Password**, specify the login credentials to access this location.

Note: If you specify a local path as the default location, it will only be applied to the local Orion Monitor units.

3. Click **Next**.



Configuring Capture Interface Settings

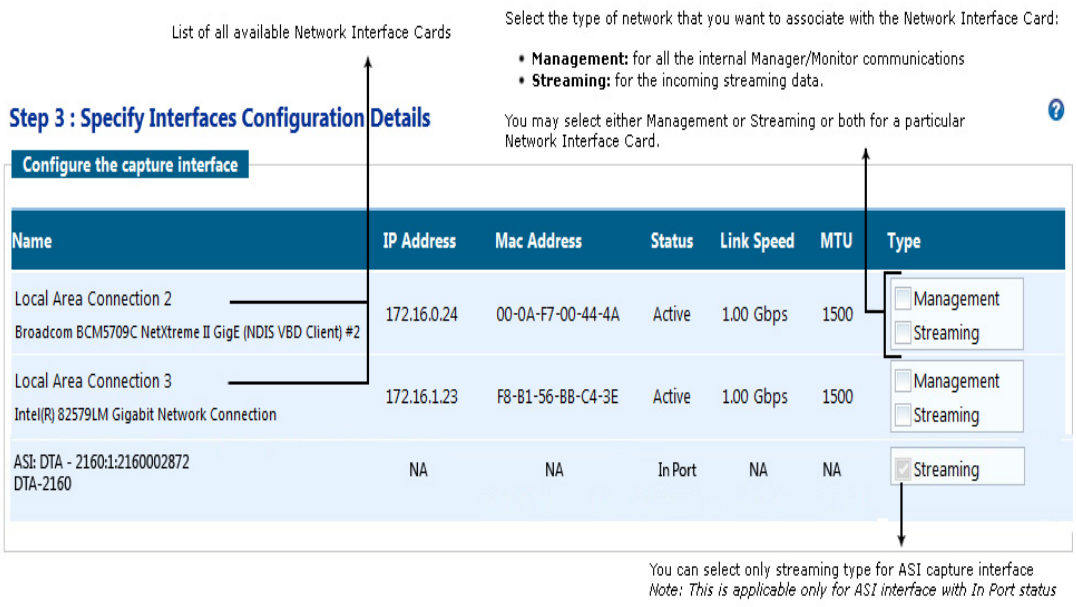
In step 3, you need to configure the capture interface settings:

In the **Type** field, select the type of network that you want to associate with the Network Interface Card:

Mangement: for all the Manager/Monitor communications
Streaming: for the incoming streaming data

Note: You may select either Management or Streaming or both for a particular Network Interface Card.

Note: You can select only Streaming type for ASI Capture Interface with In Port status.



Starting Orion Services

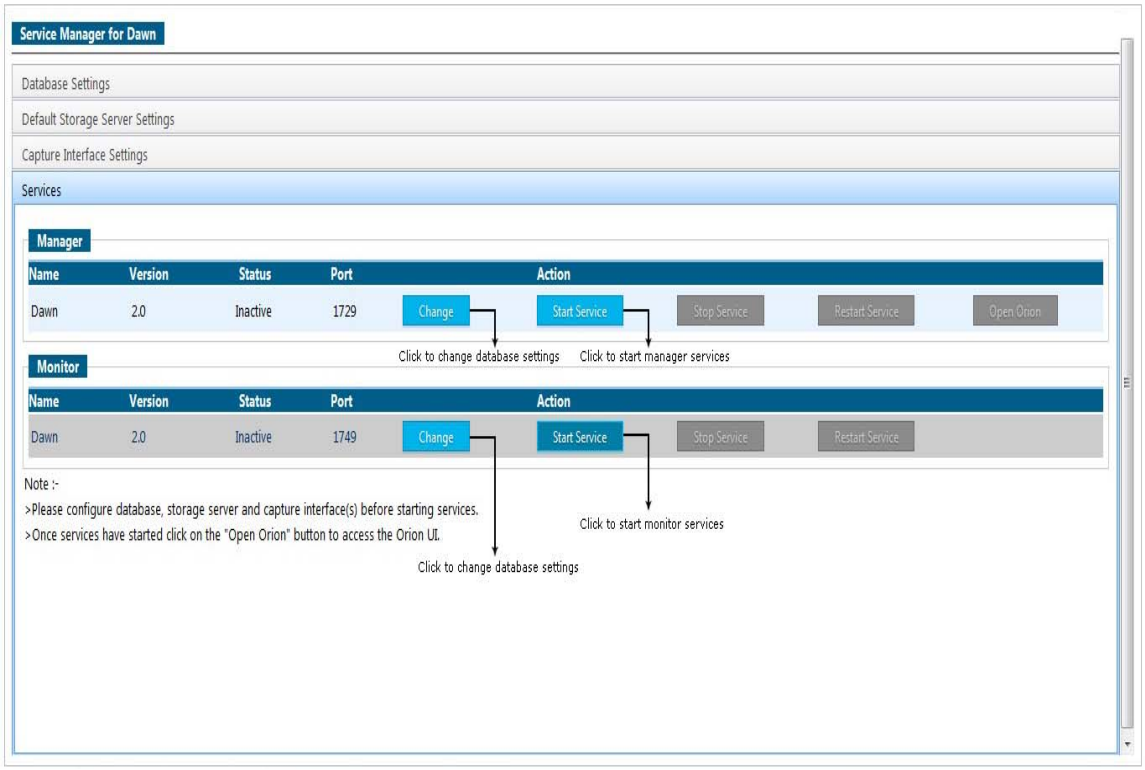
In Step 4, you need to configure the Orion Manager services and the Orion Monitor services.

Configuring Orion Manager Service

In the Manager section, click **Start Service** and wait till the **Open Orion** button gets enabled.to start the Orion Manager Service.

Configuring Orion Monitor Services

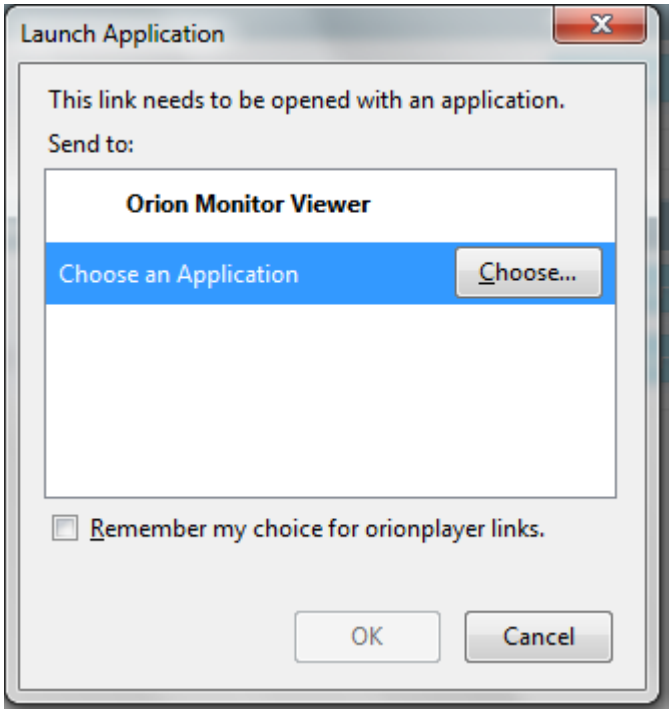
In the **Monitor** section, click **Start Service**.



Launch Orion Player Application

On starting the Orion Monitor service, a popup appears seeking permission to launch the Orion Player application. This popup differs with different browsers.

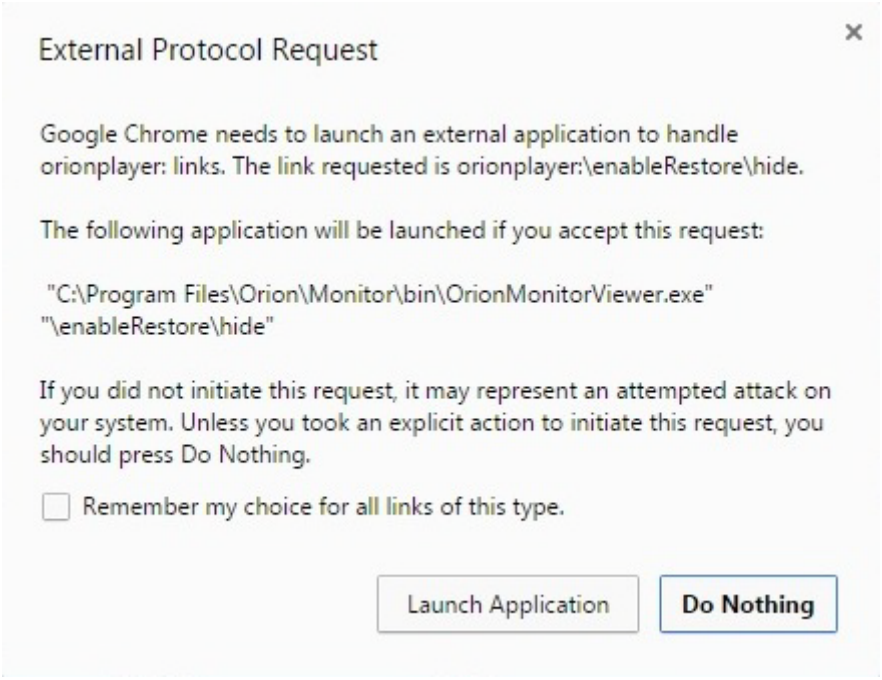
In Firefox, this popup appears as follows:



Select **Orion Monitor Viewer**, select **Remember my choice for orionplayer** links, and then **OK**.

If you do not select Remember, every time when you start the Orion Monitor service, this popup is displayed.

In Chrome, this popup appears as follows:



Select **Remember my choice for all links of this type** and click **Launch Application**.

To start using Orion, first you need to login. For further details, refer Logging on to Orion.

Logging on to Orion

To start using Orion, first you need to login. This ensures that only the authorized users access Orion. Thereby, any unauthorized access to Orion is restricted.

Orion has a default user named *admin* having an admin role. The default password of this user is admin.

The login screen of Orion is illustrated below:

To end the user session, you need to logout from the Orion UI using the logout icon on the Product toolbar.

Any user with an admin role can configure different user accounts, as required. For further details, refer **Online Help** > **Configuring Orion** > **Configuring Other System Settings** > **Managing User Accounts**.

Refer Quick Start with Orion to get started with Orion.

Configuring Orion Licenses

In order to monitor feeds using Orion, you must have valid license file.

Once you have installed Orion, you will also have to request for a license file and upload it. Ensure that you upload the correct file for the Manager and the Monitor.

This section lets you know how to request for a license and activate a license.

Read on to know about:

- Requesting for a License
- Activating the License

Requesting for a License

To request for a license:

1. First, you need to retrieve your system information. To do this:
   i. Type the URL of Orion on the browser.

      http: //<name of the computer where Orion Manager is installed>:1729 or

      http: //<IP address of the computer where Orion Manager is installed>:1729

      E.g. *http: //localhost:1729*

   ii. You can view the Licensing page of Orion.

   iii. In the **License Information** tab, click the save as CSV or text icon to save the license related infromation. Name it appropriately, such as *LicenseInfo.txt.*

2. Now, in an e-mail draft, attach the *LicenseInfo.txt* file.
3. In the e-mail text, specify the following:
   i. Name of the company
   ii. Customer name
   iii. Email ID
   iv. Phone Number
   v. Fax Number
4. Send the e-mail to orion_support@interrasystems.com.

Once you get the license, follow the steps in the section Activating the License to quickly get started with Orion and to ensure that Orion functions are executing as expected.

Activating the License

> **Note:** If you want to update the license with a new license file, you do not need to delete/ remove the older license file. You just need to upload the new license by following the steps mentioned below.

To activate the license:

1. On the title bar of the Orion display window, click the **Setup** tab.
2. Click the **Settings** tab, and then click the **License** tab.
   The status of the license is displayed.
3. Click **Upload License**.
4. In the **Upload License** window, click **Browse.**
5. From the **File Upload** window, locate the manager.zip file.

Note: You can also upload the individual license files for the Orion Manager and the Orion Monitor unit. The name of the Orion Manager license file is, `Manager.lic`, while the name of the Orion Monitor Unit license file is, `<IP Address of the Monitor Unit>.lic`.

6. Click **Upload**.

The zip file will contain license files for both Orion Manager and Orion Monitor unit.

Once the installation is complete and license is uploaded, you can quickly get started with Orion.

Chapter 5: Quick Start with Orion

Once you have installed and configured Orion, you can quickly get started.

After you upload the license zip file, it redirects you to the **Setup** > **Feeds** > **All Feeds** page.

In Orion, you can register and discover Multicast as well as Unicast and ASI Feeds. Using the **Register** button on the **All Feeds** page, you can manually register any number of Multicast feeds with Orion irrespective of their availability in the network. Alternatively, using the **Discover** button on the **All Feeds** page, you can automatically register Unicast and ASI feeds.

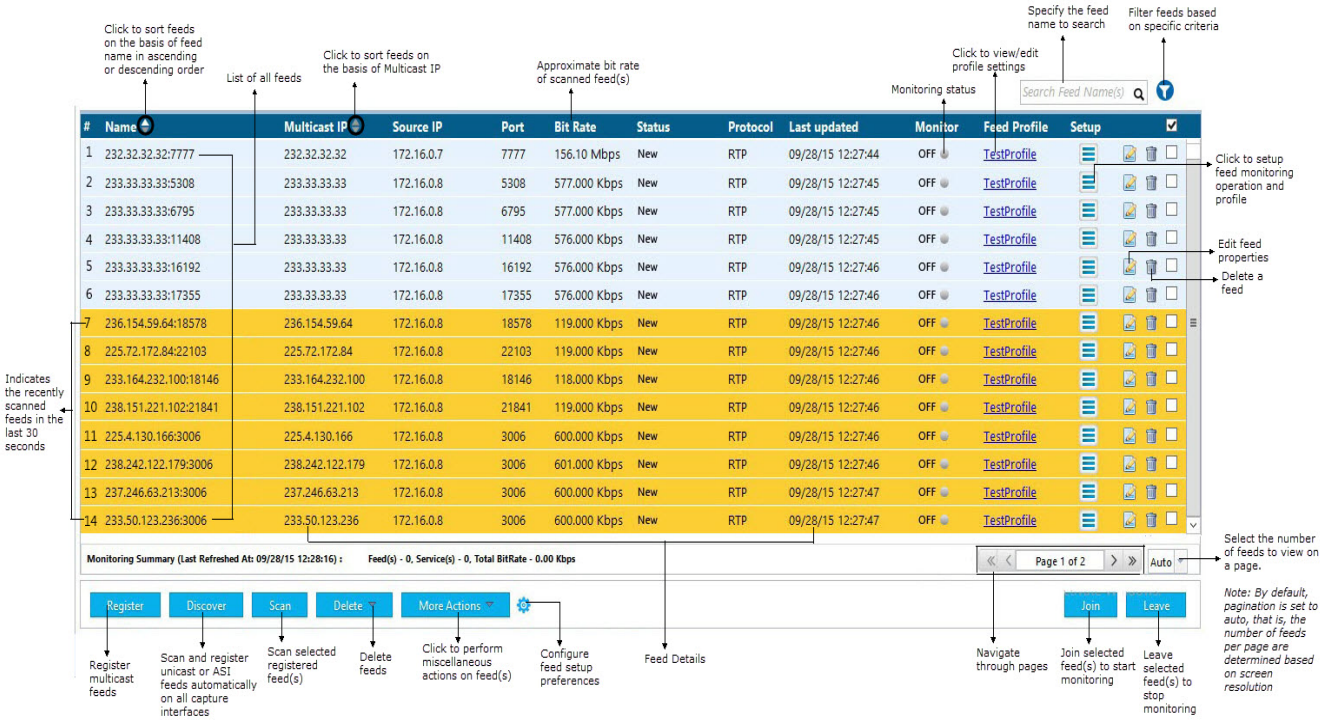
You can also scan selected registered feeds using the **Scan** button on the **All Feeds** page. This checks for presence of feeds in the network and fetches basic details of a feed, such as bitrate, protocol, services in a feed, and more.

All the feeds that Orion registers and scans are listed along with their details in the **Setup > Feeds > All Feeds** page. Now you can join or leave selected feeds to start or stop monitoring them.

To start feed monitoring:

1. In the **Setup** > **Feeds** > **All Feeds** page, click the **All Feeds** tab.
2. Select a feed for monitoring by clicking the check box against that feed.
3. At the bottom, click **Join** to start monitoring a selected feed(s).

The following illustration depicts the **All Feeds** page.



After the monitoring starts, you may click the feed name to view monitoring details of that feed or you may switch to the **Live Monitoring** tab to view monitoring details of the feeds and the services.

Note: In case, Orion Manager and Monitor units are installed on separate machines, it is recommended to register to Network Time Protocol (NTP) server to sync up the time of the Manager and Monitor(s) machines. You need to register the NTP server before you start using Orion for monitoring a feed or service. Refer **Online Help> Configuring Orion > Configuring Other System Settings > Registering NTP Server** for further details.

Read on to know about:

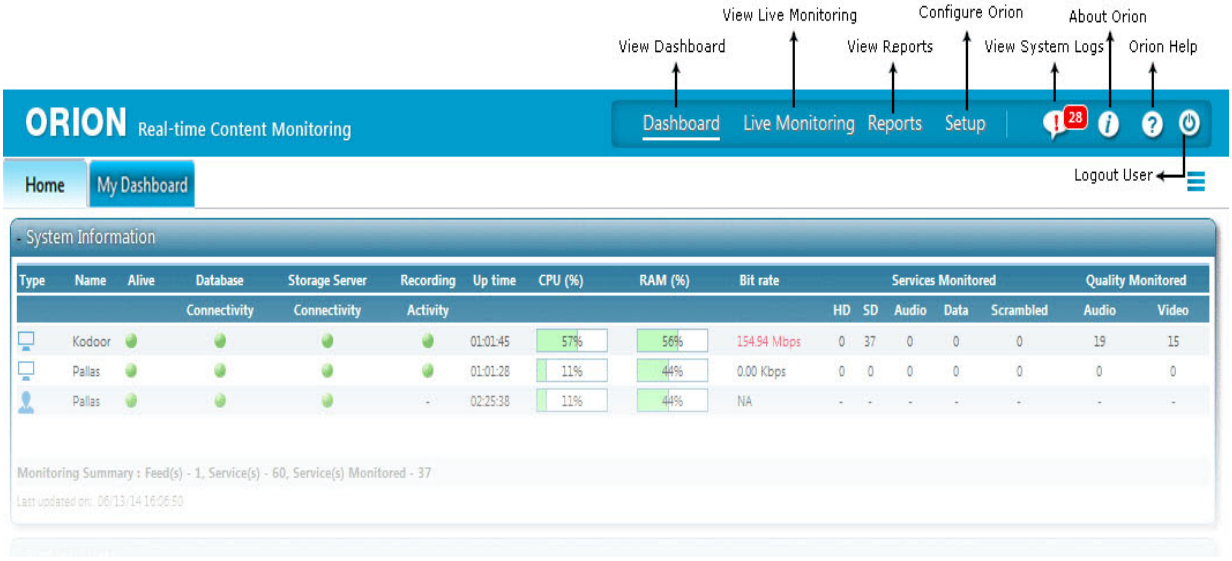
- Getting Familiar with the Interface
- Live Monitoring Using Orion
- Analyzing Alert History and Trends
- Configuring Orion

Getting Familiar with the Interface

After installing and configuring Orion components, you can start using the application and become familiar with its interface.

Orion has an intuitive and easy-to-use interface. There are many tabs that let you configure various settings and perform various functions of Orion. The interface is also customizable that enables you to choose things that you wish to view and organize them in a layout as per your needs.

The interface of Orion is depicted in the illustration below:



Overview of Different Icons:

- **Dashboard**: It is convenient way to organize information as per your priorities. With dashboard, you are constantly in touch with all the activities taking place in Orion. As you have current information all in one place, you can quickly take required action to resolve critical situations.

- **Live Monitoring**: Using Live Monitoring, you can perform comprehensive monitoring of a feed and its services. At feed level, you can view details of a feed and its services, IP statistics, transport statistics, error messages, and graphical representation of various data of a feed. At service level, you can view details of all services, elementary streams, and other embedded data, such as Closed Caption, DVB Subtitle, and Teletext. You can also control various monitoring functions at feed, service, and elementary stream level.

- **Reports**: Orion generates rich reports for both real-time and logged data. You can create filter(s) to search, view, and analyze the alerts. You can export the alerts in a PDF or XML format and also send them through email. Moreover, you can analyze the trends and anomalies by comparing the services or PIDs of a feed. Orion generates reports on the basis of the data management settings.

- **Setup**: You need to configure various settings before you actually set Orion to start its monitoring function. You can configure Orion for various settings related to feeds, alerts and checks (profiles), and system settings, such as SNMP, e-mail, FTP, and so on.
- **System Logs**: Orion displays critical system information in the System Logs window. You can view system alerts as well as user activities in this window. You can export the system alert log or the user activity log.
- **About Orion**: About Orion's version and update history.
- **Online Help**: A comprehensive help document to enable you understand the features and functionalities of Orion.
- **Context- Sensitive Helps**: Just-in time context sensitive help for understanding the functionality of every window in Orion.
- **Logout**: Logout current user from Orion UI.

Live Monitoring Using Orion

Using Orion, you can analyze real-time monitoring information of the feeds and services that are currently being monitored. You can examine monitoring details of all feeds and services or a specific feed or service.

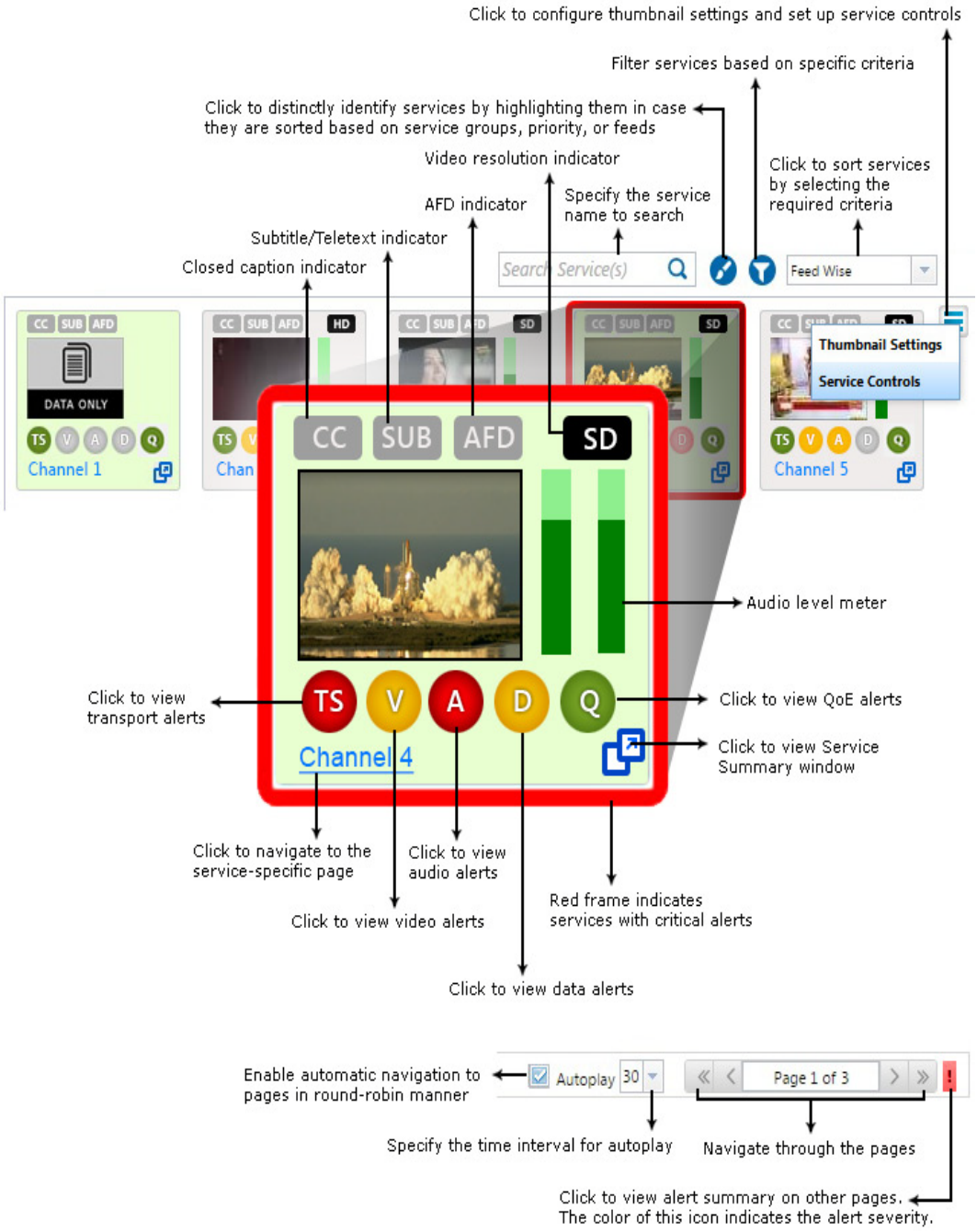
Using Live Monitoring:

- At feed level, you can view details of a feed and its services, IP related information of the feed, PID information, alerts, real-time graphs, and alert timeline of a feed.
- At service level, you can view details of all services, elementary streams, and other embedded data, such as Closed Caption, DVB Subtitle, and Teletext. Moreover, you can view thumbnails of the services with various indicators, bit rate details of every PID, graphs of vital data, and comprehensive alerts for the services.
- You can control various monitoring functions at feed, service, and elementary stream level.
- You can also view live monitoring details on Orion dashboards as well.

For accessing Orion Live Monitoring view, click **Live Monitoring** on the title bar.

Note: For further details, refer **Online Help** > **Live Monitoring Using Orion**.

The following illustration depicts the services in the live monitoring view of Orion.



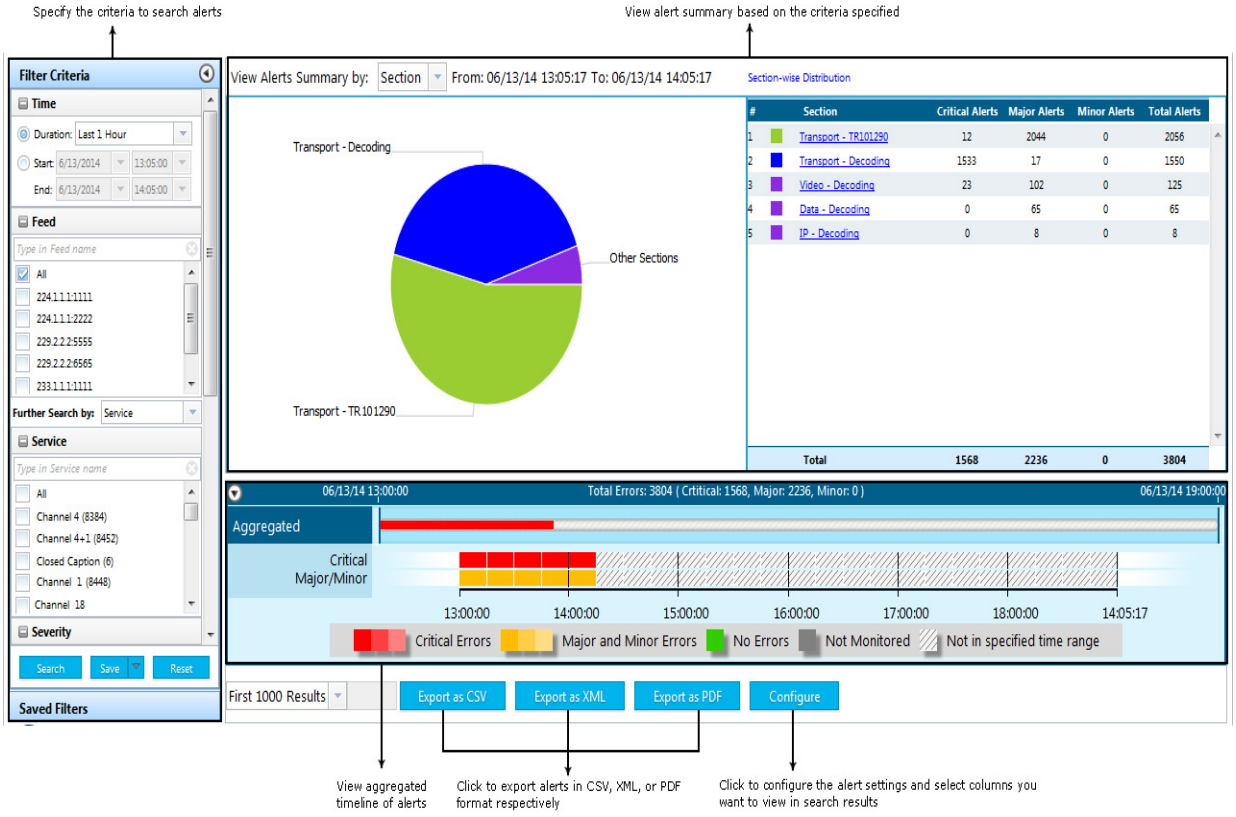
Analyzing Alert History and Trends

Orion generates rich reports for both real-time and logged data. Orion stores all the monitoring data in a database, which can be used to generate detailed reports, do root-cause analysis, and ascertain the quality of your content delivery.

You can create customized alert reports, export them to multiple formats such as PDF and XML. Apart from the alert history, you can analyze different trends and anomalies such as Most Erroneous Feeds/Services, Most Common Alerts, Bitrate, and Loudness.

Orion can store the monitoring data up to a maximum of 60 days.

The following illustration depicts analyzing alerts:



Note: For further details, refer **Online Help** > **Analyzing Alert History and Trends**.

Configuring Orion

Before you get started with monitoring of feeds and services, you need to configure Orion for various settings related to feeds, alerts and checks (profiles), and system settings, such as SNMP, e-mail, FTP, and so on.

To set up alerts and checks, you need to select one of the default profiles or create a new profile. A profile defines what needs to be checked while monitoring a transport feed. It includes sections (such as transport, video, audio, data, IP) to set up the monitoring checks, set up alerts, and define error rules. Orion monitors a feed and generates alerts and error messages on the basis of the settings defined in a profile.

Orion provides a built-in profile called **TestProfile**. You can either select the **TestProfile** or refer this profile to create a new profile based on your requirement.

Note: For further details, refer **Online Help** > **Configuring Orion**.

Chapter 6: Uninstalling Orion

This chapter lets you know how to uninstall Orion.

To remove Orion:

1. Run ***OrionInstaller.exe***.
2. In the Orion Setup wizard, click the **Next** button.
3. Select the **Remove** option.
4. Click the **Remove** button to start the uninstall process.
5. Click **Yes** to delete the application data else click **No**.
6. Follow the instructions in the section Planning Orion Components to run Orion as a fresh installation.

Technical Support

Orion team strives to continuously provide assistance to its customers. The Orion technical support team is always there to troubleshoot specific issues that you face in using Orion. There are various ways in which you can get in touch with the Orion team.

For 24-hour technical support:

- Email Technical Support at: orion_support@interrasystems.com
- Visit our Website: http://www.interrasystems.com