



X-IO Training Center

Information Sheet

Training location:

X-IO Corporation
9950 Federal Drive, Suite 100 Colorado Springs, CO 80921
1-866-472-6764

www.XIOstorage.com

Introduction

X-IO wants you to get the most out of your training experience. To that end, we have created this Course Information Sheet to provide information specific to X-IO's corporate training location.

The dates for the training class are listed on the X-IO web site under Support / Training and E- Learning. The training class will be canceled and rescheduled if less than 10 students register. The X-IO Training coordinator will contact all registered students by phone and/or email 3 weeks prior to the class start date if the class is going to be cancelled and rescheduled.

X-IO is not responsible for reimbursement of the following expenses:

- Air or ground travel
- Lodging
- Or other expenses due to reservations or bookings.

What's Included

The following are included in this Course Information Sheet:

- Which airports to fly into
- How to get to the training site from the airport
- Where the hotels are in the area
- Training Information
 - Training times
 - Training Expectations
 - What we teach
 - What we do not teach
 - Guidelines for Class Evaluation and Feedback
- Course Syllabus

Which airports to fly into

If you have to fly in to attend the training, one option is the Colorado Springs Airport. The airport code is **COS** and the airport home page can be found at <http://www.springsgov.com/AirportIndex.aspx>. The airport address is 7770 Milton E. Proby Parkway, Colorado Springs, CO 80916. The phone number is 719-550-1972. It is about a 25-minute drive from the Colorado Springs airport to X-IO (18 miles).

The other option is to fly in to Denver International Airport (DIA). The airport code is **DEN** and the home page is <http://flydenver.com/>. The airport address is 8500 Peña Blvd, Denver CO, 80249. The phone numbers are 800-247-2336 or 303-342-2000. It is about an 80-minute drive from DIA to X-IO (75 miles).

It is **HIGHLY RECOMMENDED** that you rent a car when you come to X-IO for training. There are no hotel shuttles from either airport to X-IO's offices. A cab ride from the Colorado Springs Airport to X-IO is about \$40. A cab ride from Denver is about \$150 (one way). Rental cars are available from each airport. In the Colorado Springs Airport, the rental car counters are in the baggage claim area.

All rental car companies at DIA are located on airport property but are away from the main terminal. Each rental company provides a courtesy shuttle to and from Jeppesen Terminal Level 5, Island 4, outside doors 505-513 (east side) and 504-512 (west side). If you are arriving in Denver, follow the overhead signage for the appropriate pick-up location, or check in at your company's counter in the center of Terminal 3.

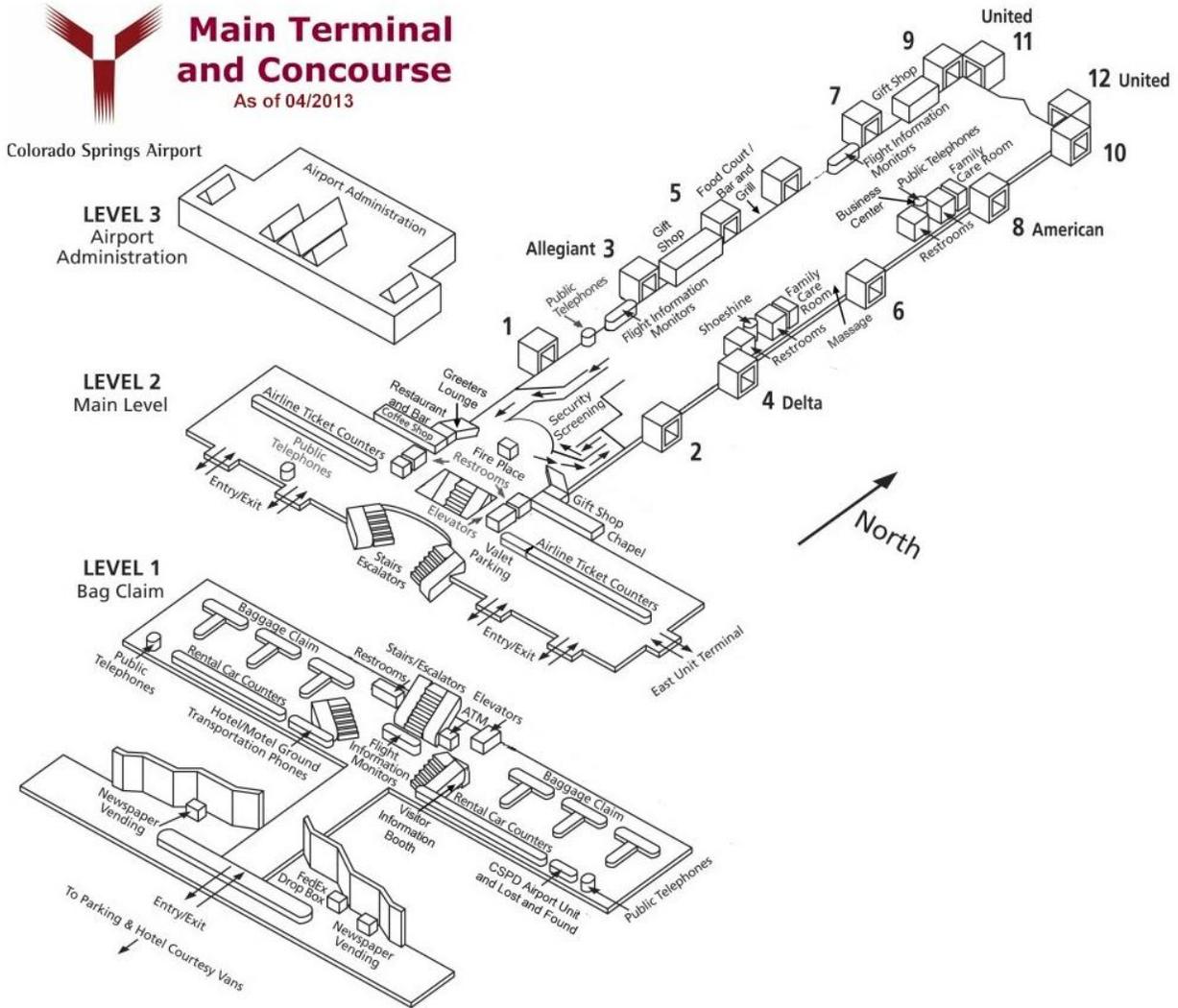
The following rental car agencies operate at the Colorado Springs Airport and DIA.

Rental Car Agencies at the Colorado Springs Airport and DIA		
Company	Phone Number	Web Site
Advantage	1-800-777-5500	www.advantage.com
Alamo / National	1-800-222-9075	www.alamo.com
Avis	1-800-633-3469	www.avis.com
Budget	1-800-218-7992	www.budget.com
Enterprise	1-800-261-7331	www.enterprise.com
Hertz	1-800-654-3131	www.hertz.com
National	1-800-222-9058	www.nationalcar.com

The following additional rental car agencies operate at DIA.

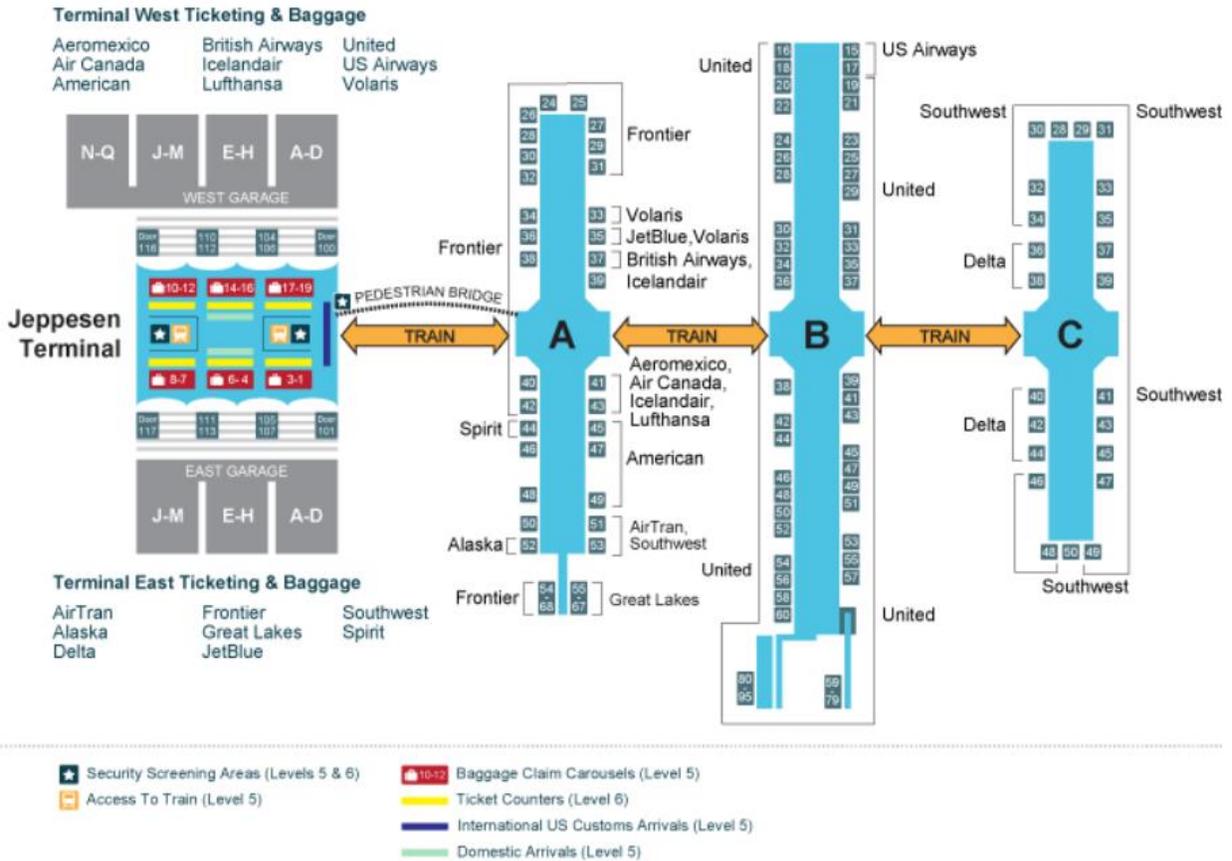
Additional Rental Car Agencies at DIA		
Company	Phone Number	Web Site
Dollar	1-800-800-4000	www.dollar.com
Payless	1-800-729-5377	www.paylesscar.com
Thrifty	1-800-847-4389	www.thrifty.com

Below is a map of the Colorado Springs Airport.



Below is a map of the Denver International Airport.

AIRPORT LAYOUT



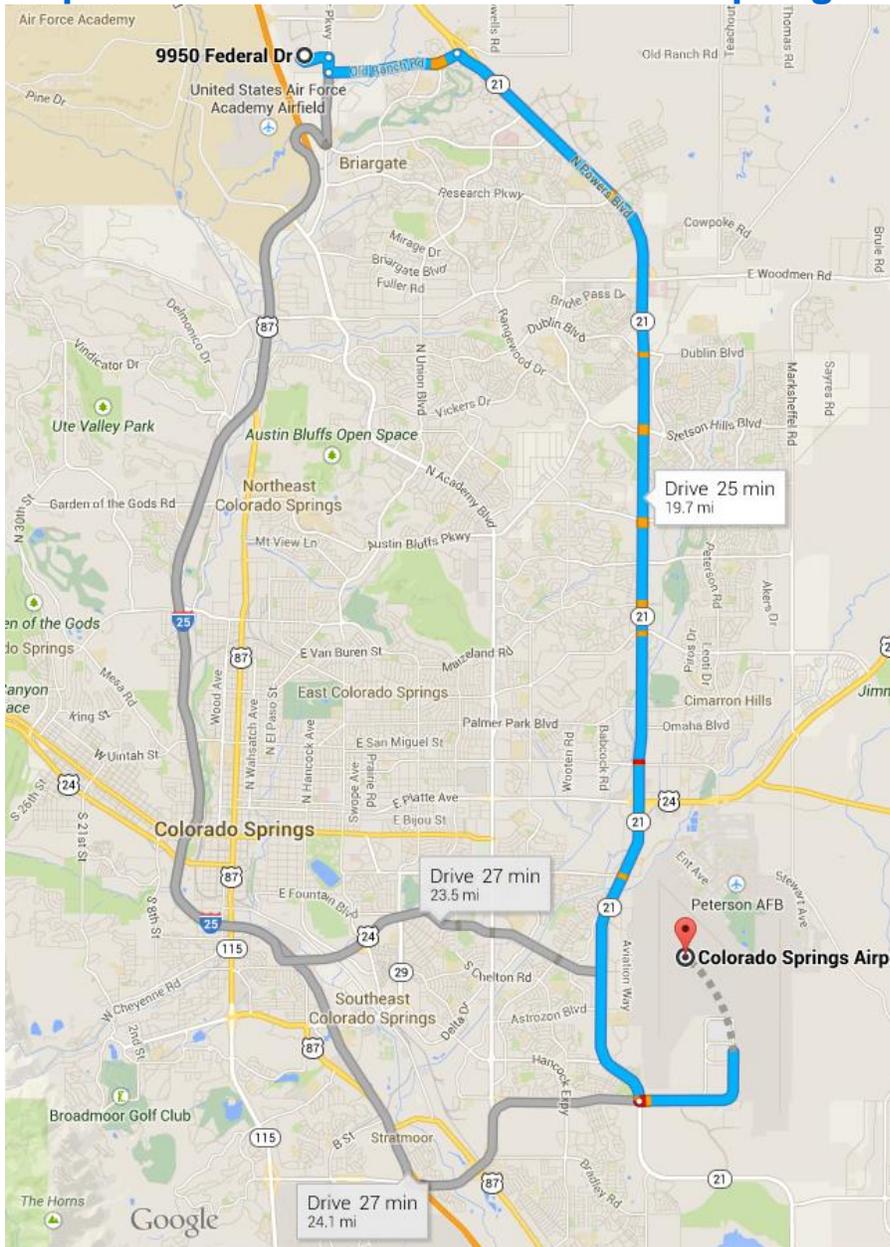
How to get to the training site from the airports

Our Colorado Springs office is located approximately 20 miles north of the Colorado Springs Airport. The major highway you will take to get to X-IO is I-25 North.

Directions from the Colorado Springs Airport to X-IO:

Take **Drennan Road** west to **Academy Blvd**. Turn left on Academy Blvd. to **I-25 North**. Go north on I-25 for 14 miles. Take exit #153 **Interquest Parkway** to **Federal Drive**. Take a right at Federal Drive. Go about 3 blocks, past the 2 hotels, then turn left into the office complex (drive past the 2 hotels) to find X-IO at 9950 Federal Drive.

Map of the route from the Colorado Springs Airport to X-IO



Hotels

Two hotels are within walking distance of X-IO. Other hotels are in the area, but these two are the most convenient. Both hotels offer a discount if staying for X-IO business: mention X-IO when making your reservation.

Hampton Inn & Suites, 1307 Republic Drive, Colorado Springs, CO 80921, 719-598-6911

Residence Inn (Marriott), 9805 Federal Drive, Colorado Springs, CO 80921, 719-388-9300

Restaurants

Please ask the front desk of your hotel for a list of area restaurants. This list has the potential of changing too frequently for us to maintain.

Site Particulars

First Day of Class

On the first day of class, enter through the main lobby on the east side of the X-IO building. There are several guest parking spots in front of the main lobby entrance. You will be required to create a guest badge after signing in on the roster sheet, and will create a new guest badge each day. The receptionist can assist you with this. Five to ten minutes before the class starts, an X-IO employee will show you to the training facility.

Training Information

The following is information specific to training at X-IO.

Training Times

X-IO is in the Mountain Time Zone. All times referenced are in Mountain Time. Daylight saving time is observed in Colorado.

Class will start at 9:00 a.m. and will typically break for lunch at noon. Class will resume at 1:00 p.m. and proceed until 5:00 p.m. each day. It is possible that class will let out early on the last day as most material is covered in time. For those who have to fly out, please do not plan on a flight any earlier than 6:30 p.m. This of course will vary depending on whether you fly out of the Colorado Springs Airport or DIA.

Training Expectations

X-IO endeavors to exceed your expectations during the training. This class is primarily focused on the features and functionality of X-IO's family of storage products. We may remove components on the system while it is running, are willing to test various failure scenarios, and want you to be as familiar with the system as possible before you leave.

Training Materials

X-IO has developed the training materials that you will be given in class. Each student receives one physical copy. It is not X-IO's policy to provide the training materials electronically nor do we supply additional copies. The training materials become the property of the students, so please feel free to take notes on the material as you deem necessary.

What We Teach

Because we cannot cover all of the different operating systems possible in customer environments, we have chosen to work with Windows 2008, Windows 2012, and VMware during the class. If you have specific environment needs, please contact X-IO Training to address your concerns before you attend class.

What We Do Not Teach

Because this is an X-IO product-specific class, we do not spend time on switch-connectivity details, the configuration of switches, etc. We do not expect the instructors to be able to provide switch-level training, but we encourage instructors to provide instruction on anything beyond the X-IO storage system with which they are comfortable. For example, some time may be spent on switch configuration as long as the X-IO material is covered completely.

Guidelines for Class Evaluation and Feedback

Your instructor will provide an evaluation form at the end of the training. Please respond to this form as honestly as you can. We value your feedback. If you prefer direct feedback or have any other questions or concerns, contact X-IO at 1-866-472-6764.

If you have any concerns about the delivery of the class during the training, please do not hesitate to contact the instructor and express your concerns.

Certified X-IO Engineer (CXE) Installation Professional (IP)–ISE Storage System

Course Syllabus:

X-IO Technical Education provides a comprehensive 4-day training that enables X-IO customers and installation partners to install an ISE Storage System solution. The course will cover ISE Technology overview, installation, Fibre Channel & iSCSI overview, and implementation within the ISE storage environment. The course also includes the new ISE Mirror Manager and ISE Manager storage provisioning services along with the Virtual View plug-in for managing VMware and Citrix and Microsoft Hypervisor storage requirements.

Intelligent Storage Element (ISE) Overview

<p>Objectives</p> <ul style="list-style-type: none"> ▪ Be familiar with X-IO Technologies and storage models. ▪ Understand basic terminology associated with the Intelligent Storage Element (ISE). ▪ Define the six foundational storage issues the ISE helps resolve in the Data Center. ▪ Explain the benefits of ISE storage. ▪ Recognize each hardware component in an ISE and describe what each component does. ▪ Define what Managed Reliability is and how it works in a DataPac. ▪ Define the different types of DataPacs available in an ISE. 	<p>Content</p> <p>Terminology such as an ISE, MR, MRC, and DataPac are discussed so everyone in the class knows what those terms mean.</p> <p>Review what each hardware component in an ISE does.</p> <p>Provide a high-level overview of the six foundational storage issues addressed by ISE.</p> <p>Analyze how data is striped across a DataPac.</p> <p>Look at the current types of DataPacs available in an ISE and what each type is best suited for.</p>
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Install and Initial Setup

<p>Objectives</p> <ul style="list-style-type: none"> ▪ Properly cable and power on the ISE. ▪ Set the initial IP information for the ISE. ▪ Log in and initialize the ISE from the web interface. ▪ View the overall health of the system and verify its IP information. ▪ Set up company information as well as the system clock. ▪ Create volumes on the ISE. 	<p>Content</p> <p>Correctly cable and power up the ISE.</p> <p>From the CLI, configure the network interface parameters for this ISE and initialize the ISE.</p> <p>Log in to the web user interface and view the system status after initial installation.</p>
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Fibre Channel and iSCSI Overview

<p>Objectives</p> <ul style="list-style-type: none"> • Define Fibre Channel and iSCSI. • Describe the roles of World Wide Name (WWN), Host Visual ID (HVID), Logical Unit Number (LUN) and NAA (VMware’s unique identifier). • Describe Fibre Channel and iSCSI in the ISE environment. 	<p>Content</p> <p>Understand Fibre Channel and iSCSI and its implementation within an ISE environment.</p>
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ISE Storage–Provisioning Storage Using ISE Web Interface and ISE Manager Suite

<p>Objective</p> <ul style="list-style-type: none"> • Define what ISE Manager Suite is and define its role in managing an ISE. • Install ISE Manager Suite on a Windows server. • Create SAN-Groups in ISE Manager Suite. • Use Storage View or Server View to provision storage for one or more ISEs. • View throughput statistics from ISE Manager Suite. • View environmental variables from ISE Manager Suite. • Provide an overview of server ecosystems. • Upgrade the firmware on the ISE-200 or ISE-700 using ISE Manager Suite. 	<p>Content</p> <p>Define ISE Manager Suite and show how it can be used to manage ISEs.</p> <p>Determine on what types of servers ISE Manager Suite can be loaded to manage ISE storage.</p> <p>Create a SAN Group to manage the ISEs.</p> <p>Create ISE volumes and assign those volumes to a server.</p> <p>Shrink or expand volumes from server view.</p> <p>Copy the ISE Manager Suite configuration from one server to another server.</p> <p>Use physical view to monitor all the ISE components.</p> <p>Use performance view to monitor throughput by volume or by ISE.</p>
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MultiPathing Overview

<p>Objective</p> <ul style="list-style-type: none"> • Define MultiPathing for storage: MPIO (MultiPath Input Output). • Understand the importance of multipathing in the ISE storage environment. • Understanding Failover Failback (FOFB). 	<p>Content</p> <p>Install ISE MultiPath on Windows 2008.</p> <p>Configure Widows 2012 native MPIO.</p> <p>Review the <i>ISE Best Practices and Configuraiton Guide</i> that has different operating system multipath preferred settings.</p>
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Monitoring the ISE Storage

<p>Objectives</p> <ul style="list-style-type: none"> • Change the administrator password. • View the environmental conditions of each piece of hardware. • Display and download the log file. • Check the performance from each LUN connected to the ISE. • Enable and test ActiveWatch on your newly installed ISE. 	<p>Content</p> <p>Change the administrator password.</p> <p>View the environmental conditions.</p> <p>Run traffic against each LUN that was created with the ISE web interface.</p> <p>Fail one of the controllers and note the performance while an MRC is failed.</p>
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Servicing the ISE Storage

<p>Objective</p> <ul style="list-style-type: none"> • Identify/locate each of the components in the ISE. • Review the status indicators for each piece of hardware. • Review the ISE firmware upgrade process. • Upgrade the MRC firmware on the MRCs in the ISE. • Remove and replace each of the components in an ISE. 	<p>Content</p> <p>Identify/locate each of the components in the ISE. Review the status indicator lights and what each light represents on each component. Upgrade the ISE using the Web User Interface, the CLI, and ISE Manager Suite. Remove and replace each hardware component: SFP, power supply, supercap, MRC, and DataPac.</p>
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ISE Mirror Manager

<p>Objective</p> <ul style="list-style-type: none"> • Define what the ISE Mirror Manager is and what it does. • Define how to set up mirroring using the ISE Mirror Manager. • View information obtained from the ISE Mirror Manager. 	<p>Content</p> <p>ISE Mirror Manager will be installed locally on a management system. Provide an overview of ISE Mirror Manager. Provide step-by-step instructions on how to create mirrors, and copies</p>
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ISE X-Volume

<p>Objective</p> <ul style="list-style-type: none"> • Define what the ISE X-Volume is and what it does. • Define how to set up ISE X-Volume. 	<p>Content:</p> <p>ISE X-Volume will be installed on a host-client system. Provide an overview of host-client and ISE Manager Suite X-Volume. Provide step-by-step instructions on how to create X-Volume LUNs.</p>
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