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

X-IO Technical Education provides a comprehensive 4-day training class that enables X-IO customers and installation partners to install an ISE Storage System solution. The course will cover ISE pre, physical, and logical installation including multipath configuration. Fibre Channel and iSCSI overview and how to implement within the ISE storage environment. The course also includes the ISE Mirror Manager, ISE Manager Suite, vCenter plug-in and X-Volume installations.

## Course Syllabus :

**Intelligent Storage Element (ISE) Overview**

| Objectives | Content |
|---|---|
| ▪ Be familiar with X-IO Technologies and storage models.<br>▪ Understand basic terminology associated with the Intelligent Storage Element (ISE).<br>▪ Recognize each hardware component in an ISE and describe what each component does.<br>▪ Define the different types of DataPacs available in an ISE. | Terminology such as an ISE, MR, MRC, and DataPac are discussed so everyone in the class knows what those terms mean.<br>Review what each hardware component in an ISE does.<br>Look at the current types of DataPas available in an ISE and what each type is best suited for. |

**Pre-install**

| Objectives | Content |
|---|---|
| ▪ Understand what is necessary to install an ISE.<br>▪ Use pre-install checklist to gather appropriate power, cooling, networking and space requirements for ISE installations. | Correctly determine what space, power and networking resources are needed before the installation time. |

**Physical install**

| Objectives | Content |
|---|---|
| ▪ Properly unpack and prepare each ISE to rack.<br>▪ Safely and correctly rack each ISE.<br>▪ Unpack and install the DataPacs into the ISE.<br>▪ Properly cable and power on the ISE.<br>▪ Log in and set the initial IP information for the ISE using the ISE console port.<br>▪ Initialize the ISE.<br>▪ Verify Ethernet connectivity using the ISE Web user interface. | Correctly cable and power up the ISE.<br>From the CLI, configure the network interface parameters for this ISE and initialize the ISE.<br>For the Fibre Channel ISE log in to the web user interface and view the system status after initial installation. |

**Fibre Channel and iSCSI Overview**

| Objectives | Content |
|---|---|
| • Define Fibre Channel and iSCSI.<br>• Describe the roles of World Wide Name (WWN), Host Virtual ID (HVID), Logical Unit Number (LUN) and NAA (VMware's unique identifier).<br>• Describe Fibre Channel and iSCSI in the ISE environment. | Understand Fibre Channel and iSCSI and its implementation within an ISE environment. |

**Logical install**

| Objectives | Content |
|---|---|
| ▪ View the overall health of the system and verify its IP information.<br>▪ Set up company information as well as the system clock.<br>▪ Configure the Fibre Channel switches for ISE to host connectivity.<br>▪ Configure the iSCSI IOnet ports for network connectivity.<br>▪ Create host on the ISE.<br>▪ Create volumes on the ISE and present to host. | Correctly cable and power up the ISE.<br>From the CLI, configure the network interface parameters for this ISE and initialize the ISE.<br>For the Fibre Channel ISE log in to the web user interface and view the system status after initial installation. |

**MultiPathing Overview**

| Objective | Content |
|---|---|
| • Define MultiPathing for storage: MPIO (MultiPath Input Output).<br>• Understand the importance of mulitpathing in the ISE storage environment.<br>• Understanding Failover Failback (FOFB). | Install ISE MultiPath on Windows 2008.<br>Configure Widows 2012 native MPIO.<br>Review the *ISE Best Practices and Configuration Guide* that has different operating system multipath preferred settings. |

**Servicing the ISE Storage**

| Objective | Content |
|---|---|
| • Identify/locate each of the components in the ISE.<br>• Review the status indicators for each piece of hardware.<br>• Review the ISE firmware upgrade process. | Identify/locate each of the components in the ISE.<br>Review the status indicator lights and what each light represents on each component. |

**Familiarize with ISE Web Interface and ISE Manager Suite**

| Objective | Content |
|---|---|
| • Define what ISE Manager Suite is and define its role in managing an ISE.<br>• Install ISE Manager Suite on a Windows server.<br>• Create a SAN-Group in ISE Manager Suite.<br>• Use Storage View or Server View to provision storage for one or more ISEs.<br>• View environmental variables from ISE Manager Suite.<br>• Upgrade the firmware on the ISE-200 or ISE-700 using ISE Manager Suite. | Define ISE Manager Suite and show how it can be used to manage ISEs.<br>Create a SAN Group to manage the ISEs.<br>Create ISE volumes and assign those volumes to a server.<br>Backup the ISE Manager Suite configuration and then import it.<br>Use physical view to monitor all the ISE components. |

**Monitoring the ISE Storage**

| Objectives | Content |
|---|---|
| • Change the administrator password.<br>• View the environmental conditions of each piece of hardware.<br>• Define what ActiveWatch / Subscriptions are. | Change the administrator password and view the environmental conditions.<br>Enable and test ActiveWatch on your newly installed ISE. |

**Servicing the ISE Storage**

| Objective | Content |
|---|---|
| • Identify/locate each of the components in the ISE.<br>• Review the status indicators for each piece of hardware.<br>• Review the ISE firmware upgrade process.<br>• Upgrade the MRC firmware on the MRCs in the ISE. | Identify/locate each of the components in the ISE.<br>Review the status indicator lights and what each light represents on each component.<br>Upgrade the ISE using the Web User Interface, the CLI, and ISE Manager Suite.<br>Remove and replace each hardware component: SFP, power supply, supercap, MRC, and DataPac. |

**ISE Mirror Manager**

| Objective | Content |
|---|---|
| • Define what the ISE Mirror Manager is and what it does.<br>• Install Mirror Manager and Witness. | ISE Mirror Manager will be installed locally on a management system.<br>Provide an overview of ISE Mirror Manager and Witness. |

**ISE X-Volume**

| Objective | Content: |
|---|---|
| • Define what the ISE X-Volume is and what it does.<br>• Define how to set up ISE X-Volume. | ISE X-Volume will be installed on a host-client system. |