Distech Controls Training

End User EC-NET^{AX} Familiarization Training

Certification Course # 5101

Introduction

The #5101 course has been developed to address the needs of the End User.

This in-class training introduces and describes key concepts and knowledge about the Niagara^{AX} framework and the EC-NET^{AX} software, and provides the hands-on opportunities needed to familiarize operators with the basic functions of the Niagara^{AX} framework.

Functions of interest to the operator are covered: fundamentals of building applications, creating proxy points, tracking runtime, scheduling, trending, alarming, and basic front-end graphics. Basic field bus integrations are covered in an easy and convenient method to provide the needed requirements to complete the Operator's AX Familiarization Program with confidence.

Information

Course Duration	2 days
Certification Program	Operator (End User) EC-Net^{AX} Familiarization Training
Required Equipment	Company or personal laptop with: ■ Wireless card ■ Windows 7, XP, or Vista ■ Ability to turn off Windows firewall ■ Admin rights to download/install software
Pre-Requisites	■ **SKILLS: Proficiency and functional knowledge of the following is required:** ✓ Windows and PCs - including navigating the Window architecture, copying/pasting files, where to locate various files, etc. ✓ Your actual Windows User Name AND Password (BOTH) for laptop ✓ Using a mouse (right- and left-clicking) and keyboard ✓ Downloading software ✓ Running a program as an administrator ✓ Following and executing a procedure/process ■ Software (EC-Net^{AX}) pre-installed ■ Latest Support Pack pre-installed
Helpful Assets	■ Key EC-Net^{AX} Terminology

Audience

- Facility Engineers
- Consulting Engineers
- Operators
- Building Owners

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Objectives

Participants will:

- Install specific files to and commission an EC-BOS controller (DEMO only)
- Create/review a simulated cafeteria ventilation system and/or fitness center lighting system that controls a set of writable control points
- Explore the EC-NET^{AX} user interface
- Progressively build the control logic for and enhance the functionality of these simulated applications to include tracking runtime, tracking history trends and generating alarms
- Configure history and alarm properties
- Create and configure weekly and calendar schedules to control various types of loads
- Establish connectivity with a second “supervisory” station through the Niagara Network (DEMO only)
- Build plots and charts designed to view both real-time and historical trend data
- Create and configure a Bacnet network (DEMO only)
- Discover available devices and points on a BACnet network and capture those in the EC-NET^{AX} station database (DEMO only)
- Create and configure a simple Px graphic, consisting of a variety of objects (e.g., fan, heating coil, cooling coil, space temperature, occupancy, setpoints, etc.)
- Establish user access and security protocols needed to safeguard the integrity of an EC-NET^{AX} station
- Create a navigation scheme that allows various users/user types the ability to have a unique Home page and to easily navigate the architecture

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Overall Course Structure

DAY 1

DAY 1 – AM

Course Introduction
Browser Access and Control (NAX-Browser Access Guide, CH 1)
Graphic Views and Commands (NAX-Browser Access Guide, CH2)
Schedules Overview (NAX-Browser Access Guide, CH 3)
Alarms Overview (NAX-Browser Access Guide, CH 4)
History Trends Overview (NAX-Browser Access Guide, CH 5)
EC-NET^{AX} Interface
Key Topics
Platform Overview – basic toolset
Getting Started – Creating a New Station & Commissioning
Fundamentals of Building Applications

DAY 1 – PM

Building a Simple Px Graphics View, Part 1
Building Simple Control Logic: Adding Extensions to Control Points
Building a Simple Px Graphics View, Part 2

DAY 2

DAY 2 – AM

Review of Day 1 / Agenda for Day 2
Schedule Concepts
History (Trending) Concepts
Alarm Concepts
Sending Station Data on the Niagara Network

DAY 2 – PM

Integrating Live Data
Px Graphics Fundamentals
Security & User Administration
Building a Custom Navigation Scheme

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Agenda

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Course Outline

----- DAY 1 ------

DAY 1 – AM

Course Introduction

- Logistics
- Breaks
- Course Structure
- Materials – electronic set of student files, Key AX Terminology Guide, Student Guide

Browser Access and Control (NAX-Browser Access Guide, CH 1)

- Getting started
- Web browser requirements
- Logon/Logoff
- Status Bar information

Graphic Views and Commands (NAX-Browser Access Guide, CH2)

- Widgets
- Status indicators
- Actions (commands)

Schedules Overview (NAX-Browser Access Guide, CH 3)

Alarms Overview (NAX-Browser Access Guide, CH 4)

History Trends Overview (NAX-Browser Access Guide, CH 5)

Exploring the Demo Station (Class Activity) – 90:00

EC-NET^{AX} Interface

- Panes –Side bar pane (Nav Tree/Palettes, View pane)
- Basic views – Property sheet, Wire sheet, Px graphic
- Menu bar
- Toolbar
- Locator bar
- Status bar

Key Topics

- Software architecture (Parent-child relationships)
- myHost
- Modules
- Help system
- Palettes
- Platforms vs. Stations

Platform Overview – basic toolset

- Application Director
- License Manager

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

- Platform Administration

Getting Started – Creating a New Station & Commissioning

- New Station wizard
- Commissioning wizard
- Platform/Station connections
- Remote vs. local host

Create a New Station/Commission the EC-BOS (LAB #1) – 30:00 (DEMO ONLY)

Fundamentals of Building Applications

- Station architecture (Confg – Files – History)
- Niagara objects (Boolean, Enum, Numeric, String)
- Viewing & working with components
- Default/standard views (Wire, Property, Px)
- Basic data types
- Object characteristics (Out property, Facets, Status flags, Priority levels)
- Right-click menus (Action and New menus)
- Using palettes to build an application
- Logical sequencing

Building a Simple HVAC Control Solution: Cafeteria, Site Bldg 1 (Lab #2/Class Activity) – 60:00 (WALK-THROUGH)

DAY 1 – PM

Building a Simple Lighting Control Solution: Fitness Center, Site Bldg 2 (LAB #3) – 60:00

Building a Simple Px Graphics View, Part 1

- Graphics challenge
- The overall process
- What is Px?
- What is a Px view?
- Creating a new Px view
- Px source files
- Px modes – View/Edit
- Using the Px Editor
- Widgets
- Binding to real data via Ords
- Make Widget Wizard
- Px-in-a-browser

Creating a Simple PX Graphic (LAB #4) – 45:00

Building Simple Control Logic: Adding Extensions to Control Points

- Why Extensions?
- Categories of extensions
- What is a proxy extension?
- Types of control extensions
- Compositing: exposing child slots
- Using the Composite Editor

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Adding Control Extensions (Totalizers) (LAB #5) – 30:00

Building a Simple Px Graphics View, Part 2

- Widget properties
- bFormat
- Binding properties
- More about Ords
- Redefining an Ord
- Display name labels
- Using hyperlinks

Adding Active Time to a PX Graphic (LAB #6) – 30:00

----- DAY 2 ------

DAY 2 – AM

Review of Day 1 / Agenda for Day 2

Schedule Concepts

- Weekly schedule object types: Boolean, Numeric, Enum, String
- Calendar schedule
- Creating schedules
- Schedule settings: weekly schedule, special events, properties
- Referencing a calendar

Configuring Scheduled Special Events (LAB #7) – 60:00

History (Trending) Concepts

- Collecting historical trends : History extensions – Boolean, Numeric, Enum, String
- Managing histories: History Service (History Extension Manager)
- Viewing histories
- Building history charts (using the History Chart Builder)

Collecting & Configuring Histories (LAB #8) – 60:00

Alarm Concepts

- Building the alarm interface – Alarm Service
- Categorizing/prioritizing alarms – using alarm classes
- Receiving alarms – alarm recipients
- Adding alarm extensions
- Viewing alarms
- Escalating alarms
- Managing the alarm database
- Configuring the Alarm Portal – to view alarms in multiple stations

Generating and Viewing Alarms (LAB #9) – 60:00

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Sending Station Data on the Niagara Network

- Configuring the Niagara Network
- Establishing station-to-station connections
- Using Device extensions
- Importing/Exporting data to other stations – points, schedules, trends, and alarms

Connecting to the Niagara Network (Lab #11) – 30:00 (DEMO ONLY)

Sending Data on the Niagara Network: Points, Schedules, Histories, Alarms (LAB #12) – 30:00 (DEMO ONLY)

DAY 2 – PM

Integrating Live Data

- Field Bus integrations
- Creating networks
- Basic Network architecture – Device/Point Managers
- Discovering devices and control points
- Adding devices and proxy points to the station database
- Discovering vs. creating devices and points

Bacnet/MSTP Integration (LAB #13) – 30:00 (DEMO ONLY) – MSTP port pre-added, MAC addresses pre-set

Px Graphics Fundamentals

- Using the Px Editor: Canvas pane, Side bar pane
- Creating widgets – using the Make Widget Wizard – the importance of the Ord
- Editing widget properties
- Animating widget properties – bFormatting, using the Ord
- Bindings & binding properties
- Adding a binding to a widget
- Creating bound labels
- Source: From Palette
- Charting live data – Time Plots
- Charting trend data – History Charts
- Px-in-a-browser

Building Presentation Graphics (PX) (LAB #15) – 120:00

Security & User Administration

- Establishing station security – the basic AX Security Model
- Creating security categories – using the Category Manager (Category Service)
- Mapping objects to categories – using the Category Browser (Category Service)
- Design considerations – when structuring categories, adding users and assigning permissions
- Creating new users – using the User Manager
- Configuring user properties – passwords, categories, permissions, etc.
- Enhanced security features (AX 3.5, 3.6 and 3.7)
- Strong password requirements and best practices

Security and User Admin (LAB #16) – 45:00

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com

Building a Custom Navigation Scheme

- What is custom navigation?
- Creating a Nav file
- Creating a custom Home page - using the Nav File Editor
- Adding other nodes under the Home node
- Assigning the Nav file to a specific user
- Testing the Nav file in the Workbench and in a web browser

Creating a Nav File (LAB #17) – 30:00

Distech Controls, Inc.
Tel. toll-free North America: 1-800-404-0043
Tel. international: 1-450-444-9898
www.distech-controls.com
training@distech-controls.com