

Training Guide 2007

# SCADA Vantage™



Industrial<sup>IT</sup> Solutions™  
from ABB

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## **1. Introduction**

This SCADA Vantage training guide is intended for SCADA Vantage users and ABB staff.

This guide contains an overview of the SCADA Vantage training courses available from LCC Oil & Gas SCADA along with course descriptions, who should attend, and topics covered in each course.

On site training is available on request. Please contact LCC Oil & Gas SCADA for further details.

ABB can arrange custom training courses throughout the year if required. Please contact LCC Oil & Gas SCADA for details.

### **Attendance**

Minimum 4 registrants are required to hold the scheduled courses and maximum of 8 registrants are allowed in each course.

ABB reserves the right to either cancel or postpone the scheduled courses if the number of registrants is less than four.

### **Cancellation Policy**

Registrants cancelling less than 3 weeks in advance of the course are entitled to a full refund minus \$150 administration fee.

Registrants cancelling less than 1 week in advance of the course will be charged 100% course fee.

### **Course fee**

Course fee includes refreshments and snacks for all registrants during the training course but does not include hotels and travelling expenses for any registrants.

### **Course Dates**

Course dates and locations are listed in the [SCADA Vantage Training Calendar – 2007](#).

### **Course Registration**

See the [SCADA Vantage Course Registration](#) form for more information.

## **2. Course No. SV101 SCADA Vantage Operations – 1 day**

### **Course Overview**

This course will deal with the SCADA Vantage concepts and use of the SCADA Vantage client (Human Machine Interface) for the SCADA Vantage system. An added course on Excel functionality for reporting with SCADA Vantage can be requested as well with this course.

By the end of this course the user will be able to navigate the HMI and utilize all the SCADA Vantage Client features for reporting and system monitoring.

### **Course Outline**

- Introduction
- Starting SCADA Vantage
- SCADA Vantage Runtime Environment
- SCADA Vantage Functions

### **Who Should Attend**

Plant Operators and Administration Staff who will use the SCADA Vantage client (HMI) for operations and information retrieval.

### **Course Prerequisites**

Experience with Microsoft Windows XP Operating System.

### **Course Fee**

\$1160.00 USD per person

### **Course Materials**

The fee includes computer hardware and documentation.

### **Course Timings**

8:30 am to 4:30 pm

### **3. Course No. SV102 SCADA Vantage Administration Course - 5 days**

#### **Course Overview**

This five-day (5) course will introduce the user to SCADA Vantage's architecture and capabilities. SCADA Vantage functionality will be covered including installation, system configuration, communication, system security, I/O maintenance and HMI basics.

By the end of this course the user will be able to install, configure, trouble-shoot and maintain the SCADA Vantage System. The user will also gain knowledge of SCADA Vantage front-end design and usage.

#### **Course Outline**

- SCADA Vantage Installation & Configuration
- SCADA Vantage Explorer Overview
- Security
- Communication Configuration
- Analog & Digital Configuration
- Alarms & Events
- Display Building Overview
- Point Class Controls
- Management & Summary Controls

#### **Who Should Attend**

Control Room Administrators and System Administrators who require a working knowledge of SCADA Vantage structure, HMI capabilities and system administration and maintenance.

#### **Course Prerequisites**

Experience with Microsoft Windows 2003 Server or Windows XP Operating Systems.  
Experience with Microsoft Visual Basic or similar programming language.

#### **Course Fee**

\$2,625.00 USD per person

#### **Course Materials**

The fee includes computer hardware and documentation.

#### **Course Timings**

8:30 am to 4:30 pm

#### **4. Course No. SV103 SCADA Vantage Advance Configuration Part 1 - 5 days**

##### **Course Overview**

This five-day (5) course is designed to train the user in the more advanced features of SCADA Vantage. This course details SCADA Vantage structure, functions and database access necessary for full system design. This course includes introduction to Business Object Templates (BOT) and Client Application Manager (CAM) configuration such that changes to existing functions can be managed. This course will train the user to create a SCADA Vantage project from the ground up and provide design considerations for the intended system.

By the end of this course the user will be able to design and implement a basic SCADA Vantage server system.

##### **Course Outline**

- SCADA Vantage Installation – Genesis and Upgrade
- Real time redundancy
- Advance communication configuration and troubleshooting
- SQL detailed
- Reporting (RTRDB and Excel add in)
- Calculated Tags
- Control Sequences
- Replication
- Introduction to Client Application Manager

##### **Who Should Attend**

System Administrators and Designers who require a firm understanding of SCADA Vantage system.

##### **Course Prerequisites**

Completion of the SCADA Vantage Basic Administration Course.  
Experience with Microsoft Windows 2003 Server or Windows XP Operating Systems.  
Experience with Microsoft Excel or similar spreadsheet.  
Experience with relational databases and SQL.

##### **Course Fee**

\$2,625.00 USD per person

##### **Course Materials**

The fee includes computer hardware and documentation.

##### **Course Timings**

8:30 am to 4:30 pm

## **5. Course No. SV104 SCADA Vantage Advance Configuration Part 2 - 5 days**

### **Course Overview**

This five-day (5) course is designed to train the user in the advanced features of SCADA Vantage used for efficient large system design. This course includes designing sophisticated Business Object Templates (BOT) with linked VB Display Templates. Client application manager (CAM) configuration is reviewed including distribution of entire applications and templates. Finally, advanced server redundancy and APPRDB features are covered. This course will train the user to create a larger sophisticated SCADA Vantage project from the ground up.

By the end of this course the user will be able to design and implement a large SCADA Vantage client and server.

### **Course Outline**

- SCADA Vantage Installation – APPRDB
- APPRDB Configuration
- SCADA Vantage Object Factory
- Visual Basic Template Graphics and Advance VB functions
- Client Application Manager set-up and configuration

### **Who Should Attend**

System Designers who require a firm understanding of SCADA Vantage system for system engineering.

### **Course Prerequisites**

Completion of SCADA Vantage Administration Course.  
Completion of SCADA Vantage Advance Configuration Part 1 Course.  
Experience with Microsoft Windows 2003 Server or Windows XP Operating System.  
Experience with Microsoft Excel or similar spreadsheet.  
Experience with relational databases and SQL.

### **Course Fee**

\$2,625.00 USD per person

### **Course Materials**

The fee includes computer hardware and documentation.

### **Course Timings**

8:30 am to 4:30 pm

## **6. Course No. SV105 SCADA Vantage Progression Course. 1 - 3 days**

### **Course Overview**

This five-day (1 - 3) course is designed to update the user to the new features of SCADA Vantage. Currently this course is geared to candidates who have taken the SCADA Vision training prior to 2007. As added features and applications are added to the product modified versions of this course will be conducted.

By the end of this course the user will be able to design utilize the new features and applications implemented in the latest SCADA Vantage release.

### **Course Outline**

- SCADA Vantage Replication
- RTRDB Reports
- Trending
- OPC Server and Client installation and Configuration
- Route Testing
- APPRDB Installation and configuration

### **Who Should Attend**

System Designers who require a firm understanding of SCADA Vantage system for system engineering.

### **Course Prerequisites**

Completion of SCADA Vantage Administration Course.  
Completion of SCADA Vantage Advance Configuration Part 1 Course.  
Experience with Microsoft Windows 2003 Server or Windows XP Operating System.

### **Course Fee**

\$660.00 USD per person per day

### **Course Materials**

The fee includes computer hardware and documentation.

### **Course Timings**

8:30 am to 4:30 pm

## 7. SCADA Vantage Detailed Course Outline

### SV101 - Operations Course

#### Objectives

- Understand and use the SCADA Vantage client features for operating the system.

#### Pre-Requisites

- Experience with Microsoft Windows XP Operating System.

#### Outline

##### Day 1 of 1

- SCADA Vantage Runtime Environment
  - Connecting to Servers
  - Security
  - Display Navigation
- SCADA Vantage Functions
  - Controlling Points
  - Acknowledging and Clearing Alarms
  - Trends
  - Inhibits
  - State Limits
  - Properties
  - Alarms
  - Events
  - Printing
  - Information Logs

## SV102 - Basic Administration Course

### Objectives

- Understand the procedures for installing basic SCADA Vantage servers and clients.
- Perform basic configuration of the SCADA Vantage server database using SCADA Vantage Explorer.
- Develop simple SCADA Vantage client displays using the screen development tools.
- Through a working exercise, install and configure a simple SCADA Vantage system.

### Pre-Requisites

- Experience with Microsoft Windows 2003 Server or Windows XP Operating System.
- Experience with Microsoft Visual Basic or similar programming language.

### Outline

<b>Day 1 of 5</b>	<ul style="list-style-type: none"><li>• SCADA Vantage Installation<ul style="list-style-type: none"><li>• CLS Installation and Configuration</li><li>• Server Installation</li><li>• Client Installation</li><li>• Uninstalling a Server or Client</li></ul></li><li>• SCADA Vantage Explorer Overview<ul style="list-style-type: none"><li>• Navigation and General Features</li><li>• Summary Features</li><li>• Maintenance Log</li></ul></li><li>• Security<ul style="list-style-type: none"><li>• Users and Passwords</li><li>• Zones and Zone Groups</li><li>• Control Types and Control Type Groups</li><li>• User Control Definition</li></ul></li><li>• Communication Configuration<ul style="list-style-type: none"><li>• Remote Drivers</li><li>• Networks and Routes</li><li>• Devices (Modbus Protocol)</li></ul></li></ul>
<b>Day 2 of 5</b>	<ul style="list-style-type: none"><li>• Analog Configuration<ul style="list-style-type: none"><li>• Analog Input Definition</li><li>• Analog Scaling</li><li>• Analog Conversions</li><li>• Analog Output Definition</li></ul></li><li>• Digital Configuration<ul style="list-style-type: none"><li>• Digital Input Definition</li><li>• Digital Output Definition</li></ul></li><li>• Historical Collection<ul style="list-style-type: none"><li>• Configuration</li></ul></li><li>• Alarms &amp; Events<ul style="list-style-type: none"><li>• State Groups</li><li>• State Limit Groups</li><li>• State Alarms</li><li>• Fleeting Alarms</li><li>• Alarm Log</li><li>• Event Log</li><li>• Alarm and Event Inhibits</li><li>• Non-Covered Alarms</li></ul></li><li>• Miscellaneous<ul style="list-style-type: none"><li>• Trend Groups</li><li>• Information Logs</li><li>• Plot Objects</li></ul></li></ul>

<b>Day 3 of 5</b>	<ul style="list-style-type: none"> <li>• Display Building Overview <ul style="list-style-type: none"> <li>• Microsoft Visual Basic IDE</li> <li>• Drawing Techniques and Tools</li> <li>• Control Containment and Management</li> <li>• Executing an SCADA Vantage Project</li> <li>• Introduction to SCADA Vantage Controls</li> <li>• Distributing an SCADA Vantage Project</li> </ul> </li> <li>• Point Class Controls <ul style="list-style-type: none"> <li>• CLabel Control</li> <li>• CImage Control</li> <li>• CFloodBar Control</li> <li>• CGauge Control</li> <li>• CStatus Control</li> <li>• CSliderBar Control</li> </ul> </li> <li>• Summary Controls <ul style="list-style-type: none"> <li>• CAlarmSummary Control</li> <li>• CEventSummary Control</li> </ul> </li> </ul>
<b>Day 4 of 5</b>	<ul style="list-style-type: none"> <li>• Summary Controls (Continued) <ul style="list-style-type: none"> <li>• CGrid Control</li> </ul> </li> <li>• Management Controls <ul style="list-style-type: none"> <li>• CManager Controls (Basic)</li> <li>• CCommandButton and CTransButton Controls</li> <li>• Form Management Commands</li> <li>• Executable Management Commands</li> <li>• Miscellaneous Basic Commands</li> </ul> </li> <li>• Miscellaneous Controls <ul style="list-style-type: none"> <li>• CInfoPad Control</li> <li>• CSmartMap Control</li> </ul> </li> </ul>
<b>Day 5 of 5</b>	<ul style="list-style-type: none"> <li>• Working Exercise</li> <li>• Install a new SCADA Vantage server and client</li> <li>• Configure the system to communicate with a Modbus Protocol Device</li> <li>• Configure a number of Analog and Digital Input/Output Points</li> <li>• Develop a client executable that includes a splash display, a map, and a schematic</li> </ul>

## SV103 - Advance Configuration Course Part 1

### Objectives

- Understand the procedures for installing advanced SCADA Vantage servers and clients.
- Understand SCADA Vantage message logs for system troubleshooting and diagnosis.
- Perform advanced configuration of the SCADA Vantage server database using SCADA Vantage Explorer.
- Perform advanced configuration and analysis of the SCADA Vantage Communication subsystem.
- Perform advanced maintenance using the SCADA Vantage SQL Editor and Import/Export tools.
- Introduction to Business Object Templates.
- Configure SCADA Vantage calculated points and reports using Microsoft Excel.
- Introduction to the Client Application Manager (CAM).

### Pre-Requisites

- Completion of the SCADA Vantage Administration Course.
- Experience with Microsoft Windows 2003 Server or Windows XP Operating System.
- Experience with Microsoft Excel or similar spreadsheet.
- Experience with relational databases and SQL.

### Outline

#### Day 1 of 5

- SCADA Vantage Installation
  - SCADA Vantage Genesis and Upgrade Procedures
  - Realtime Redundancy Configuration
- Basic Server Configuration
  - Directory Structure
  - Configuration Files
  - Log Files
  - Backup Issues
- Security
  - Trusted Servers and Trusted Users
- System Settings
  - Colors and Priorities
  - Parameters
  - Scheduled Tasks
  - System Processes
  - System Values
- Miscellaneous
  - Point Value Simulation
  - Point Categories
  - Point Calculations
  - Historian Archiving
- SQL
  - SQL Editor
  - Retrieving SCADA Vantage Class and Attribute Information
  - Views
  - Basic SQL Commands
  - Joins
- Import/Export
  - Exporting contents of real-time database to text files using SCADA Vantage Explorer
  - Importing contents of real-time database from text files using SCADA Vantage Explorer

<b>Day 2 of 5</b>	<ul style="list-style-type: none"> <li>• Advanced Communications Configuration <ul style="list-style-type: none"> <li>• Remote Driver</li> <li>• Communication Settings and Timings</li> <li>• Networks and Routes</li> <li>• Communication Redundancy</li> <li>• Device</li> <li>• Application Device Types</li> <li>• Modems (Dialup and CDPD)</li> <li>• Modem Pools</li> </ul> </li> <li>• Modbus Protocol Examples <ul style="list-style-type: none"> <li>• Network, Device, and Poll Range Configuration</li> <li>• Analog/Digital Configuration</li> </ul> </li> <li>• Troubleshooting Communications <ul style="list-style-type: none"> <li>• Communication Statistics</li> <li>• Interpreting Communication Analyzer Output</li> <li>• Delays and Timeouts Overview</li> <li>• Debugging Sequence</li> </ul> </li> </ul>
<b>Day 3 of 5</b>	<ul style="list-style-type: none"> <li>• Replication <ul style="list-style-type: none"> <li>• Basic configuration and operation</li> </ul> </li> <li>• RTRDB Reports</li> <li>• Control Sequences and Triggers</li> <li>• Calculated Tags</li> </ul>
<b>Day 4 of 5</b>	<ul style="list-style-type: none"> <li>• Excel Calculated Points and Reporting <ul style="list-style-type: none"> <li>• Enabling SCADA Vantage Extensions to Excel</li> <li>• Using Array Formulas</li> <li>• Function Overview</li> <li>• Report Specifics</li> </ul> </li> <li>• Client Application Manager (CAM) <ul style="list-style-type: none"> <li>• Structure of an application</li> <li>• CAM configuration and mechanisms</li> </ul> </li> </ul>
<b>Day 5 of 5</b>	<ul style="list-style-type: none"> <li>• Working Exercise. <ul style="list-style-type: none"> <li>• Installation and Genesis</li> <li>• Redundancy set-up</li> <li>• Reporting</li> <li>• Replication</li> </ul> </li> </ul>

## SV104 - Advance Configuration Course Part 2

### Objectives

- Install and configure the Application Realtime Database.
- Perform advanced configuration and generation of Business Object Templates.
- Develop Business Object Templates that work in conjunction with graphic templates.
- Develop advanced SCADA Vantage client displays.
- Understand the use of SCADA Vantage variables and expressions.
- Develop graphic template displays.
- Develop Business Object Templates that work in conjunction with graphic templates
- Develop and configure client applications using the Client Application Manager (CAM).

### Pre-Requisites

- Completion of the SCADA Vantage Advance Administration Part 1 Course.
- Experience with Microsoft Windows 2003 Server or Windows XP Operating System.
- Experience with relational databases and SQL.

### Outline

<b>Day 1 of 5</b>	<ul style="list-style-type: none"> <li>• Installation of SCADA Vantage with APPRDB</li> <li>• APPRDB Installation and Configuration</li> <li>• Configuration and generation               <ul style="list-style-type: none"> <li>• Design considerations when planning a Business Object Template</li> <li>• Variable (Symbol) Definitions</li> <li>• Configure a template for an Object</li> <li>• Configure a collection of templates into a Business Object Template</li> </ul> </li> <li>• Generating an object collection using a single instance of a Business Object Template</li> <li>• Bulk configuration loader               <ul style="list-style-type: none"> <li>• Generate multiple instances of Business Object Templates using a bulk data file (CSV) format</li> </ul> </li> </ul>
<b>Day 2 of 5</b>	<ul style="list-style-type: none"> <li>• Building Display Templates               <ul style="list-style-type: none"> <li>• SCADA Vantage Template Projects</li> <li>• Licensing SCADA Vantage Display Templates</li> <li>• CBTemplateView Control</li> <li>• Using CBManager with Display Templates</li> <li>• Using the GetProperty() Function</li> <li>• Using Display Templates and the Object Factory</li> <li>• Distributing SCADA Vantage Display Templates</li> <li>• Ties to SCADA Vantage Controls (Event Handlers)</li> <li>• Accessing SCADA Vantage Control Properties in Code</li> <li>• Building Display Templates</li> </ul> </li> </ul>
<b>Day 3 of 5</b>	<ul style="list-style-type: none"> <li>• CBManager Advanced Topics               <ul style="list-style-type: none"> <li>• Variables</li> <li>• Expressions</li> <li>• Functions</li> <li>• Property Assignments</li> <li>• Advanced Commands</li> </ul> </li> <li>• Mapping Controls               <ul style="list-style-type: none"> <li>• CBSmartMap Control</li> </ul> </li> <li>• Showing Plot Object Detail</li> <li>• Relation to graphic templates               <ul style="list-style-type: none"> <li>• Relationship between Variable (Symbol) Definitions in a template and how they can be related to an object on a VB run time graphic template</li> </ul> </li> </ul>
<b>Day 4 of 5</b>	<ul style="list-style-type: none"> <li>• Client Application Manager               <ul style="list-style-type: none"> <li>• FTP Server</li> <li>• Elements for Distribution</li> <li>• Groups and Applications</li> </ul> </li> </ul>
<b>Day 5 of 5</b>	<ul style="list-style-type: none"> <li>• Working Exercise               <ul style="list-style-type: none"> <li>○ Create a simple BOT</li> <li>○ Create a user HMI that displays the points created by the BOT.</li> </ul> </li> </ul>

## SV105 – SCADA Vantage Progression course

### Objectives

- Install and configure the Application Realtime Database.
- Configure SCADA Vantage Replication.
- Configure RTRDB Reports.
- OPC Server and Client installation and Configuration.
- Route Testing Configuration.
- Trending.

### Pre-Requisites

- Completion of SV103 SCADA Vantage Advance Administration Part 1 Course.
- Experience with Microsoft Windows 2003 Server or Windows XP Operating System.

### Outline

<b>Day 1 of 3</b>	<ul style="list-style-type: none"><li>• Installation of SCADA Vantage with APPRDB</li><li>• APPRDB Installation and Configuration</li><li>• Replication<ul style="list-style-type: none"><li>• Basic configuration and operation</li></ul></li><li>• RTRDB Reports</li></ul>
<b>Day 2 of 3</b>	<ul style="list-style-type: none"><li>• OPC Server Installation and Configuration<ul style="list-style-type: none"><li>◦ Registry Settings</li></ul></li><li>• OPC Client configuration</li><li>• SCADA Vantage Trending</li><li>• SCADA Vantage Route configuration.</li></ul>
<b>Day 3 of 3</b>	<ul style="list-style-type: none"><li>• Working Exercise<ul style="list-style-type: none"><li>• APPRDB Installation and Configuration</li><li>• Replication Configuration</li><li>• OPC Client configuration</li></ul></li></ul>