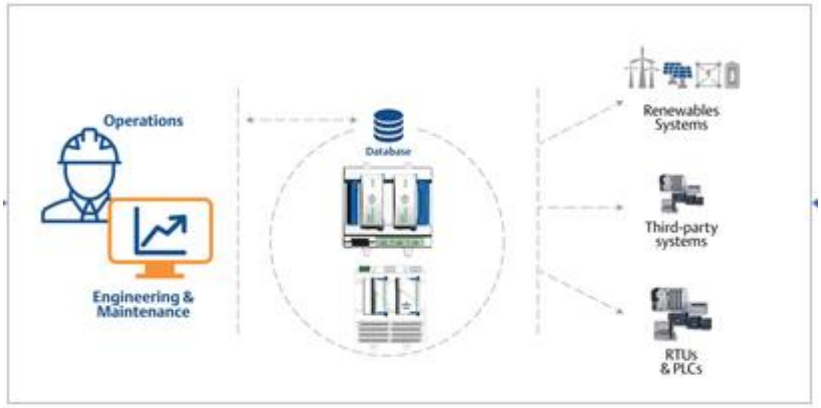
Ovation™ Standalone Controller Software Toolkit

Features



- Interfaces with the OCC100, OCR3000, and OMC100 Controllers
- Supports Virtual Private Network (VPN) deployments without a dedicated router at the Controller
- Supports most algorithms, protocols, I/O modules, and drivers
- Installs on non-server Windows 10 operating systems
- Supports archiving of the Controller database
- Follows Ovation security rules to allow/deny access to Ovation functionality
- Provides HTTPS support for secure communication between Controllers
- Monitors and audits events using the Error Log and Audit Viewer applications
- Allows simultaneous operator and engineer connections
- Provides support for Ovation Process Historian (OPH) features such as Controller-hosted scanners, SOE points, and Triggered Events.

Introduction

Emerson's Ovation™ automation technology is renowned for delivering precision control with outstanding performance. Its modular design permits configuration exactly as it is needed. The Ovation Controller is designed specifically for mission-critical operations in Power and Water/Wastewater applications.

The Standalone Controller Software Toolkit is a software solution that deploys an Ovation Controller in an independent, standalone application, in which a traditional Ovation network and database are not created. The Standalone Controller Software Toolkit does not require access to a full Ovation system or any third-party system. Users can install Standalone Controller software on a separate PC that is isolated from a main control system. The software can be configured and used without access to a central database or network.

Standalone Controller

The Standalone Controller Software Toolkit solution starts with an Ovation Controller. The Controller hardware can be an OCC100, OMC100, or OCR3000 model that runs in a free-standing manner based on the configuration file parameter defined in the Ovation Developer Studio. Standard functions of the Standalone Controller include:

- Handles the same maximum point count as a non-standalone Controller of its type (OCC100, OMC100, or OCR3000).
- When running in a redundant configuration, the Standalone Controller sends the configuration files to the backup Controller so that the files are available for runtime use (operator graphics, signal diagrams, and so forth) if the primary Controller is offline.
- Supports all algorithms except for the Safety Instrumented System (SIS) algorithms, Fieldbus algorithms, and the PERSISVAL algorithm.
- Supports bumpless transfer to minimize any disturbances encountered during the transition from manual to automatic operation.
- Supports secure communication through a Virtual Private Network (VPN) that is intrinsically in the Controller and requires a router to terminate the other end of the VPN in the remote location.

Communication Protocols

The Standalone Controller Software Toolkit supports all communication protocols available for Controllers within the Communication Protocols Suite (CPS). The CPS version 3.3 software or higher is required for use with the Standalone Controller. Protocols are configured using the CPS configuration tools in the same way as in the traditional Ovation system. This includes the Embedded Ethernet Protocol supported in the OCC100, OMC100, and OCR3000 Controllers and the Ethernet Link Communications (ELC) modules.

Standalone Controller Software

The software portion of the Standalone Controller solution includes Ovation Engineering Tools and Human Machine Interface (HMI) applications for configuring the Controller, developing control logic, and interacting with the system. The Standalone Controller software does not require a server-class machine or operating system. It also does not require the machine to be part of a domain because it is not considered an Ovation drop.

The Standalone Controller software includes a primary user interface application for performing various engineering functions and launching HMI functions, such as Alarms, Trends, and Point Information.

Database

The Standalone Controller database is stored and maintained directly on the Standalone Controller. When the user connects to the Standalone Controller, the database uploads to a Microsoft SQL Server Express database running in the computer where the Ovation Standalone software is running. The database then downloads back to the Standalone Controller when the user finishes configuring the Standalone Controller.

Security

Security is maintained in the Standalone Controller with user accounts. For the Standalone Controller, three user types are available:

- **Operator –** permits access to operator functions only. The database is available to the engineering tools on a read-only basis.

- **Engineer –** permits access to engineering and operator functions. A user with Engineer privileges can modify the database through the Ovation Developer Studio.
- **Administrator –** permits access to engineering functions and operator functions. A user with Administrator privileges can modify the database, user accounts, and Ovation security configurations.

Standalone Controller user accounts are used to connect and gain access to a Standalone Controller's runtime and engineering/configuration data. They are not associated in any way with the computer's Windows user.

The Ovation Security Manager (launched from Ovation Developer Studio) is responsible for creating and maintaining users in the Standalone Controller and defining allow/deny access to Ovation functionality for those users.

Applications with Ovation systems

For users that have Ovation installed at their site, the Developer Studio provides a familiar tool to configure the Standalone Controller system, which minimizes the learning curve. Common Human Machine Interface (HMI) tools such as Alarm, Trends, and Point Information allow users to interact with the system. Standalone Controller data can be viewed independently or sent back to a main system with the addition of the Communication Protocol Suite (CPS). The CPS, which is embedded in the OCC100, OCR3000, and OMC100 Controllers, allows users to directly interface to third-party I/O or other devices through standard protocols (Modbus, Allen-Bradley, DNP, and so forth) for central monitoring.

The Standalone Controller Software Toolkit leverages the existing Ovation software while removing the limitations of configuring a Database Server, Oracle, Domain Controller, Server-class machine, Windows Server operating system, and Ovation drops for creating a traditional Ovation network. The software provides support in such a manner that the runtime data is available from the Standalone Controller, such as alarm information, operator graphics, and logic diagrams. Because the Standalone Controller has a smaller hardware footprint than a traditional Ovation system, Emerson can provide an Ovation-based solution for PLC systems.

Standalone Controller software is also part of the Ovation Green product portfolio, microgrid applications, geographically remote solar locations, and a growing number of customer applications.

Standalone Controllers as Ovation Droplets

The Standalone Controller Software Toolkit can connect to any system, or it can have native communications and a native runtime identity in Ovation.

A droplet is a feature that allows a Standalone Controller to be adopted by the main Ovation system. When a Standalone Controller is adopted, it can be seen by the Ovation system, and its data can be accessed by HMI applications. Droplet information can be seen only on the local Ovation system on which it was adopted. Up to 2,000 droplets can be added to the Ovation system. A Standalone Controller can be adopted by up to five independent Ovation systems.

Droplets can be used to access a Standalone Controller that may be in an isolated location or used to perform another function that does not require connection to a full Ovation system. If the connection to the primary Ovation system is interrupted, the Standalone Controller continues to function, and the process control is not disrupted. When the connection is re-established, the graphics and control logic are available from the main Ovation system.

Licensing

The Standalone Controller Software Toolkit is a term-licensed offering that requires licenses for each Controller deployment and each instance of engineering tools. The Controller licenses are required for the Controller to run in a standalone manner, and the engineering tools are licensed for the required number of individual workstations or engineering laptops.

Standalone Controller Licenses

Term-based Controller licenses are offered for both simplex and redundant deployments of the following Ovation Controllers:

Software Licenses	Subscription Term Options
OMC100 Simplex	1-year, non-cancelable 3-years, non-cancelable 5-years, non-cancelable
OCC100 Simplex and Redundant	
OCR3000 Simplex and Redundant	

A valid Standalone Controller license is required to engineer the Controller. If the software license is not renewed in advance of term-license expiration, the controller runtime and engineering tools maintenance functions will continue to function routinely with an expired Standalone Controller license. Controller configuration changes cannot be made without a valid license.

Standalone Controller Engineering Software Licenses

Licenses for the Graphics package and the Controls package are available for specific engineering needs in addition to the complete graphics building and control engineering package. Each Controller deployment must have a valid Standalone Controller license and at least one set of valid licenses for engineering tools to interface with one or more Standalone Controllers. Engineering tools licenses are not required for an Operator Station deployment with no engineering capability.

Software Licenses	Subscription Term Options
Standalone Controller Software Toolkit – Graphics Package Includes Developer Studio, and Graphics Builder	1-year, non-cancelable 3-years, non-cancelable 5-years, non-cancelable
Standalone Controller Software Toolkit - Controls Package Includes Developer Studio, and Control Builder	
Standalone Controller Software Toolkit – Bundle Graphics and Controls Includes Developer Studio, Graphics Builder, and Control Builder	

A valid license is required for the Standalone Controller Engineering tools software that resides on the Standalone Controller station to execute engineering functions. If the software license is not renewed in advance of term-license expiration, the Standalone Controller Engineering tools will cease to function.

Software offered on a subscription basis includes term-based software licenses with integral software maintenance and product support, subject to a license agreement. With an active subscription, product support for the specific software allows access to software updates and various types of software support through the Guardian™ portal.

Subscription-based software maintenance includes updates to the software during the subscription term for enhancements or to fix minor issues. With an active subscription, support provides access to the latest software versions which are available for electronic download. Product-specific software maintenance and support as part of a software subscription may vary and is documented in the relevant product datasheets and is also described on the Guardian™ portal.

Subscription-based software support includes access to basic telephone support where engineers and experts provide telephone support as needed in case of any problems related to software use or functionality. With an active subscription, other forms of software support are available through the Guardian™ portal, including unique support elements for each software product. Licensed software is subject to a software license agreement and corresponding product-specific terms & conditions. Subscription software provides certain software entitlements over the subscription term along with access to support resources. Support for Subscription Software (emerson.com)

Standalone Controller - Droplet Licenses

If the user wants to adopt Standalone Controllers as droplets in an Ovation 3.8 system (or later), an Ovation droplet license is required. Droplet licenses are defined in the Ovation system. Ovation users determine how many Standalone Controllers they want to adopt and then obtain a license for each droplet and each Ovation system. For example, if three Standalone Controllers are adopted by a single Ovation system, three droplet licenses are required. If a single Standalone Controller is adopted by three different Ovation systems, each system must have a droplet license for that Controller.

Specifications

Ovation Standalone Controller Features	
Compact Controller (OCC100)	▪ Same hardware as in a non-Standalone Controller. ▪ Up to 10,000 originated points. ▪ Five user-definable tasks, with each task individually defined to execute at a rate between 10 milliseconds and 300 seconds in increments of 10 milliseconds. ▪ Three local Ovation I/O branches supported. ▪ All Ovation I/O supported except for Foundation Fieldbus and DeviceNet. ▪ All algorithms supported except for Fieldbus algorithms, Safety Instrumented System (SIS) algorithms, and the PERSISVAL algorithm.
OCR3000 Controller	▪ Same hardware as in a non-Standalone Controller. ▪ Up to 64,000 originated points ▪ Five user-definable tasks, with each task individually defined to execute at a rate between 10 milliseconds and 300 seconds in increments of 10 milliseconds. ▪ 16 local Ovation I/O branches supported. ▪ All Ovation I/O supported except for Foundation Fieldbus and DeviceNet. ▪ All algorithms supported except for Fieldbus algorithms, Safety Instrumented System (SIS) algorithms, and the PERSISVAL algorithm.
OMC100 Controller	▪ Same hardware as in a non-Standalone Controller. ▪ Up to 10,000 originated points. ▪ Three tasks user-definable tasks, with each task individually defined to execute at a rate between 10 milliseconds and 300 seconds in increments of 10 milliseconds in up to three control task areas. ▪ Supports 32 embedded, software defined I/O channels in a compact design ▪ All Ovation I/O supported except for Foundation Fieldbus and DeviceNet.
For All Controllers:	
Remote node interface	▪ Supports up to 16 Ovation remote node interface nodes; each node supporting up to 64 Ovation I/O modules.
User Interface	▪ Serves as the place where various engineering functions are performed or where HMI applications are launched.
Engineering tools supported	▪ Ovation Developer Studio ▪ Graphics Builder ▪ Control Builder ▪ Audit Viewer ▪ Sensor Calibrate

For All Controllers (Cont'd):	
HMI functions supported	▪ Alarms ▪ Process graphics ▪ Logic diagrams ▪ Trends ▪ Error Logs ▪ Controller Diagnostics ▪ Point Information ▪ Point Review ▪ Ovation Machine Works
Database	Microsoft SQL Server
Security	▪ Supports secure communications through a Virtual Private Network (VPN). ▪ User accounts allow/deny access to Ovation applications.
Protocols supported for Third-Party communications	▪ Protocols supported either through embedded software in Controllers or through the Ethernet Link Controller module.