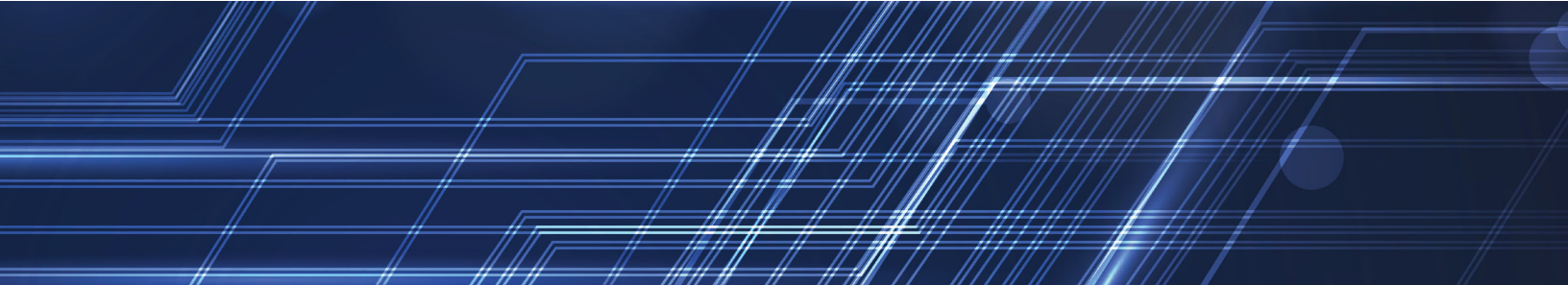


DELTA V™



*ISASecure SSA Certification for
DeltaV™ and DeltaV SIS*
Frequently Asked Questions

This FAQ addresses questions around the scope and relevance of the ISASecure® System Security Assurance certification applied to DeltaV™ and DeltaV SIS products version 14.FP1.



Introduction

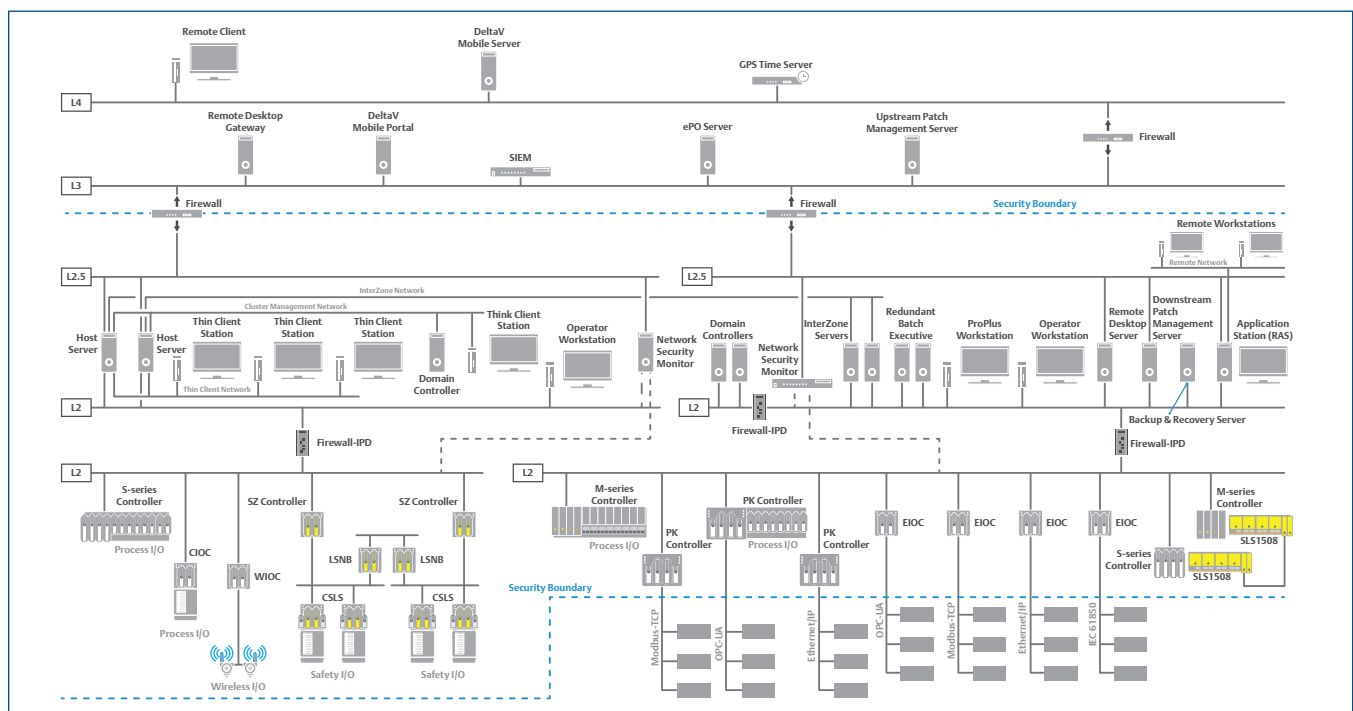
Starting with version 14.3 Feature Pack 1, DeltaV DCS and SIS is ISASecure System Security Assurance (SSA) Level 1 certified. The development sites for DeltaV and DeltaV SIS platforms are also ISASecure Security Development Lifecycle Assurance (SDLA) Level 1 certified. These certifications assure asset owners that their DeltaV and DeltaV SIS systems have the security features to deploy a defensible solution for process and safety controls. The system certification is one of the steps to achieve a deployed system that follows the ISA 62443 security standards. The asset owner is responsible for requesting, implementing, and maintaining security features as recommended by the vendor to continue to follow the security standards. Additionally, following the reference architecture used in the certification is an important step to implement DeltaV and DeltaV SIS systems securely.

With DeltaV version 14.FP1 the ISASecure SSA and SDLA certifications were renewed to include complementary products and newer software versions. This renewal is based on the latest versions of the certification programs although still maintaining security assurance level 1 at this point.

The DeltaV Security Manual provides rules and references to the ISA/IEC 62443-3-3 standard to make sure achieving security compliance is explained with an actionable plan that helps asset owners manage their security posture and follow the security standards. There are specific DeltaV components that must be deployed to comply with the ISASecure SSA Level 1 certified tested architecture (as well as some other components that cannot be used). For example, when Electronic Marshalling is implemented, the CHARM I/O Card (CIOC) version 2 is required as it meets the stringent certification test requirements for the ISASecure certification programs. The CIOC version 2 is a drop-in replacement for the CIOC version 1.

For system expansions, upgrades, migrations, and other brownfield applications, additional considerations may apply as some legacy DeltaV components are not included in the reference architecture validated during the ISASecure SSA certification. See the FAQ section below for a list of components excluded from the ISASecure SSA certification. In that event, alternative components can enable systems to be compliant with security standards.

To address other specific deviations from the reference architecture used in the DeltaV platform security certification, additional mitigations might be required. Please consult with your local Emerson sales office to learn how to securely deploy your DeltaV system to follow ISASecure SSA standards and certification.



Reference architecture validated during ISASecure SSA certification tests.

Frequently Asked Questions

In the following pages you will find answers to frequently asked questions to help you understand the benefits and scope of the ISASecure SSA certification available for DeltaV and DeltaV SIS systems in versions 14.3 Feature Pack1 and 14.FP1.

1. Where can I find the ISASecure System Security Assurance certificate for the DeltaV and DeltaV SIS systems?

ISASecure certifications can be accessed online at <https://isasecure.org>.

2. What is the correlation between the ISASecure standards and the ISA/IEC 62443 standards?

The ISA Security Compliance Institute (ISCI) offers three ISASecure conformance certification programs with four security assurance levels, each aligned with the ISA/IEC 62443 series of standards, as listed below:

- ISASecure Security Development Lifecycle Assurance (SDLA) certification – assures development processes meet the security requirements specified in the ISASecure standards based on the ISA/IEC 62443-4-1 standard.
- ISASecure System Security Assurance (SSA) certification – applies to industrial control systems and assures the required security features can be supplied to build a defendable solution. Components within the system are subjected to robustness testing in this certification program based on the ISA/IEC 62443-3-3 and the ISA/IEC 62443-4-1 standards.
- ISASecure Component Security Assurance (CSA) - formerly EDSA - certification – applies to components (embedded devices) of industrial control systems and assures the required security features of a component are met based on the ISA/IEC 62443-4-2 and the ISA/IEC 62443-4-1 standards.

3. What is the scope of this certification and what does it really mean?

DeltaV DCS and SIS versions 14.3 Feature Pack 1 and 14.FP1 are ISASecure SSA Level 1 certified, a program that relies on a functional security assessment based on the ISA/IEC 62443-3-3 standard. The ISASecure SSA certification also requires security development lifecycle assurance. Therefore, Emerson sites in Austin, Texas, USA and Manila, Phillippines are ISASecure SDLA Level 1 certified, ensuring that the processes at these sites are followed to develop all new code in versions 14.3 Feature Pack 1 and 14.FP1 to meet the ISASecure standards. Finally, there is also an overall system architecture testing for the ISASecure standards.

The overall certification process involves:

- Validation of revised product development procedures and the application of the new secure development processes for new code created in the targeted system release.
- Verification of system security features and functions in compliance with level 1 requirements listed in the ISA/IEC 62443-3-3 standard. A reference architecture of a typically deployed DeltaV DCS and SIS was designed and considered for the generation of artifacts (data) to demonstrate that protections are implemented in accordance with the available documentation.
- Testing of the components in the reference architecture in different layers: asset discovery, vulnerability identification, network stress, and communication robustness. Tests are performed and the success criteria is validated by making sure that documented essential functions are not affected during the tests.

These certifications assure asset owners that their DeltaV and DeltaV SIS systems have the security features to deploy a defendable solution for process and safety controls.

4. Which certification body is responsible for issuing the ISASecure certification for the system?

exida® is the certification body that issued the ISASecure SSA and ISASecure SDLA certifications for the DeltaV DCS and SIS.

5. Is an ISASecure SSA Level 1 certified system fully compliant with all the ISA/IEC 62443 series of standards?

No, but the ISASecure SSA certification covers the important standards of the ISA 62443 series from a development and deployment perspective. The ISA 62443 series of standards provides basic principles of security for industrial control systems including guidelines for service organizations, instructions for users, and patching recommendations, as well as the already mentioned standards in this FAQ that relate to vendors, such as:

- Security development lifecycle
- Functional security
- Embedded devices security

The ISASecure SSA is a system certification and is more comprehensive than the ISASecure SDLA or the ISASecure CSA certifications alone because its scope includes the entire system as opposed to only code development or embedded devices.

6. Are DeltaV and DeltaV SIS products ISASecure CSA certified (formerly EDSA)?

No. In the DeltaV system v14.3 release, Emerson did not seek ISASecure CSA certifications for individual embedded devices. However, most DeltaV embedded devices are Achilles® Level 2 certified, and the ISASecure Security Compliance Institute recognizes Achilles Test Platforms to run communication robustness tests for ISASecure SSA and CSA certification programs.

7. Is Emerson ISASecure SDLA certified?

Emerson sites in Austin, Texas, USA and Manila, Philippines are ISASecure SDLA Level 1 certified.

8. What other steps should users follow to design, implement and maintain an ISASecure certified industrial control system?

Emerson continues to develop DeltaV and DeltaV SIS systems to follow the ISA/IEC 62443 security standards and to provide security features to build a defendable solution. Organizations must take additional steps to ensure they deploy an ISASecure certified industrial control system. Documentation is available to explain how the system must be configured to maintain DeltaV system security policies and deploy an ISASecure certified industrial control system.

The services organization responsible for the DeltaV system configuration and commissioning must also follow security standards to implement the system without affecting its overall security protections. In fact, it is expected that the service organization is aware of all security features available in the DeltaV system and how to configure them to meet the asset owner's requirements.

Finally, the asset owner should understand the ISASecure SSA certification requirements and ensure any changes to the system are validated before being implemented so that the security protections are maintained during the lifecycle of the DeltaV system.

9. How does the Achilles certification fit in the ISASecure SSA certification scheme?

There are different Achilles certifications: one dedicated to embedded and network devices (the Achilles Communication Certification) and one designed for services (the Achilles Practices Certification). The Achilles Communication Certification uses a test platform to validate system components. The Achilles Communications Certification is recognized by the ISA Security Compliance Institute for the communication robustness tests of the ISASecure SSA and the ISASecure CSA certification programs. Both of these certifications (which are based on the ISA 62443 standards) are more comprehensive than the Achilles Communications Certification because security development lifecycle assurance is not included in the Achilles Communications Certification.

10. Can ISASecure SSA certified systems be re-configured / adjusted after deployment as long as they follow the security best practices?

Yes. However, the asset owner needs to validate the changes to make sure that the system's attack surface has not changed, and no security protections have been defeated. The security policies and procedures of an ISASecure SSA certified system should be revisited periodically so that any new risks are mitigated appropriately.

11. What DeltaV system components are not included in the ISASecure SSA certification?

The DeltaV system reference architecture considered in the ISASecure SSA certification includes most of the available components provided by Emerson for DeltaV and DeltaV SIS systems. The architecture includes new features added in DeltaV system versions 14.3 Feature Pack 1 and 14.FP1 as well as existing components that pass Achilles Communication Level 2 tests. The following components are not included in the reference architecture for the ISASecure SSA certification of DeltaV:

- Certification applies to components within the system security boundaries. See architecture for more information.
- Any of the DeltaV Virtual I/O Modules (VIM and VIM2 – M-series or S-series)
- Any of the DeltaV Migration Controllers for Provox and RS3
- DeltaV Remote I/O units
- Any of the DeltaV Connect products
- Standalone DeltaV PK Controllers that are not connected to a full DeltaV DCS
- Standalone DeltaV SIS unless deployed with all security components listed in the certified reference architecture
- DeltaV MD Plus and SD Plus Controllers
- System Health Monitoring for DeltaV systems
- Components in retired status
- CHARM I/O Card version 1

Note: the CIOC version 2 is a drop-in replacement for CIOC version 1 and is required for the ISASecure SSA certification if the system uses Electronic Marshalling.

- All *WirelessHART™* Gateways available for DeltaV systems (Rosemount 1410, Rosemount 1420, and 1552WU)
- Cisco® switches (any model) on the control network

Note: Only DeltaV Smart Switches are supported on the control network.

Note: The DeltaV Firewall-IPD is required in DeltaV system version 14.3 Feature Pack 1 to complete the ISASecure SSA Level 1 certified architecture. As described in the DeltaV Security Manual, the DeltaV Firewall-IPD has to be configured to block SNMP (Simple Network Management Protocol) communications to DeltaV embedded devices to allow the DeltaV architecture to be compliant with the ISASecure SSA requirements.

For DeltaV version 14.FP1 the DeltaV Firewall-IPD is no longer a requirement to pass ISASecure SSA certification since SNMP version 1 is disabled on DeltaV embedded devices running version 14.FP1 firmware. Emerson continues to recommend the DeltaV Firewall-IPD for DeltaV deployments due to the provided firewall and intrusion protection capabilities that increase the overall security protections for a DeltaV system.

12. Are the Smart Logic Solvers SLS1508 included in the DeltaV and DeltaV SIS ISASecure SSA certification?

Yes. All DeltaV SIS components are included in the ISASecure SSA certified reference architecture. This includes, but it is not limited to: Smart Logic Solvers SLS1508, SISNet Repeaters, CHARM Smart Logic Solvers (CSLS), Local Safety Network Bridges (LSNB), SZ Controllers, DeltaV Safety Switches.

Note: Unless deployed with all security components listed in the certified reference architecture, a standalone DeltaV SIS system is not included in the certification.

13. Does the ISASecure SSA certification apply to all individual DeltaV hardware components?

No. The ISASecure SSA is a comprehensive certification for industrial control systems. Part of the certification process includes individual products testing, but its objective is to certify that the overall system is compliant with the relevant security standards, rather than to provide individual components certification.

14. Does the ISASecure SSA certification apply to standalone DeltaV PK Controllers?

No. The standalone implementation of the DeltaV PK Controller is not included in the certified ISASecure SSA reference architecture. The standalone PK Controller is Achilles Communications Level 2 compliant and it runs the same software as when it is deployed within a DeltaV system (or when merged to the balance of the plant). However, the security boundaries and protections associated to standalone deployments are not often the same as the ones used on a complete DeltaV system architecture.

15. Do I need to deploy a system with the same components as the reference architecture used for the ISASecure SSA certification to have a certifiable DeltaV system?

No. The reference architecture is a sample that includes almost all of the components that DeltaV systems can have and still be considered a certifiable system, which helps maintain certification when different architectures are used. The final architecture will still need to be deployed by service teams and maintained by users that understand the ISASecure SSA standards.

Below you can find a list of required and optional components for reference when designing DeltaV systems intended to be ISASecure SSA certified.

Required Components:

- Ethernet I/O Cards (EIOC) or PK Controller to integrate device networks via Modbus-TCP, EtherNet/IP, IEC 61850 or OPC UA (where applicable).
- CHARM I/O Card (CIOC) version 2 hardware if Electronic Marshalling is included in the architecture.
- Wireless I/O Cards (WIOC) if *WirelessHART* integration is required.
- DeltaV Smart Switches.
- DeltaV Firewall-IPD for DeltaV version 14.3 Feature Pack 1 is required.
- Antivirus and Application Whitelisting.
- L2.5 security perimeter device (firewall to restrict communications through the upper system boundary).
- DeltaV system has to be deployed in a domain environment.

Optional Components:

- Industrial network firewalls such as the Tofino firewall for Modbus-TCP, EtherNet/IP, IEC 62850, etc. are not mandatory.
- SIEM for DeltaV systems.
- Network Security Monitor for DeltaV systems.
- DeltaV Backup & Recovery solution.
- Any of the tested USB scanning solutions for DeltaV systems.
- Emerson Smart Firewall is not a mandatory item, but perimeter protection is.
- Automated Patch Management solution.
- Two-Factor authentication.
- The DeltaV Firewall-IPD is not a mandatory item if using DeltaV version 14.FP1. Emerson recommends the use of DeltaV Firewall-IPDs in any DeltaV system due to the increased protection level with such solution.

See question 11 for a list of components excluded from the ISASecure SSA certified DeltaV reference architecture.

16. If I upgrade to DeltaV system versions 14.3 Feature Pack 1 or 14.FP1, will my DeltaV system automatically be ISASecure SSA certified?

No. The DeltaV DCS and SIS versions 14.3 Feature Pack 1 and 14.FP1 are certifiable, meaning they meet the pre-requisites to enable a full system to be deployed and certified against the ISASecure SSA certification. Architecture changes and additional components may still be required after the system upgrade to versions 14.3 Feature Pack 1 or 14.FP1 to enable the deployed system to be validated against the ISASecure SSA standards.

Where to find more information

- ISASecure website - www.isasecure.org/en-US/
- exida website - www.exida.com/

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