



# CONTROL SYSTEMS ARCHITECTURE ANALYSIS SERVICES

## Design Architecture Review

The Industrial Control System Cyber Emergency Response Team's (ICS-CERT) Design Architecture Review (DAR) provides critical infrastructure asset owners and operators with a comprehensive technical review and cyber evaluation of the architecture and components that comprise their industrial control systems (ICS) operations.

This 2-3 day review includes a deep-dive analysis of the operational process - focusing on the underlying ICS network architecture, integration of Information Technology (IT) and Operational Technology teams, vendor support, monitoring, cyber security controls, and all internal and external connections.

ICS-CERT's assessment team works interactively with your IT and operations personnel to evaluate the current architecture and processes, with focus on three key areas:

### 1. ICS Network Architecture

- Perimeter defenses (both ingress and egress)
- Remote access methods
- Device to device communications (including protocols)
- Field device communications (wired and wireless)
- Trust relationships and interconnectivity with the enterprise network
- ICS protocols and methods of communication (wired and wireless)

### 2. Asset Inventory

- Network and field devices for known vulnerabilities and potential exploitation vectors
- Configuration baselines and conformance to industry best practices and hardening guidelines
- Configuration backup and recovery

- Vendor management and integration
- Data and information integrity
- Physical security of critical assets

### 3. Protective and Detective Controls

- Technologies and methods utilized for detecting anomalous activities
- Review of network device configurations
- Monitoring and alerting mechanisms and processes
- Threat and intelligence data sources – and how these are leveraged within the ICS environment

Because ICS-CERT's DAR is based on Congressional funding, it is available as an onsite facilitated assessment for critical infrastructure asset owners and operators at no cost. Upon completion of the process, ICSCERT will compile an in-depth report for the asset owner, which includes a prioritized analysis of key discoveries and practical mitigations for enhancing the cyber security posture of the organization. All information shared with ICS-CERT during the analysis and the report outcomes are confidential to the asset owner and protected by DHS as Protected Critical Infrastructure Information (PCII). To schedule an assessment, please contact ICS CERT at [ics-assessments@hq.dhs.gov](mailto:ics-assessments@hq.dhs.gov).



## Network Architecture Verification And Validation

ICS-CERT's Network Architecture Verification and Validation (NAVV) is a passive analysis of network header data provided by the asset owner to ICS-CERT from traffic occurring within the ICS network. Using a combination of both open-source and commercially available tools, ICS-CERT is able to present a strategic visualization of the network header data and device to device communications that are occurring within ICS network segments. ICS-CERT's assessment team works interactively with your IT and Operations personnel to evaluate the captured network header data, reviewing:

- Protocol hierarchy and organization of network traffic
- Device to Device communications – including identification of “top-talkers” and the devices generating the most traffic
- Communications traversing (or attempting to traverse) the ICS network boundary – for verification that the perimeter protections are functioning as intended
- Potentially misconfigured devices – or those exhibiting suspicious or anomalous behavior
- ICS protocol analysis - including an in depth review of function codes and control parameters that are observed within the captured traffic.

## Baselining Network Traffic

This service offering provides asset owners with a practical method for baselining network traffic occurring within their ICS network segments. This equates to a powerful detection mechanism to identify abnormal or suspicious traffic occurring within the control environment.

## Outcomes

ICS-CERT will compile an in-depth and detailed report for the asset owner upon completion of the process. In addition to the analysis, ICS CERT provides an overview of the tools utilized – and conducts interactive training on how to best utilize the analysis tools. The ICS-CERT NAVV is also available to critical infrastructure owners and operators at no cost. Like the DAR, all information shared with ICS CERT during the analysis and the report outcomes are confidential to the asset owner and protected as PCII.

### About ICS-CERT

ICS-CERT works to reduce risks within and across all critical infrastructure sectors by partnering with law enforcement agencies and the intelligence community and coordinating efforts among Federal, state, local, and tribal governments and control systems owners, operators, and vendors.

[www.ics-cert.us-cert.gov](http://www.ics-cert.us-cert.gov)

### About NCCIC

The National Cybersecurity and Communications Integration Center (NCCIC) is a 24x7 cyber situational awareness, incident response, and management center that is a national nexus of cyber and communications integration for the Federal Government, intelligence community, and law enforcement.

<http://www.dhs.gov/national-cybersecurity-communications-integration-center>