



SOFTWARE

# TTCR 16.1

Enhanced Cybersecurity and Connectivity

# TTCR 16.1 Software Upgrade

Total Train Comprehensive Release (TTCR) 16.1 is a Pro Built® control system upgrade that delivers significantly enhanced security capabilities for customers with Prodigy and Vanguard S5P control platforms. The release continues to support other platforms including Series 3++, Series 5 Vanguard, Vantage GC/XC, Guardian ODS/SDS, and EAS3.

## Key Benefits

### Enhanced cybersecurity delivered through software

This release adds the following new features through software updates on both the control platforms as well as TrainTools servers.

Existing Pro Built hardware can be kept in place – only requiring CCC's **ProOS** download and configuration.



## Prodigy

### Encrypted Communication:

Prevent network sniffing of sensitive data like credentials

### Communication Robustness:

Defend against denial-of-service attacks

### Security Logs:

Ensure traceability of security events

### Hardening Options:

Further harden the device by optionally disabling non-essential functions

### Secure Boot:

Protect against unauthorized tampering of the embedded operating system

## Vanguard S5P

### Encrypted Communication:

Prevent network sniffing of sensitive data like credentials

### Communication Robustness:

Defend against denial-of-service attacks

### Security Logs:

Ensure traceability of security events

### Hardening Options:

Further harden the device by optionally disabling non-essential functions





## TrainTools

### Latest Windows Operating Systems:

Support Windows Server 2022 and Windows 10 IoT Enterprise LTSC 2021 in addition to Windows Server 2019 and Windows 10 IoT Enterprise LTSC 2019

### Enhanced Security Controls:

Manage security keys, controller communication certificates, and device hardening options with ease

### Integrated User Management:

Integrate with Windows authentication (local or domain) for TrainTools application security

### Updated Software Components:

Leverage the updated Maker Pro IDE and other software with enhancements and bug fixes

## Get your system ready for the next generation of HMI

In addition to improving the control system security, TCR 16.1 adds support for MQTT Sparkplug B client to Prodigy and Vanguard S5P control platforms – paving the way for integration with the next generation of CCC operator HMI software that leverages it. This lightweight Publish/Subscribe (Pub/Sub) protocol enables secure, bandwidth-efficient, and scalable communication that supplements the existing capabilities of these Pro Built platforms.

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