

Universal Wellhead Controller v1.5

Release Notes

16 July 2021

Version History/Revision History

These are the main releases of Product Name:

Date	Revision	Description
Dec 18	0.3	Release notes for Universal Wellhead Controller (UWC) v1.0
July 14	1.0	Release notes for Universal Wellhead Controller (UWC) v1.5

Customer Support

For technical support, including answers to questions not addressed in this product, visit the technical support forum, FAQs, and other support information at:

<http://www.intel.com/software/products/support/>.

Please remember to register your product at <https://registrationcenter.intel.com/> by providing your email address. Registration entitles you to free technical support, product updates and upgrades for the duration of the support term. It also helps Intel recognize you as a valued customer in the support forum.

NOTE: If your distributor provides technical support for this product, please contact them for support rather than Intel.

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1 Introduction

The Intel® UWC is a reference design for a secured management platform that gives third party application developers an easy access to data services including data collection from field devices, control data pathways, and connections to centralized data systems (i.e. SCADA) for Upstream Oil and Gas facilities including gas well sites.

The Intel UWC platform will provide a secure, management platform for oil and gas upstream process monitoring and control to support oil and gas installations with various artificial lift methods such as plunger lift, gas lift, gas-assisted plunger lift, rod-beam and electronic submersible pump (ESP).

Intel's primary objective in this market is to move the Upstream Oil and Gas vendors, service providers, and end-users to adopt Intel-based hardware hosting a rich range of open-architecture software-defined platforms. Solution is targeted to address multiple pain areas O&G industry is facing in day-to-day operations. These pain areas are further restricting O&G industry to get benefitted from technology advancements resulting from cloud-based services and applications for business intelligence (BI), analytics, dashboards, etc. There is a need to provide a uniform mechanism to connect, monitor and control various devices in an O&G well-site adhering to real-time nature of the industry.

While the Intel UWC software solution described in this Users' Guide contains a data model specific to a Gas Wellpad, the software is flexible and can be configured for use with other soft-RT process control sites and operating assets.

To learn more about this product, see:

- UWC features are listed in the [Basic features](#) section below, or in the help.
- Reference documentation listed in the [Related Documentation](#) section below

2 Basic Features

Feature list- supported in UWC-v1.5

- Eclipse foundation Sparkplug standard Template feature support
 - User Defined Template (UDT) definition and instance
 - Publish –Subscribe interface for third party App for publishing UTD and instances
- Seamless edge to cloud connectivity with AWS IoT site wise
 - UDT publishing
 - Realtime Tags update
 - Realtime connection/disconnect update
- Data Conversion and transformation
 - Data ingested by Modbus services is converted to data type defined in the configuration
 - Data ingested by Modbus services is transformed based on the scale factor defined in the configurations
- UWC migrated to EII 2.5
- UWC open source with MIT license on GitHub

Feature list supported in UWC-v1.0

- Harden Modbus TCP protocol stack and application supporting soft real-time control
- Harden Modbus RTU protocol stack and application supporting soft real-time control
- User defined System model configuration in YAML format
- MQTT Publish-Subscribe interface for process control APP development
- Internal EII Data bus with IPC mode
- Eclipse Foundation Sparkplug specification compliant SCADA RTU
- Sample KPI testing for control loop benchmarking
- Device Management with OTA (Over-The-Air) firmware, OS and Docker container update

Changes to Existing Features

- In UWC-v1.5, the KPI App was changed allowing for more than 1 control loop.
- In UWC-v1.5 the EII bus which has the XPUB-XSUB capability is used by the UWC containers.
- In UWC-v1.5, the Sparkplug service has been augmented and validated with the “templates” which allows it to interface with AWS Outpost.

Unsupported or Discontinued Features

- None

3 Related Documentation

The required documentation is available in the **user guide** in the document folder of the release package

4 Where to Find the Release

Sources and Documents will be available via <https://github.com/open-edge-insights/uwc>.

5 How to Install this Release

Refer Installation section of the UWC User Guide at <https://github.com/open-edge-insights/uwc-docs>

6 Tested Development Kits and Configurations

System was validated using the Axiomtek rBOX510-6COM (ATEX/C1D2) ATEX & CID2 Anti-Explosion Certified Robust DIN-rail Fanless Embedded System with Intel® Atom® Processor E3827 (1.75 GHz). Devices from other manufacturers which meet the system requirements will also work.

7 Hardware and Software Compatibility

The UWC reference middleware is scalable and flexible to run on a variety of Intel-based platforms. For commercial scale deployment to Upstream Oil and Gas well pads, devices with Atex/C1D2 certifications are required. Hardware vendors have made available a range of Atom-based platforms with processors such as the Atom E3930 for power-efficient operation, E3950, and Core-i7 processors for scalable solutions and larger and more complex sites.

The UWC reference middleware can be evaluated on a virtualized Intel-based platform such as Core-i7 desktop or laptop computer running Windows 10 with Hyper-V.

The base hardware requirements for UWC reference middleware are:

- Two or more physical or virtual cores
- Intel Atom® or Intel® Core™ processor familyclass CPU
- 4GB memory
- 25GB hard disk space
- Ubuntu* 18.04 server operating system with Preempt RT Patch
- Two or more Ethernet connections
- Optional: if user wishes to have RS-232 or RS-485 serial ports