SRB for Honeywell Optimizer Unitary Controller

June 28, 2024

Updated Firmware and IRM Niagara Tools Release Bulletin

1. Release Summary

Product Name	Honeywell Optimizer Unitary Controllers
Type of Release	O&M Release in Q2 (2024)
Release Date	June 28, 2024

1.1 Scope of Release

The release is intended to be an update for the Niagara Honeywell Optimizer Unitary Controllers. The release includes an updated Firmware for Honeywell Optimizer Unitary Controllers and IRM Niagara Tools. The IRM Niagara Tools can be used for Merlin NX Compact VAV, Merlin IRM NX, Honeywell Optimizer Unitary 24V/230V, and Merlin NX IP/MSTP VAV integrated controllers.

Please, always check the TOOL version installed in your current programming tool to keep it up to date.

Contact Details

Offering Name	Owner	Contact Details
Offering Manager Honeywell Europe	Jan Simicek	Jan.Simicek@Honeywell.com
Technical Support Honeywell Europe	TAC Europe	tac-europe-controller-care@honeywell.com

1.2 Part Numbers

PART NUMBER	HOUSING	UNIVERSAL IO	DO CHOPPER OUTPUT (DO CHP)	RELAY	COMMUNICATION	SYLK™ BUS	BLUETOOTH
UN-RS0844MSB*NMC	Small	8	4	4	BACnet™ MS/TP	Yes	Yes
UN-RS0844ESB*NMC	Small	8	4	4	BACnet™ IP	Yes	Yes
UN-RS0844TSB*NMC	Small	8	4	4	BACnet™ T1L	Yes	Yes
UN-RL1644ESB*NMC	Large	16	4	4	BACnet™ IP	Yes	Yes
UN-RL1644MSB*NMC	Large	16	4	4	BACnet™ MS/TP	Yes	Yes
UN-RL1644TSB*NMC	Large	16	4	4	BACnet™ T1L	Yes	Yes
UN-RS0844MS*NMC	Small	8	4	4	BACnet™ MS/TP	Yes	No
UN-RS0844ES*NMC	Small	8	4	4	BACnet™ IP	Yes	No
UN-RS0844TS*NMC	Small	8	4	4	BACnet™ T1L	Yes	No
UN-RL1644ES*NMC	Large	16	4	4	BACnet™ IP	Yes	No
UN-RL1644MS*NMC	Large	16	4	4	BACnet™ MS/TP	Yes	No
UN-RL1644TS*NMC	Large	16	4	4	BACnet™ T1L	Yes	No

^{*24} for 24V versions, 230 for 230V versions

2. Release Components and Versions

The Firmware and Tool packages are available on SBC support page www.sbc-support.com.

Components	Version	Changed in this Release?
Tools version	V2.11.0.7	Yes
Firmware version	V2.0.8.32	Yes
Firmware File Name (MS/TP, IP CAT5, and IP T1L)	NC_Unitary_V2.0.8.32.ufw	Yes
Application Template Version	IRMN_H_0003 with TR40, TR42, wired wall module _ 1.0.0.11 IRMN_H_0003 with TR80_1.0.0.11	No
BMS Startup – Point Check-out (previously Wire & Check app)	1.1.0	No
Boot Loader	1.9.2.1	No
BLE Firmware Version	0.0.0.8	No
IRM Function Block	IRMN_FB_Ver_2.0.0.0	No

2.1 Modules Details

The Jar files included in the tool are listed as follows:

Module Name	Version – 4.10.7	Version – 4.13.2
honIrmControl-doc.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmControl-ux.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmControl-rt.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmControl-wb.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmConfig-wb.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmConfig-rt.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honIrmConfig-doc.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honirmConfig-ux.jar	4.10.7.2.11.0.7	4.13.2.2.11.0.7
spyderToIrmNxMigrator-wb	4.10.7.2.11.0.7	4.13.2.2.11.0.7
honeywellVersionManager-rt.jar	4.10.7.1.1.100	4.13.2.1.1.100
honeywellSylkDevice-rt.jar	4.10.7.2.5.4	4.13.2.2.5.4
honeywellSylkDevice-ux.jar	4.10.7.2.5.4	4.13.2.2.5.4
honeywellSylkDevice-wb.jar	4.10.7.2.5.4	4.13.2.2.5.4
docHoneywellSylkDevice-doc.jar	4.10.7.2.5.4	4.13.2.2.5.4
airFlowBalancer.jar	4.10.7.12.2.18	4.13.2.12.2.18
honIrmAppl-rt.jar	4.10.7.1.0.1.19	4.13.2.1.0.1.18
honBacnetHelper-rt.jar	4.10.7.0.22.6	4.13.2.0.22.6
honeywellBacnetDeviceManager-rt.jar	4.10.7.1.5.0	4.13.2.1.5.0
honeywellBacnetDeviceManager-wb	4.10.7.1.5.0	4.13.2.1.5.0
honeywellDeviceManager-rt	4.10.7.1.5.0	4.13.2.1.5.0
honeywellDeviceManager-wb	4.10.7.1.5.0	4.13.2.1.5.0
honProjectExport-rt	4.10.5.0.2.8	4.13.2.0.2.8
honProjectExport-wb	4.10.5.0.2.8	4.13.2.0.2.8

2.2 Niagara Compatibility

Niagara Version	Tools Version
Niagara v 4.13.2	IRM_Tools_V_4.13.2.2.11.0.7
Niagara v 4.10.7	IRM_Tools_V_4.10.7.2.11.0.7

2.3 Software Compatibility

The latest release of the tool on the higher Niagara version will be backward-compatible with the older tools. Users can upgrade their station to a new version of Niagara (subject to License availability) and use the new version of the tool without loss of data.

Brands	Versions
Advanced Plant Controller	4.10.7.42.0.7
Optimizer Supervisor	4.10.7.42.1, 4.13.2.18
Niagara Version	4.13.2.18

2.4 Application

The **honIrmAppl** palette includes the below applications. After opening the application in the palette, the **IRM Program** Folder can be dragged and dropped onto the controller. The applications can be used with Merlin NX and Optimizer Unitary controllers.

Application	Version	Description
IRMN_H_0003 with TR40, TR42, wired wall module	1.0.0.11	This application covers the TR40/42, FCU heating, cooling, Dx cooling, 3-speed/variable speed fan, 6-way-valve, Ceiling cooling, ceiling heating, and fresh air damper with CO2 control.
IRMN_H_0003 with TR80	1.0.0.11	It has the same application as above but works with Modbus Wall module TR80

After the **Teach Full Application to Controller**, the Service LED will flash yellow, indicating a communication error. The application must be adjusted so that the communication error detection is activated only for the plant controller to receive data points. Search for the following function block types via **IRM Program - Find - Type =** honIrmControl, then select the below function block type (leave Name empty) and set Fail to Detect correctly for below datapoints/function block names.

BacnetBooleanValue

Function block	FailDetect – Enable
Cfg0107_ApplHvacMdBits_Clg02_DX	Set it always to false. This will be corrected.

BacnetEnumValue

Function block	FailDetect – Enable
All Ext datapoints	If the data point should be received from the plant controller, then set FailDetect to true or false.

BacnetNumericInput

Function block	EventDetectionEnabled
All Hw datapoints	If the sensor is connected to the hardware terminal, set it to true; otherwise, set it to false. Datapoints coming from TR40, TR42, and TR80 can be set to false because they are not connected to terminals. Instead, the value is received from a communication bus.

EffRmTemp	Set it to true if any room temp is used in the application.
EffRmHum	Set it to true if any room humidity is used in the application.
EffRmCO ₂	Set it to true if any room CO ₂ is used in the application.

3. Overview of the Release

3.1 New Features

- TR100 support for FW download. TR100 Firmware Version: 1.0.7.0 onwards
- Defect fixes in Firmware and IRM Tools
- TR100 device as TR42 Emulation
- TR100 device as TR75 Emulation
- BACnet Firmware Download for TR100 using Plant Controller

The SKUs are referenced in section 1.2.

Firmware Defects Fixes done in this release:

PCR Number	Details	
GBCG-51891	Smart Sensor (modbus/sylk) field device ping feature support.	
GBCG-51896	During T100 firmware download using MODBUS, TR100 device is not responding within 500ms timeout	
GBCG-35860	Floating - Sync cannot be triggered if power-up sync is not configured	
GBCG-43796	ModbusReadPoint and ModbusWritePoint show OutCause=255 - 1-RS485 Modbus LED switches ON	
GBCG-43797	ModbusWritePoints with In=Null should not be send on Modbus	
GBCG-49580	Chopper Functionblock - Wrong Out value for Reverse Characteristics and for In=Null	
GBCG-51428	Functionblock WmConfigHvacA or Sylk Proxy - Fan symbol is displayed regardless of deactivation	
BTOOLS-20945	Terminal address support for AO data point with device type set to floating 28V assigned to chopper terminal.	
GBCG-51296	Beats_Uni_Niagara: The current firmware status for Beats Unitary MSTP VAV and Beats Unitary MSTP FCU does not reflect the upgraded firmware version, even after a successful upgrade.	
GBCG-54493	TR100 Modbus/sylk: Fetch field device summary is not working when TR100 modbus/sylk device's instance is double/triple digit	

Niagara Tools Defects Fixes done in this release:

PCR Number	Details
BTOOLS-21086	Failing to teach to controller, after Unitary controller Firmware Upgrade in three controllers through Niagara engineering tool
BTOOLS-20017	Firmware download fails when Small and large variant unitary FCU 230v selected together and same type of small FCU variant selected together for more than one device.
BTOOLS-16632	subfolders cannot be more than 5 deep in IRM

BTOOLS-19929	JACE9000: Application fullteach is getting failed due to invalid hardware compatibility check by selecting and doing the teach with combination of variants when all devices are swapped out.	
BTOOLS-20858	-[Niagara] [honIrmControl] defaultValue of SensorOffset fb can only be used temporarily after loading TR75 configuration.	
BTOOLS-20736	occupancy override configuration was not successful, getting error message "In Sylk param OccupancyOverrideCommand - ORD:h:38207 -> tR7XConfig, atleast one override state needs to be enabled."	
BTOOLS-20727	Severe priority logs for missing class for Honeywell Sylk Device Module	
BT00LS-20726	Configured scrolling screens in Home screen options, Left home screen was not coming in TR100/TR42*	
BT00LS-20724	In Network setpoint disabled allow null values, but still allowing in TR100/TR42* display. And initially values are not displayed when switch from absolute to relative set point	
BT00LS-20720	In both Tenant and contractor modes, not able to see humidity and Co2 values. But it is displaying in home screen, if configured for home screen option.	
BTOOLS-20719	Network setpoint name length exceeds 15 char limit by default. Hence teach to controller fail with default name	
BT00LS-20718	Room temperature offset range was not coming. And also it has to show correct range, when select Celsius and Fahrenheit	
BTOOLS-20717	Humidity offset range was showing as [-9.0 - 9.0]. It looks like same values. Instead it should as [-9.0 to +9.0]	
BT00LS-20716	Network setpoint configured as Tenant read only, But able to change the set point range from TR100/TR4E Wall module	
BTOOLS-20698	Humidity param validation is unsuccessful in F1 for TR100 devices.	
BTOOLS-20697	TR100 device values are not visible in the wire sheet for F1	
BTOOLS-20096	Could not see value in 2 decimal for both Temp anad Humidity at the same time in TR75 device	
BTOOLS-20095	Controller alarm should not be displayed in the device enum of TR100 as TR75 device.	
BTOOLS-20093	Fan command states not displayed on TR100 device as TR42 Enumeration.	
BTOOLS-20092	Network Setpoint Configuration for TR42 Emulation Device	
BTOOLS-20091	Unit not displayed on TR100 device screen when change in Room temp param	
BTOOLS-20090	Home screen options in TR100 Device when configured as TR42 Emulation Device	
BTOOLS-20089	User configures the Param Permission for Room Temp as Tenant read only	
BTOOLS-20088	When decial change in tr4xconfig from 0 to 1. Decimal value doesn't change.	
BTOOLS-20084	Type list of those auto discovered TR100 devices don't contain Hon Bacnect TR100 TH/Hon Bacnect TR100 THC	
BTOOLS-20059	Configuring the CO2 sensor for Sensor Offset is supported for TR100 device as TR75 Emulation device	
BTOOLS-20057	The Fan Command Mode displays on the Screen after the user manually navigates from one page to other page	
BTOOLS-20056	The Unit Property in the Room Temp Parameter does not update the unit on the TR100 device	

BTOOLS-20054	TR100 device when configured as TR42 Emulation or TR75 Emulation over Sylk does not allow to change the configuration
BTOOLS-20052	[Niagara]No CO2 and humidity shows in more menu and contractor mode after configurating TR100_TR42*mulation as TR100_THC_TR42*/TR100_TH_TR42* sylk device type.
BTOOLS-19974	Schedule Param Permissions are not working for the TR100_TH_TR75E device type
BTOOLS-19949	The Fan Command value is not written to the Fan Command point.

BMS Startup - Point Check-out (previously Wire & Check app) Defects Fixes done in this release:

Not Applicable

3.2 Known Open Issues

PCR Number	Defect Details	Workaround
BTOOLS-19973	The IP configuration page is not loaded fully when the user selects more than 32 controllers in the Honeywell BACnet device manager view.	Select 30 controllers and then do Batch IPConfig.
BTOOLS-20033	After Master Sync, Source devices Values & Properties are updated to Target devices, Sync Status is retained InSync.	User have to wait more than 10mins to get the current sync status.
BTOOLS-20020	Random controllers went into password mismatch state during runtime.	Factory reset and match the controller again with database.
BTOOLS-19950	After upgrading firmware to v2.0.7.56 the sync status changed into Bacnet object configurations changed for Unitary VAV and Unitary FCU controllers.	Application Fullteach is required.
BTOOLS-19941	Master sync results with failure message in job log and changes synchronized to target controller from source.	Delete and add the device again to database.
BTOOLS-19758	Found station deadlock on IRM Tool during Swap in operation.	Restart the station
BTOOLS-19529	Tool should prevent to download the unsupported firmware.	User should select the right model for firmware download.
BTOOLS-19520	Application fullteach is getting failed after Master sync via Honeywell Actions.	Delete and add the device again to database.
BTOOLS-19453	Application Full teach pop up screen (UI) is extended while doing Application full teach/Teach.	No workaround
BTOOLS-16930	Common Device View Manager Freezes/Flickering and Drop-down list is unavailable.	Close and reopen the view again

duce the Broadcast
g Tool, Discover the ect the list of e in Balancing and Normal
pdated in the
on periodic send.
Known Workaround
Known Workaround
itch else Delete and
lancing tool, we can ate, and the te to the correct earn it back into the he controller.

BTOOLS-21424	Compact VAV (Spyder5) AC1/AC2 output will stop responding to program after a day or two	Rare Scenario, No Known Workaround	
BTOOLS-21894	Belgium , IRM : Help insufficient for Linear Graph function block, Case 14573183	Would be addressed in next release	
GBCG-56416	Customer issue: BLE firmware NordicFwOutput_V0.0.0.08 1.bin not loadable on customer sites	Very Rare. This issue is not reproducible.	
GBCG-56421	Two UN T1L FCU controllers are delivered with same Serial number, Case 14751647	No workaround. Customer should return back controller with same serial number.	
GBCG-56444	Customer issue: Functional incompatibility of generic Sylk programming and WmConfigHvacA - reset WM parameter settings	No Workaround	
GBCG-56548	Customer issue: few properties of the Intrinsic Alarming-extension on the different point types are missing	No workaround	
GBCG-56595	Documentation: CPO-Unitary, IP/MSTP VAV controller cannot configure or work with BACnet UDP port other than 47808 need to be documented.	Literature is updated.	

4. Compatibility

Item	Description	
	Honeywell Unitary Controllers (This firmware supports the part number mentioned in the section 1.2)	
Hardware	This release also supports Merlin IRM, Merlin NX, Merlin NX Compact VAV and Merlin NX IP/MSTP VAV	
IRM Tools	The Niagara IRM tools support Honeywell Optimizer Unitary, Merlin NX IP/MSTP VAV and Merlin NX Compact VAV controllers.	
Bacnet Compatibility	BACnet™ BTL®-Listed; IP, MS/TP Unitary models as BACnet™ Advanced Application Controller (B-AAC).	
Language Support	Tools: English	
Translation Web UI	Translations need to be handled through lexicons in Niagara.	
Engineering Access	Refer to the Niagara Security guides to secure your Niagara installations.	

Supported devices Sylk_Bus_Limits_Calculator_V1.9.xlsx

As per the previous release version V1.9, Slyk IO limits for Spyder classic have been added to the latest version V1.8 and TR100 support in version 1.9.

Device	Model	
Sylk™ Wall Modules	TR42, TR42-H, TR42-CO2, TR42-H-CO2, TR71, TR71-H, TR75, TR75-H, TR75-HE, TR120 (TR75-E), and TR120-H (emulation mode only), TR100_TH, TR100_THC (TR42 & TR75 Emulation only)	
Sylk™ Sensor	TR40, TR40-H, TR40-CO2, TR40-H-CO2, TR50, C7400S	
Sylk™ Actuators	MS3103, MS3105, MS3110, and MS3120	
Non Sylk™ Actuators M6410C2023, M6410C2031, MVN643A1500, ML6420A3007, ML6420A30A3007, ML6420A3007, ML6420A3		
Hardwired Wall Modules TR21, TR22, TR23, TR24, T7460 A, B, C, D, E, F and T7770 A, B, C, D, E,		
Modbus RTU devices from any manufacturer (including Honeywell Modbus Devices for example, DALI64MODPSUF/S, TR50, and TR80, TR100) ca		

5. Applicable Limitations

5.1 Maximum Application Memory

Application size is dependent on number of folders included in application and number of function blocks added inside folders.

While making an application, user should ensure following conditions:

- Maximum 100 folders overall
- Maximum 100 function blocks per folder
- Maximum 5000 function blocks
- Sylk device configuration limited by Sylk power usage

Application design can be distributed between 2 default folders: Periodic folder and Event Folder.

Periodic Folder

It executes all the components (folders and function blocks) inside this folder periodically every 500 ms.

Event Folder

The event-based program is executed.

- Whenever a Hardware point which is configured as Binary Input changes its state. But only if that Hardware point is used as an input slot to a function block in the event program. You can configure BI and UI as Binary inputs.
- When a time interval of 1000 ms (about 1 second) has elapsed.

5.2 System Recommendation / Limitation

Additional information about the maximum number of data points (read/written) is shown below:

Function	Maximum number of devices	
Recommended Maximum number of BACnet T1L & IP devices. • Local (45 Proxy points/15 Ref in per device/15 Ref out per Channel)	100 devices in Daisy chain (Local Station).	
Recommended Maximum number of BACnet T1L & IP devices where the station is running in WEB-8000, EAGLEHAWK, Optimizer Advanced Controller (45 Proxy points/15 Ref in per device/15 Ref out per Channel)	100 devices in Daisy chain (Only in swap out mode) - Engineering to be carried out in local station.	
Recommended Maximum number of BACnet T1L & IP devices Local Station (45 Proxy points/15 Ref in per device/15 Ref out per Channel)	40 devices (39 devices with one switch) in Ring topology.	
Recommended Maximum number of BACnet T1L & IP devices where the station is running in WEB-8000, EAGLEHAWK, Optimizer Advanced Controller (45 Proxy points/15 Refin per device/15 Refout per device)	40 devices (39 devices with one switch) in Ring topology. Depending on the performance needs of the application and bus traffic, it is recommended to keep the number of devices below 40.	
Recommended Maximum number of BACnet MS/TP devices per channel with station running in supervisor. • (15 Proxy points/15 Ref in per device/15 Ref out per channel) We recommend a lower number of BACnet MS/TP devices depending on communication needs(traffic) and performance needs of the application.	62 devices with BACnet MS/TP router (WEB-8000, EAGLEHAWK, Optimizer Advanced controller)	
Recommended Maximum number of controllers / JACE 8000 / EAGLEHAWK (15 Proxy points/15 Refin per device/15 Refout per device) We recommend a lower number of BACnet MS/TP devices depending on communication needs (traffic) and performance needs of the application.	40 devices with Advanced controller/JACE 8000 / EAGLEHAWK Depending on the performance needs of the application and bus traffic, it is recommended to keep the number of devices below 40.	

Function Blocks Usage	
Maximum recommended function blocks per folder.	100
Recommended function blocks	5000
Recommended IRM folders overall	100
Maximum Wall Module/device (Any Wall module even Sylk)	The maximum number of wall modules depends on the following wall module specific information: Sylk bus power consumption Number of parameters used.

Total config file size
The IRM NX tool has an inbuilt resource calculator to
calculate the amount of Sylk wall modules.

Modbus Usage	
Maximum number of Modbus Registers per Modbus Server controller (Merlin NX, Optimizer Unitary and VAV IP/MSTP)	155
Maximum number of Modbus High Priority Registers per Modbus Server controller (Merlin NX, Optimizer Unitary and VAV IP/MSTP)	6
Maximum number of Modbus devices that can be connected to Modbus Server controller (Merlin NX, Optimizer Unitary or VAV IP/MSTP)	32, It is recommended to connect a smaller number of Modbus client devices for better Modbus performance.

5.3 COV Limitations

Function	Maximum number
COV – client/subscription per controller (Honeywell Advance Control Unitary)	150

6. Product Introduction

It is a maintenance release.

7. Applicable Literature

All the documents are available in the shared location for the references of brands. Common documents are brand neutral and shared across all brands.

SharePoint link details are in section 2.

LOB	Product Name	Document Type / Title	Doc ID
Common Documents	T1L Media Adapter	Data Sheet	31-00581
		Installation Instructions	31-00582
Honeywell	Optimizer Unitary Controller	Product Datasheet 230V	31-00608
		Mounting Instructions 230V	31-00609
		Installation Instructions 230V	31-00610
		Product Datasheet 24V	31-00613
		Mounting Instructions 24V	31-00572
		Installation Instructions 24V	31-00614
		IRM Engineering Guide 24V and 230V	EN2B-0414-GE51
		IRM Function Block User Guide 24V and 230V	EN2B-0415-GE51

8. Release History

Release Date	Tools Version	Firmware Version	Release Type
28 June 2024	2.11.0.7	2.0.8.32	O&M Release in Q2 (2024)
15 March 2024	2.10.0.4	2.0.7.58	O&M Release in Q1 (2024)
13 December 2023	2.9.16.0	2.0.7.41	Unitary 230V – support for BLE variants
20 November 2023	2.9.6.0	2.0.7.20	Unitary 230V – FW only release to support non-BLE IP and T1L variants
13 October 2023	2.9.6.0	2.0.4.18	Unitary 230V – Launch with non-BLE MSTP variants only
12 May 2023	2.5.0.17	2.0.3.44	Updated FW-only Release for Unitary 24V
28 Apr 2023	2.5.0.17	2.0.3.33	Product launch for FCU 24V
09-Jan-2023	2.4.1.15	2.0.0.33	IP VAV resiliency release – CL brand initial release
19-Sep-2022	2.3.1.16	2.0.3.08	Maintenance Release
01-Jun-2022	2.2.3.18	1.0.1.32	VAV Balancing App: 1.7. 0.15 Global Balancing Tool: 13.0.38.34
21-Jan-2022	-	2.0.1.18	Firmware only maintenance release
23-Nov-2021	2.2.2.38	-	Tools only maintenance release
26-Jul-2021	2.2.0.24	-	Maintenance release with Tools build only
23-Apr-2021	2.2.0.21	2.0.1.12	Maintenance release
22-Dec-2020	2.2.0.17	2.0.0.85	Current Maintenance Release
24-Sep-2020	2.2.0.9	2.0.0.73	Patch Release
08-Apr-2020	1.1.0.11	1.1.3.0	Patch release of MERLIN NX with Modbus protocol enhancement
04-Dec-2019	1.1.0.9	1.1.2.2	Update release of IRM NX with Modbus protocol enabled
12-Sep-2019	1.0.1.7	1.0.2.2	Update release of IRM on Niagara NX with Secure commissioning communication and password feature
15-May-2019	1.0.0.37	0.0.7.1	New product release, IRM on Niagara N4