



## What's New In Yukon Software Version 5.3

 **COOPER** Power Systems



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Version 5.3

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# What's New in Yukon Software Version 5.3

This document highlights the new features in Yukon Software version 5.3. For a comprehensive list of all the changes in Yukon Software version 5.3, please refer to the *Yukon Software Version 5.3 Release Notes*.

## Advanced Metering Infrastructure (AMI) Enhancements

AMI enhancements for Yukon Software version 5.3 include:

- **RF Water Meter Support** – General data collection and archiving were added to support Cooper Power Systems' radio frequency (RF) water meters; see [page 2](#).
- **Archive Data Analysis** – Groups of meters can now be selected and analyzed for missing profile data. If missing data is identified, a request to collect the targeted intervals may be issued; see [page 3](#).

## Demand Response Enhancements

Demand Response enhancements for Yukon Software version 5.3 include:

- **UtilityPRO G2 Support** – The 7-day thermostat schedule is supported in this next generation of UtilityPRO thermostats; see [page 4](#).
- **UtilityPRO ZigBee Support** – ZigBee® Smart Energy™ certification and the 7-day thermostat schedule are supported in this new UtilityPRO thermostat; see [page 4](#).
- **Updated Thermostat Schedule Pages** – A new look and feel was provided to set and manage thermostat schedules; see [page 5](#).
- **7-Day Thermostat Schedule** – A 7-day thermostat schedule was implemented for the next generation of UtilityPRO thermostats to allow thermostat settings to be individually customized for each day of the week; see [page 6](#).
- **iDigi Integration** – The Yukon application was enhanced with iDigi® integration to communicate with UtilityPRO thermostats, LCRs, and metering devices that use the ZigBee Smart Energy protocol; see [page 7](#).
- **LCR 6200 Support** – This new load control switch provides flexible communications options, smart load cycling, and power quality protection; see [page 8](#).

## Distribution Automation Enhancements

Distribution Automation enhancements for Yukon Software version 5.3 include:

- **IVC** – The Integrated Volt-VAR Control (IVC) module now offers per-phase voltage regulation on a zone-by-zone basis; see [page 9](#).
- **CBC 8000 Support** – The Yukon application was updated for the CBC 8000 capacitor bank control. The new CBC 8000 is designed to deliver on Smart Grid automation requirements; see [page 10](#).

## AMI Enhancements

### RF Mesh Water Meter Support

Support for the Cooper Power Systems’ RF mesh water meters was added to the Metering pages within the AMI module.

Cooper Power Systems’ RF Mesh AMI network provides utilities with a single integrated-mesh network for electric, water and gas data communications. Best suited in service areas with dense meter populations, the RF Mesh AMI network delivers reliable two-way communications across an unlicensed 900 MHz spread spectrum utilizing radios with 50 channels for frequency hopping.

The following information is displayed on the Meter Detail page for RF mesh metering:

- Meter Information
- Water Meter Readings
- Device Groups
- Trend
- CIS Information

**Figure 1. RF Water Meter Support**

The screenshot displays the 'RFW-Water 1' meter detail page. On the left, there are five callout boxes with arrows pointing to specific sections of the interface:

- Meter Information:** View the water meter configuration data from the Yukon database. (Points to the 'Meter Information' section)
- Water Meter Readings:** View recent data collected from the water meter and collect the current readings. (Points to the 'Water Meter Readings' section)
- CIS Information:** View the customer account information from the CIS system that is linked to the Yukon application. (Points to the 'CIS Information' section)
- Device Groups:** View and modify the groups to which the water meter belongs. (Points to the 'Device Groups' section)
- Actions:** Access the collection actions. (Points to the 'Actions' section)

On the right side of the interface, there is a 'Trend' section with a bar chart showing 'USAGE\_WATER: 08/01/2011 - 08/15/2011'. A callout box points to this chart: 'Trend View a “snap-shot” trend of data collected from the water meter.'

The interface also includes a 'Current Groups' section with links to system attributes and device types, and an 'Add to Groups' button.

# AMI Enhancements (Cont'd)

## Archive Data Analysis

The Archive Data Analysis tool is designed to analyze metering data for missing profile intervals. If segments of data are missing from the Yukon database archive, the Yukon application can be used to read the meters and attempt to retrieve the missing data.

After the analysis is complete, a graphical time line is displayed to illustrate the missing profile data. The results tell you how many intervals are missing for each meter in the collection.

A number of actions are available to you. The meters may be read to capture the missing profile data, or the analysis may be re-run. The analysis results may be exported in comma separated value (.CSV) format to a file for further review.

**Figure 2. Archive Data Analysis Pages**

**Bulk Operations**  
The Archive Data Analysis option is listed on the Collection Actions page and it may be performed on any collection of meters.

**Archive Data Analysis Options**  
Select the time period for the analysis, the profile interval, and the type of profile data to analyze.

**Archive Data Analysis Results**  
View the graphical representation of the analysis results to see where the holes are in the profile data. Meters with missing information can be re-read to backfill the Yukon database with the missing intervals.

The screenshot shows the following interface elements:

- Collection Actions Page:** Includes sections for Group Management (Add To Group, Remove From Group), Editing (Mass Change, Change Type, Mass Delete), Commands (Send Command, Read Attribute, Locate Route), Reporting (Device Report, Data Analysis), and Add/Remove/Update Points.
- Archive Data Analysis Page:** Shows 'Devices Selected: device group / System / Meters / Scanning / Load Profile' and 'Device Count: 19'. It includes fields for Start Date (10/01/2011), Stop Date (10/31/2011), Interval (5 minutes), and Attribute (Load Profile). An 'Analyze' button is present.
- Archive Data Analysis Results Page:** Displays 'Analysis Parameters' (Attribute: Load Profile, Date Range: 10/01/2011 00:00 to 10/03/2011 00:00, Interval: 5 minutes, Point Quality: Include All Qualities) and 'Actions' (Read All Devices, Export CSV, View Tabular Results, Re-run Analysis, Collection Actions). The 'Analysis Results' section features a table with columns for Device Name, Device Type, Intervals Missing, and a Timeline (576 Intervals) showing green bars for data present and gaps for missing data.

# Demand Response Enhancements

## UtilityPRO G2 and UtilityPRO ZigBee Thermostat Support

The new UtilityPRO G2 and the UtilityPRO ZigBee thermostats were added to the Yukon application to offer 7-day scheduling and ZigBee communications to residential customers.

The UtilityPRO ZigBee is Smart Energy Profile (SEP) 1.1 certified for use in a ZigBee home area network (HAN). This certification means that the UtilityPRO ZigBee thermostat can receive demand response and other signals from the utility through the customer’s in-home Digi™ gateway. The UtilityPRO ZigBee received the “Golden Unit” designation from the ZigBee Alliance making it the benchmark that the alliance will use to test other products for SEP certification.

These thermostats also offer multiple control strategies that include:

- Simple cycling
- Set point control
- Ramped Temperature control
- TrueCycle control

TrueCycle control uses an advanced algorithm to forecast the next hour’s runtime. This algorithm is based on the historical runtime profile and the previous hour’s runtime, then the thermostat controls the load for a specified percentage of that runtime.

**Figure 3. UtilityPRO G2 and UtilityPRO ZigBee Support**

**Hardware Page**  
Create, edit and monitor UtilityPRO thermostats and the other devices assigned to a residential consumer account.

**UtilityPRO G2 and UtilityPRO ZigBee Thermostat Information**  
Edit configurations, change out devices, view schedules, or access control, device status and hardware histories. You can also view the ZigBee status and commission or decommission UtilityPRO ZigBee thermostats.

# Demand Response Enhancements (Cont'd)

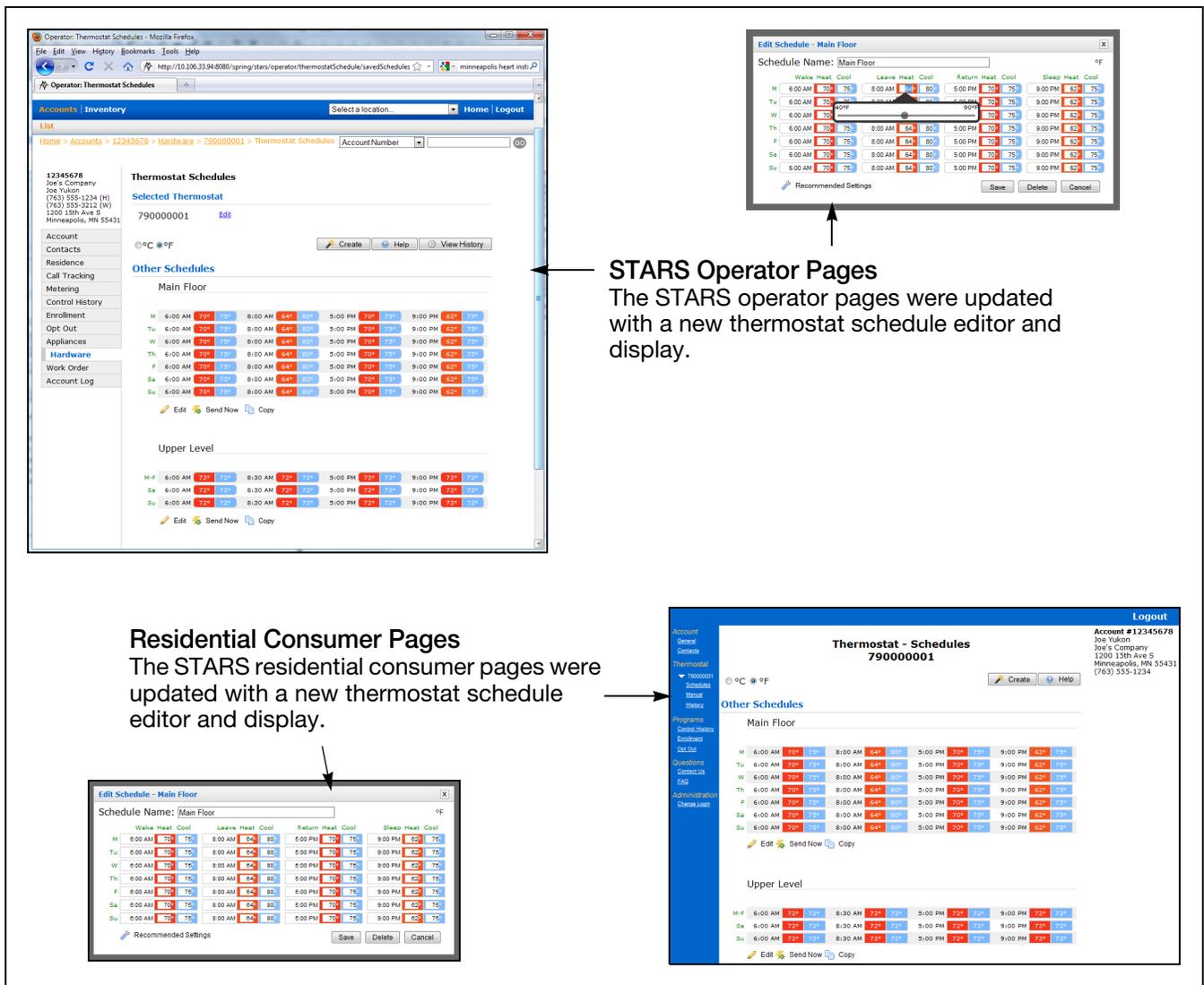
## Updated Thermostat Schedule Pages

The thermostat scheduling interface was updated to allow times and temperatures to be entered from both the keyboard or with the mouse. These changes were applied to both the customer service and to the residential consumer pages to improve usability while retaining existing functionality.

Depending on the type of thermostat, the following scheduling options are available:

- 7-Day
- Weekday, Weekend (5+2)
- Weekday, Saturday, Sunday (5+1+1)
- Same Schedule Every Day of the Week (7)

**Figure 4. Updated Operator and Consumer Thermostat Schedules**



## Demand Response Enhancements (Cont'd)

### 7-Day Thermostat Schedule

A new thermostat schedule was created in the Yukon application to allow thermostat settings to be individually customized for each day of the week. This option is only displayed for thermostats, based on the UtilityPRO G2 hardware, that support the 7-day schedule.

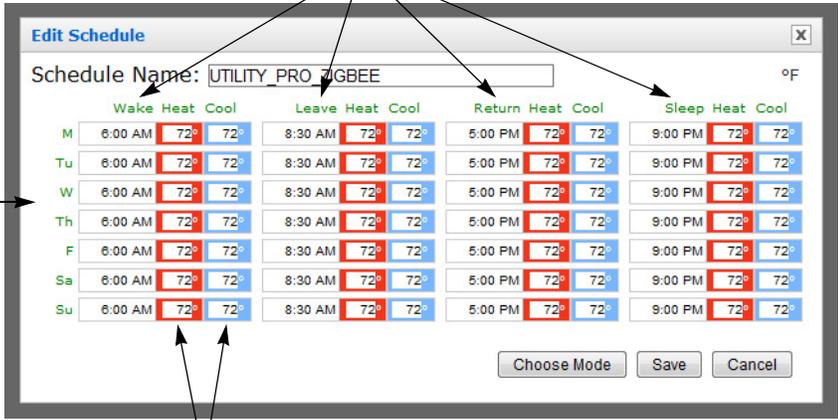
The 7-day schedule allows separate heating and cooling settings to be programmed for each individual day of the week. This schedule also allows wake, leave, return, and sleep times to be individually set for each day of the week.

A default 7-day schedule may be set for the Energy Company that will be used as the basis for all new customer activations. Once the account has been activated, the customer may edit the thermostat schedule and change it to the customer's preferred settings.

**Figure 5. 7-Day Thermostat Schedule**

**Four Daily Time Periods**  
Maximize energy efficiency with four individually programmable daily time periods.

**Daily Schedule Settings**  
Allows separate programming for each day of the week.



**Program Separate Heating and Cooling Temperatures**  
Different temperatures for heating and cooling can be individually programmed for each day of the week.

	Wake	Heat	Cool	Leave	Heat	Cool	Return	Heat	Cool	Sleep	Heat	Cool
M	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
Tu	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
W	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
Th	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
F	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
Sa	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°
Su	6:00 AM	72°	72°	8:30 AM	72°	72°	5:00 PM	72°	72°	9:00 PM	72°	72°

## Demand Response Enhancements (Cont'd)

### iDigi Integration

The Yukon application has integrated with the iDigi<sup>®</sup> Device Cloud<sup>™</sup> service using an IP broadband gateway to provide support for Smart Energy Profile (SEP) 1.1 devices, such as the UtilityPRO thermostat or LCR 6200 switch.

These devices can now receive commands and messages from the Yukon Master Station through the customer's broadband connection. In addition, these ZigBee devices can communicate and share information with other ZigBee devices located throughout the home on the Home Area Network (HAN).

**Figure 6. Digi Integration**

**Hardware Page**  
Support for Cooper Power Systems' ZigBee-based devices and the Digi gateway was added to the Hardware page.

**Digi Gateway**  
The Digi Gateway Information page allows you to commission or decommission the Digi gateway and assign ZigBee thermostats, switches, and meters, from Cooper Power Systems, to the gateway.

**ZigBee Devices**  
Configure and commission devices, view the ZigBee status, examine history information, and perform other device actions.

The figure displays three screenshots of the Yukon application's hardware management interface. The top-left screenshot shows a list of hardware items categorized by type: Switches, Thermostats, Meters, and Gateways. The top-right screenshot shows the detailed 'Hardware Page' for a specific device (790000001), displaying device information, service and storage details, and various actions like 'Edit Configuration' and 'Change Out Device'. The bottom screenshot shows the 'Digi Gateway' page for device 799000001, providing details on gateway type, MAC address, and firmware version, along with actions for commissioning and decommissioning.

## Demand Response Enhancements (Cont'd)

### LCR 6200 Support

The Yukon application was updated to support the new LCR 6200 load control switch. The LCR 6200 is ZigBee Smart Energy certified and it the latest load control device from Cooper Power Systems.

This pre-wired, single relay switch was designed in collaboration with installation contractors to create a small footprint and minimize implementation costs/time. The TrueCycle technology allows smart air conditioner cycling control for residential homes with non-standard or oversized air conditioning units.

The LCR 6200 can be configured remotely with the Yukon application for any of the following control strategies:

- Simple cycling
- Set point control
- TrueCycle control

This advanced intelligent load control switch is locally programmable with a handheld computer. Data logging is also provided to meet your measurement and verification needs.

**Figure 7. LCR 6200 Support**

**Hardware Page**  
Create, edit and monitor the LCR 6200 switch and other devices assigned to a residential consumer account.

**LCR 6200 (ZigBee) Information Page**  
Edit configurations, change out switches, view ZigBee status, device status and hardware history information, or commission/decommission the switch.

Serial Number	Switch Type	Label	Actions
799000012	LCR-6200 (ZigBee)	799000012	

Serial Number	Thermostat Type	Label	Actions
799000001	UtilityPRO Zigbee	799000001	

Device Name	Meter Type	Label	Actions
MCT-420CL (7990001)	MCT-420CL	700000	

Device Name	Gateway Type	ZigBee Status	Actions
799000001	Dip Gateway	Connected	

# Distribution Automation Enhancements

## IVC Enhancement

The Integrated Volt-VAR Control module now supports per-phase voltage regulation and control to manage load imbalance between phases and end-of-line voltage quality. The IVVC module can monitor, analyze, and control feeder voltage zones on three independent phases. Each phase is independently managed by the IVVC module.

**Figure 8. Per Phase Support for IVVC**

**IVVC Details Page**  
The IVVC Details page was updated to show information for single phase and 3-phase zones. This page shows the IVVC strategy settings, a chart of the voltage profile for the substation bus and its zones, a list of the zones for the substation bus, and the measurements for the substation bus.

**IVVC 3-Phase Zone Page**  
Send voltage regulator commands on a per-phase basis. Examine voltage regulator attributes for each phase or view all voltage regulator attributes regardless of phase. The Voltage Profile chart allows you to select one or more phases to chart.

## Distribution Automation Enhancements (Cont'd)

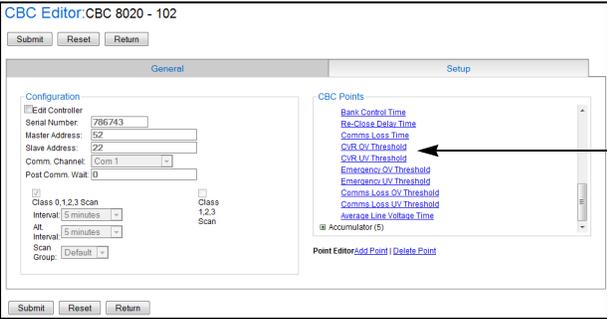
### CBC 8000 Support

The new CBC 8000 capacitor bank control is tightly integrated with the Yukon application and contains special features for Cooper Power Systems' Integrated Volt-VAR Control (IVVC) application.

The Conservation Voltage Reduction mode (CVR) allows the CBC 8000 to operate with a different set of voltage rails when using IVVC. The CVR thresholds allow a lower set of voltage rails to be set so that the cap banks do not control when IVVC is lowering the voltage profile for a feeder or zone.

The CBC 8000 capacitor bank control easily integrates with radios, radio networks, and to SCADA. The CBC 8000 capacitor bank control can be remotely controlled, scanned, programmed, and the data logs downloaded over a secure network, reducing time in the field and operational costs.

**Figure 9. CBC 8000 Capacitor Bank Control**



**CBC 8000**  
The CBC 8000 capacitor bank control offers CVR UV and CVR OV Threshold settings. These Conservation Voltage Reduction mode thresholds allow a different set of rails to be used when IVVC is active. This allows the voltage profile to be lowered without initiating a cap bank operation.

**Capacitor Banks Display**  
The CBC 8000 capacitor bank control can be accessed and operated from the Capacitor Banks area on the 4-Tier Display page.



CBC Name	Actions	CB Name (Order)	Actions	State	Date/Time	Bank Size	Parent Feeder	Daily / Max / Total Ops
CBC 8020 - 701	[Icons]	Cap Bank 701 (1)	[Icons]	Open	04/19/2011 20:00:01	900	Feeder S1-1-A	0 / 5 / 3
CBC 8020 - 702	[Icons]	Cap Bank 702 (2)	[Icons]	Open	04/19/2011 20:00:01	900	Feeder S1-1-A	0 / 0 / 2
CBC 8020 - 703	[Icons]	Cap Bank 703 (3)	[Icons]	Close	04/19/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 2
CBC 8020 - 704	[Icons]	Cap Bank 704 (1)	[Icons]	Open	04/19/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 2
CBC 8020 - 705	[Icons]	Cap Bank 705 (2)	[Icons]	Open	04/19/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 2
CBC 8020 - 706	[Icons]	Cap Bank 706 (3)	[Icons]	Open-V	04/19/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 2
CBC 8020 - 707	[Icons]	Cap Bank 707 (4)	[Icons]	Unknown (849830)	10/17/2011 15:00:00	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 708	[Icons]	Cap Bank 708 (5)	[Icons]	Open	11/02/2011 15:50:38	600	Feeder S1-1-B	0 / 0 / 60466
CBC 8020 - 709	[Icons]	Cap Bank 709 (6)	[Icons]	Open	04/19/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 710	[Icons]	Cap Bank 710 (7)	[Icons]	Close	11/01/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 711	[Icons]	Cap Bank 711 (8)	[Icons]	Close-V	11/01/2011 20:00:01	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 712	[Icons]	Cap Bank 712 (9)	[Icons]	DISABLED - Open	11/02/2011 15:53:05	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 100	[Icons]	Cap Bank 100 (10)	[Icons]	Close	11/02/2011 15:48:52	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 101	[Icons]	Cap Bank 101 (11)	[Icons]	Open	---	600	Feeder S1-1-B	0 / 0 / 0
CBC 8020 - 102	[Icons]	Cap Bank 102 (12)	[Icons]	Open	11/02/2011 15:49:48	600	Feeder S1-1-B	0 / 0 / 0



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