What’s New at Release 5.1

Introduction

This document provides an overview of new Metasys® system products, features, and enhancements introduced at Release 5.1. For more details, refer to the Metasys system technical documentation and the Metasys software Help systems.

Johnson Controls Central Plant Optimization™ 10

At Release 5.0, we introduced Chiller Plant Automation to provide a flexible and intuitive method for developing custom control programs for complex central chiller plants connected to Metasys Field Equipment Controllers (FECs) and Network Control Engines (NCEs).

At Release 5.1, we introduce Johnson Controls Central Plant Optimization™ 10 (CPO 10); expanding our central chiller plant control capabilities and taking central chiller plant automation to the next level of comfort and efficiency.

The CPO 10 application coordinates the selection and sequencing of all chillers, pumps, cooling towers, isolation valves, and related equipment required to operate central chiller plants in a safe, stable, and efficient fashion. The control programs that you develop with the CPO 10 application use proven best practices to operate central chiller plants with the most efficient set of equipment required to meet a facility’s cooling load.

The CPO 10 application enhancements include the following:

- support for variable-speed condenser-water pumps
- an optional, open-loop near optimal control strategy for cooling towers (as defined by American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE])
- dynamic adjustment of chiller capacity based on chilled water and condenser water temperatures (actual versus design lift), resulting in more efficient selection and sequencing of plant equipment
- differential-pressure setpoint reset for variable-speed chilled-water pumps based on building differential pressure, further reducing pump energy consumption
- capability to limit sequenced chillers’ capacity to user-specified values and times, increasing plant stability

Field Equipment Controller Family Software Enhancements

At Release 5.1, all Proportional plus Integral plus Derivative (PID) and Pattern Recognition Adaptive Control (PRAC) software modules in Controller Configuration Tool (CCT) are updated to improve overall system wide control and performance during user or system driven step changes (for example, load changes in controlled spaces or setpoint changes driven by schedules).

Release 5.1 PID/PRAC enhancements include the following:

- Fast Switching logic that bypasses saturation timers when zones need to quickly transition from heating to cooling
- improved default timer settings on Multi-Stage Controller modules, to reduce cycling of heating/cooling stages while maintaining setpoint in both the occupied or unoccupied modes
- a new Lead Compensator module that is automatically created during system selection for zone control loops with water valves. This module functions like an anticipator and reduces the effects of the nonlinear flow capacity associated with typical ball or globe valves.
- optional Discharge Air Reset for Variable Air Volume (VAV) single-duct reheat valves to improve heating loop response

Controller Configuration Tool Enhancements

The CCT software tool is used to configure/program, simulate, and load control applications on the FEC-family controllers on your Metasys BACnet® field buses.

Release 5.1 CCT enhancements include the following:

- Cut, Copy, Paste, and Duplicate are supported in the Logic View, enabling easier editing and development of control programs.
- The automatic creation of the Boolean to two-state Enum translator block when connecting Activity blocks eliminates a manual step when you build programs.
- The Details and Hardware tabs for Input and Output (I/O) points are consolidated, and the Advanced and Basic view radio buttons are removed to enhance interface navigation and setup of I/O points.
- Enhanced Inputs/Outputs options are available, including a Rename function shortcut key and Delete function shortcut key.
- Access to Parameters is available while in the Logic view, eliminating the need to navigate between views during point setup.
- A Recent Files menu-selection is available in the File drop-down menu, making it quicker and easier find and load recently saved programs.

The CCT System Selection Wizard has also been improved, enabling you to build even more control sequences from proven best control practices by simply selecting the appropriate mechanical system designs and the control strategy options.

Release 5.1 System Selection Wizard enhancements include the following:

- Support for variable speed primary pumping (boilers and heat exchangers) is available.
- A complete set of Input/Output Selection options was added to the Custom and Monitoring System selection trees.
- The WRZ Series Wireless Refrigeration/Freezer Temperature Transmitter and Probe Assembly has a dedicated sensor type, and dedicated temperature ranges and control signals.
- Hot Water and Chilled Water Secondary Pumping Systems now provide support for both a bypass valve and Variable Frequency Drive.
- The values for Default Change of Value were increased for Analog Inputs, reducing network communication traffic.
- Sideloops now support output override shut off of adaptive tuning and are connected to the tuning reset Network Input.
- The application trees for VAV boxes now default to add warmup/cool down logic.
- Unique addresses are now automatically assigned to new devices when you create the Sensor/Actuator (SA) Buses for your field networks.
- A Wind Direction Determination module was added to simplify interfacing with weather stations.
- The key Exponentially Weighted Moving Average (EWMA) parameters are automatically exposed during the system selection process on all output controllers for all VAV and Terminal Unit applications. These EWMA values are packaged in example Summary Definitions on the product discs for use in Diagnostic Tailored Summaries.
What’s New at Release 5.1 (Continued)

New Wireless Room Temperature and Humidity Sensors and Receiver

At Release 5.1, we introduce three new wireless WRZ Series sensors designed to transmit both room temperature and humidity data to any wireless-enabled FEC or Variable Air Volume Modular Assembly (VMA16) controller. We also introduce the WRZ-7850-0 Receiver for One-to-One wireless room sensing systems, which supports both wireless temperature and humidity communication and replaces the WRZ-7840-0 (temperature only) Receiver.

The new wireless sensors include models with Liquid Crystal Display (LCD) temperature and humidity display, temperature setpoint adjustment, manual occupancy override, and signal strength Light Emitting Diode (LED). And the new sensors, designed to operate with Johnson Controls® WRZ Series and ZFR Series devices, can report temperature and humidity data once per minute, providing tighter control and quicker response to load changes. All models feature a 5-year battery life using two standard AA alkaline batteries.

We also introduce the WRZ-SST-110 Wireless Sensing System Tool to replace the WRZ-SST-100 tool. The new WRZ-SST-110 Wireless Sensing System Tool is a lightweight, portable wireless receiver that supports temperature and humidity. WRZ-SST-110 tool is designed to receive wireless data from the WRZ Series wireless room sensors in wireless one-to-one applications. The WRZ-SST-110 tool is also used as a site survey tool or signal tester for determining signal strength and the proper sensor and receiver locations prior to installing the wireless sensors in your application.

New LONWORKS® Network (LN) Series Wireless Capability

New models of LN Series programmable controllers and several models of the VAV and VVT controllers that support optional wireless sensors are available at Release 5.1. Various wireless sensors are available for room temperature and humidity, outdoor temperature, and binary contact switch monitoring. The sensors feature EnOcean® technology, which enables energy harvesting from ambient light sources or switch motion and eliminates battery replacement for most of your wireless LN sensors.

Control panels with the new LN Series controllers will also be available. The product code numbers for the Release 5.1 control panels with the new LN Series controllers are not changing.

Additional Enhancements at Release 5.1

Microsoft® Windows® 7 Operating System Support

Microsoft Windows 7 (32 bit) has been added as a supported platform for the Application and Data Server, System Configuration Tool, Controller Configuration Tool, and associated software utilities.

Public Web Service for Setting Utility Demand Limits

A Public Web Service is now available to support the writing of values into Demand Limit/Load Rolling (DLLR) Tariff Targets, allowing an external program to set the demand limit target.