README

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This document presents a brief background on the mechanics of the renaming MTConnect SHDR agent. This document assumes the reader is familiar with MTConnect operation, and for deeper explanation of MTConnect, please refer to MTConnect URL: <http://www.mtconnect.org/> for more information. This document concerns itself with an implementation of a MTConnect Agent that uses the open-srouce C++ Agent, but adds the ability to substitute aliases for tag names and enumerations.

# Background

MTConnect is a new standard developed to facilitate the exchange of data on the manufacturing floor. The MTConnect open specification provides for cost effective data acquisition on the manufacturing floor for machine tools and related devices. MTConnect is based upon prevalent Web technology including XML and HTTP. Figure 1 shows the MT Connect architecture. An “MTConnect Device” is a piece of equipment – in this case a ABB robot machine tool, which (optionally) includes an MTConnect Adapter so that we can get data from it. The “Agent” is a process that acts as a “bridge” between a device and a factory “Client Application”. To learn more about MTConnect visit: <http://www.mtconnect.org/>

Figure 1 shows a typical MTConnect forwarding Agent system architecture (note at this time you can only forward one MTConnect XML data at a time).



# Configuration

In the Config.ini file, you can change debug and reset at midnite . These changes will take if you stop/restart the Agent service or reboot the machine.

[GLOBALS]

Debug=5

ResetAtMidnight=0

[TAGRENAMES]

# Boeing substitution for Mazak Tags

mode=controllermode

fovr=path\_feedrateovr

fr=path\_feedratefrt

mode=controllermode

fovr=path\_feedrateovr

fr=path\_feedratefrt

# Boeing substitution for TechSolve Siemens Solution Line Tags

toolid=Tool\_number

xact=Xabs

yact=Yabs

zact=Zabs

sspeed=Srpm

SSovr=Sovr

[DATAIDS]

[ENUMREMAPPING]

execution.READY=IDLE

execution.ACTIVE=EXECUTING

execution.INTERRUPTED=PAUSED

execution.STOPPED=PAUSED

There are four sections to the ini file: TAGRENAMES, ENUMREMAPPING, DATAIDS, and GLOBALS. Section names are enclosed in braces (i.e., "[]"). The GLOBALS section options for

* Level of this diagnostics (not much) 0..5 where 5 is most diagnostics (i.e., debug),

The TAGRENAMES section handles the renaming of MTConnect "name" fields. The replacement is not very robust, but is sufficient. For example, the action to replace name attribute "mode" with "controllermode" in the MTConnect XML below:

<ControllerMode dataItemId="cn3" timestamp="2016-11-08T14:05:44.717920" name="mode" sequence="241775339">AUTOMATIC</ControllerMode>

Is achieved with the following Config.ini entry into the TAGS section:

[TAGRENAMES]

mode=controllermode

Enumerations can be replaced with different text entries. The MTConnect execution data item has a set of enumeration that can be remapped. For example, the MTConnect XML for the execution data item is shown below:

<Execution dataItemId="cn6" timestamp="2016-11-08T14:09:09.577173" name="execution" sequence="241830877">ACTIVE</Execution>

And changing the ACTIVE value is achieved with the following Config.ini entry into the ENUMS section:

[ENUMS]

EXECUTION.ACTIVE= EXECUTION.EXECUTING

## Mutliple Spindle Handling

The renaming MTConnect SHDR agent handles multiple spindle readings and combines them into a single “srpm” MTConnect tag. The code reads the ini file for the spindle “tags”. Once all the spindles have been read the maximum value is used as Srpm”, the de facto MTConnect tag for the spindle. So the ini file contains:

[GLOBALS]

. . .

RPMTAGS=Srpm,S4rpm,S3rpm

And then the code reads the MTConnect interface for the values (typically one a real value, and the reset zero). Thus, the maximum is chosen and this value is output as the MTConnect “sprm” tag value.

The code works that as SHDR data is read by the agent, should an RPM with a values > 0 appear, it is substituted into the “Srpm” key/value pair. This makes the assumption that only one spindler is operating at at time.

## Issue 64 bit Platform

Make sure the WIndows platform you are running on is 64 bit – this is a 64-bit executable and will not work on a 32-bit platform. To find out what you platform is, right click My Computer, select properties, and under system properties you should see 64-bit Operating System, similar to that shown below:

