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# **Okuma America Corporation**

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## **Okuma MTConnect Adapter**

### **Release Notes**

**Document No.: S5053-004-00**

OKUMA MTConnect Adapter	Version: 1.0.0.0
Release Notes	Date: 07/25/2011

## Revision History

Date	Version	Description	Author
7/25/2011	S5053-004-00	Public release version 1.0.0.0	Linh Huynh

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# Release Notes for Okuma MTConnect Adapter

## 1. Introduction

### 1.1 Disclaimer of Warranty

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### 1.2 Purpose

The purpose of the **Release Notes** document is to communicate major new features and changes in this release of the Okuma MTConnect Adapter. It also documents known problems and workarounds.

### 1.3 Scope

This document describes the public release of Okuma MTConnect Adapter version 1.0.0.0

### 1.4 References

None

## 2. About This Release

In this release, the device configuration file, named Devices.xml, is automatically generated by the application to meet per machine specification that the adapter currently can support.

### 2.1 Prerequisite Software

- THINC API version 1.9.1.0 for Lathe
- THINC API version 1.9.1.0 for Machining Center
- Start-up Service version 3.1.0.0

### 2.2 License

Not applicable

### 2.3 Machine Model

This release supports OKUMA OSP-P300/P200/P100II machines.

The following files included with the installation disk contain data items that can be supported per machine type:

- Lathe2SPDevices.xml : Lathe with 2 sides
- LatheDevices.xml: Any Lathe except for 2 sides Lathe

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- MCDevices: Any Machining Center
- Agent.cfg: default agent configuration file

Please contact your local distributor service department if you experience any difficulties with installing the software or using the system.

## 2.4 Windows

This release can be installed on machines having Microsoft Windows XP x86 SP3, or Windows 7 x86 SP1.

## 2.5 Features

The adapter must work with MTConnect Agent version 1.3.0.14 or latest version and supports MTConnect schemas 1.2.0.0 only.

# 3. New Features

## 3.1 Machining Center Tags

```
<?xml version='1.0' encoding='UTF-8'?>
<MTConnectDevices
  xmlns:mt='urn:mtconnect.org:MTConnectDevices:1.2'
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xmlns='urn:mtconnect.org:MTConnectDevices:1.2'
  xsi:schemaLocation='urn:mtconnect.org:MTConnectDevices:1.2 ./schemas/MTConnectDevices_1.2.xsd'
  <Header creationTime='2013-04-02T03:40:04Z' assetBufferSize='1024' sender='localhost' assetCount='0' version='1.2'
  instanceId='1' bufferSize='131072'/>
  <Devices>
    <Device uuid="OKUMA.MachiningCenter.123456" name="OKUMA.MachiningCenter" sampleInterval="100.0" id="Mdev1">
      <Description manufacturer="OKUMA" serialNumber="123456">
        Okuma MTConnect Adapter - Machining Center
      </Description>
      <DataItems>
        <DataItem category="EVENT" id="Mavail" name="avail" type="AVAILABILITY" />
      </DataItems>
      <Components>
        <Axes name="Axes" id="Maxes1">
          <Components>
            <Rotary name="C1" nativeName="S" id="Mc1" >
              <DataItems>
                <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1speed"
                  subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="MS1speed"/>
                <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"
                  subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="MS1cmd"/>
                <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1ovr"
                  subType="OVERRIDE" units="PERCENT" nativeUnits="PERCENT" id="MS1ovr"/>
                <DataItem type="LOAD" category="SAMPLE" name="S1load"
                  units="PERCENT" nativeUnits="PERCENT" id="MS1load"/>
                <DataItem category="EVENT" id="MS1Mode" name="S1Mode" type="ROTARY_MODE">
                  <Constraints>
                    <Value>SPINDLE</Value>
                  </Constraints>
                </DataItem>
              </DataItems>
            </Rotary>
            <Linear name="X1" id="Mx1" >
              <DataItems>
                <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
                  name="X1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="MX1actm"/>
                <DataItem type="LOAD" category="SAMPLE" name="X1load"
                  units="PERCENT" nativeUnits="PERCENT" id="MX1load"/>
              </DataItems>
            </Linear>
          </Components>
        </Axes>
      </Components>
    </Device>
  </Devices>
```

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```

<Linear name="Y1" id="My1" >
  <DataItems>
    <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
      name="Y1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="MY1actm" />
    <DataItem type="LOAD" category="SAMPLE" name="Y1load"
      units="PERCENT" nativeUnits="PERCENT" id="MY1load" />
  </DataItems>
</Linear>
<Linear name="Z1" id="Mz1">
  <DataItems>
    <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
      name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="MZ1actm" />
    <DataItem type="LOAD" category="SAMPLE" name="Z1load"
      units="PERCENT" nativeUnits="PERCENT" id="MZ1load" />
  </DataItems>
</Linear>
</Components>
</Axes>
<Controller name="Controller" id="Mct1">
  <DataItems>
    <DataItem type="EMERGENCY_STOP" name="estop" category="EVENT" id="Mestop" />
    <DataItem type="SYSTEM" category="CONDITION" id="Msystem" name="system" />
  </DataItems>
  <Components>
    <Path id="Mp1" name="path">
      <DataItems>
        <!-- EVENT DATA ITEMS-->
        <DataItem type="CONTROLLER_MODE" name="pmode" category="EVENT" id="Mpmode" />
        <DataItem freq="10" type="PROGRAM" name="pprogram" category="EVENT" id="Mpprogram" />
        <DataItem type="EXECUTION" name="pexecution" category="EVENT" id="Mpexecution" />
        <DataItem type="LINE" name="pline" category="EVENT" id="Mpline" />
        <DataItem type="BLOCK" name="pblock" category="EVENT" id="Mpblock" />

        <!-- SAMPLE DATA ITEMS-->
        <DataItem type="PATH_FEEDRATE" subType="OVERRIDE" name="pFovr" category="SAMPLE"
          units="PERCENT" nativeUnits="PERCENT" id="MpFovr" />
        <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p1Fact" category="SAMPLE" id="Mp1Fact"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />

        <DataItem type="PATH_POSITION" name="p1LPathPos" category="SAMPLE"
          units="MILLIMETER_3D" nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="Mp1LPathPos" />

        <DataItem type="PATH_FEEDRATE" subType="COMMANDED" name="p1Fcmd" category="SAMPLE" id="Mp1Fcmd"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
      </DataItems>
    </Path>
  </Components>
</Controller>
</Components>
</Device>
</Devices>
</MTConnectDevices>

```

### 3.2 Lathe Tags

```

<?xml version='1.0' encoding='UTF-8'?>
<MTConnectDevices
  xmlns:mt='urn:mtconnect.org:MTConnectDevices:1.2'
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xmlns='urn:mtconnect.org:MTConnectDevices:1.2'
  xsi:schemaLocation='urn:mtconnect.org:MTConnectDevices:1.2 ./schemas/MTConnectDevices_1.2.xsd'>
  <Header creationTime='2013-04-02T03:40:04Z' assetBufferSize='1024' sender='localhost' assetCount='0' version='1.2'
    instanceId='1' bufferSize='131072' />
  <Devices>
    <Device uuid="OKUMA.Lathe.123456" name="OKUMA.Lathe" sampleInterval="100.0" id="Ldev1">
      <Description manufacturer="OKUMA" serialNumber="123456">
        Okuma MTConnect Adapter - Lathe
      </Description>
    </Device>
  </Devices>
</MTConnectDevices>

```

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```

</Description>
<DataItems>
  <DataItem category="EVENT" id="Lavail" name="avail" type="AVAILABILITY" />
</DataItems>
<Components>
  <Axes name="Axes" id="Laxes1">
    <Components>
      <!-- Main Spindle-->
      <Rotary name="C1" nativeName="S1" id="Lc1" >
        <DataItems>
          <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1speed"
            subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS1speed"/>
          <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"
            subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS1cmd"/>
          <DataItem type="LOAD" category="SAMPLE" name="S1load"
            units="PERCENT" nativeUnits="PERCENT" id="LS1load"/>
          <DataItem category="EVENT" id="LS1Mode" name="S1Mode" type="ROTARY_MODE">
            <Constraints>
              <Value>SPINDLE</Value>
            </Constraints>
          </DataItem>
        </DataItems>
      </Rotary>
      <!-- Second Spindle - no spindle load-->
      <Rotary name="C2" nativeName="S2" id="Lc2" >
        <DataItems>
          <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2speed"
            subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS2speed"/>
          <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2cmd"
            subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS2cmd"/>
          <DataItem category="EVENT" id="LS2Mode" name="S2Mode" type="ROTARY_MODE">
            <Constraints>
              <Value>SPINDLE</Value>
            </Constraints>
          </DataItem>
        </DataItems>
      </Rotary>
      <!-- Main Spindle function as C/CA-axis-->
      <Rotary name="C5" nativeName="CA" id="Lc5" >
        <DataItems>
          <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"
            name="C5actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="LC5actm"/>
          <DataItem type="LOAD" category="SAMPLE" name="C5load"
            units="PERCENT" nativeUnits="PERCENT" id="LC5load"/>
          <DataItem category="EVENT" id="LC5Mode" name="C5Mode" type="ROTARY_MODE">
            <Constraints>
              <Value>INDEX</Value>
            </Constraints>
          </DataItem>
        </DataItems>
      </Rotary>
      <!-- Main Spindle function as CB-axis-->
      <Rotary name="C6" nativeName="CB" id="Lc6" >
        <DataItems>
          <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"
            name="C6actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="LC6actm"/>
          <DataItem type="LOAD" category="SAMPLE" name="C6load"
            units="PERCENT" nativeUnits="PERCENT" id="LC6load"/>
          <DataItem category="EVENT" id="LC6Mode" name="C6Mode" type="ROTARY_MODE">
            <Constraints>
              <Value>INDEX</Value>
            </Constraints>
          </DataItem>
        </DataItems>
      </Rotary>
      <!-- B Axis -->
      <Rotary name="B1" nativeName="BA" id="Lb1" >

```

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```

    <DataItems>
      <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"
        name="B1actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="WORK" id="LB1actm"/>
      <DataItem type="LOAD" category="SAMPLE" name="B1load"
        units="PERCENT" nativeUnits="PERCENT" id="LB1load"/>
      <DataItem category="EVENT" id="LB1Mode" name="B1Mode" type="ROTARY_MODE">
        <Constraints>
          <Value>INDEX</Value>
        </Constraints>
      </DataItem>
    </DataItems>
  </Rotary>
  <!-- Standard Linear X axis respect to A turret-->
  <Linear name="X1" nativeName="XA" id="Lx1" >
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="X1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LX1actm"/>
      <DataItem type="LOAD" category="SAMPLE" name="X1load"
        units="PERCENT" nativeUnits="PERCENT" id="LX1load"/>
    </DataItems>
  </Linear>
  <!-- Standard Linear X axis respect to B turret-->
  <Linear name="X2" nativeName="XB" id="Lx2" >
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="X2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LX2actm"/>
      <DataItem type="LOAD" category="SAMPLE" name="X2load"
        units="PERCENT" nativeUnits="PERCENT" id="LX2load"/>
    </DataItems>
  </Linear>
  <!-- Standard Linear Z axis respect to A turret-->
  <Linear name="Z1" nativeName="ZA" id="Lz1">
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LZ1actm" />
      <DataItem type="LOAD" category="SAMPLE" name="Z1load"
        units="PERCENT" nativeUnits="PERCENT" id="LZ1load"/>
    </DataItems>
  </Linear>
  <!-- Standard Linear Z axis respect to B turret-->
  <Linear name="Z2" nativeName="ZB" id="Lz2">
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="Z2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LZ2actm" />
      <DataItem type="LOAD" category="SAMPLE" name="Z2load"
        units="PERCENT" nativeUnits="PERCENT" id="LZ2load"/>
    </DataItems>
  </Linear>
  <!-- Optional Linear W axis respect to A Turret-->
  <Linear name="Z4" nativeName="WA" id="Lz4">
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="Z4actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LZ4actm" />
      <DataItem type="LOAD" category="SAMPLE" name="Z4load"
        units="PERCENT" nativeUnits="PERCENT" id="LZ4load"/>
    </DataItems>
  </Linear>
  <!-- Optional Linear W axis respect to B Turret-->
  <Linear name="Z5" nativeName="WB" id="Lz5">
    <DataItems>
      <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
        name="Z5actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="LZ5actm" />
      <DataItem type="LOAD" category="SAMPLE" name="Z5load"
        units="PERCENT" nativeUnits="PERCENT" id="LZ5load"/>
    </DataItems>
  </Linear>
</Components>

```



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```

</Axes>
<Controller name="Controller" id="Lct1">
  <DataItems>
    <DataItem type="EMERGENCY_STOP" name="estop" category="EVENT" id="Lestop" />
    <DataItem type="SYSTEM" category="CONDITION" id="Lsystem" name="system" />

    <DataItem type="CONTROLLER_MODE" name="pmode" category="EVENT" id="Lpmode"/>
    <DataItem freq="10" type="PROGRAM" name="pprogram" category="EVENT" id="Lpprogram"/>
    <DataItem type="EXECUTION" name="pexecution" category="EVENT" id="Lpexecution"/>
    <DataItem type="PATH_FEEDRATE" subType="OVERRIDE" name="pFovr" category="SAMPLE"
      units="PERCENT" nativeUnits="PERCENT" id="LpFovr" />
  </DataItems>

  <Components>
    <!-- Path 1 related to upper A turret-->
    <Path id="Lp1" name="path">
      <DataItems>
        <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p1Fact" category="SAMPLE" id="Lp1Fact"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="BLOCK" name="p1block" category="EVENT" id="Lp1block"/>
        <DataItem type="LINE" name="p1line" category="EVENT" id="Lp1line"/>
        <DataItem type="PATH_FEEDRATE" subType="COMMANDED" name="p1Fcmd" category="SAMPLE" id="Lp1Fcmd"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="PATH_POSITION" name="p1LPathPos" category="SAMPLE" units="MILLIMETER_3D"
          nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="Lp1LPathPos" />
      </DataItems>
    </Path>
    <!-- Path 2 related to lower B turret-->
    <Path id="Lp2" name="path2">
      <DataItems>
        <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p2Fact" category="SAMPLE" id="Lp2Fact"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="BLOCK" name="p2block" category="EVENT" id="Lp2block"/>
        <DataItem type="LINE" name="p2line" category="EVENT" id="Lp2line"/>
        <DataItem type="PATH_FEEDRATE" subType="COMMANDED" name="p2Fcmd" category="SAMPLE" id="Lp2Fcmd"
          units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="PATH_POSITION" name="p2LPathPos" category="SAMPLE" units="MILLIMETER_3D"
          nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="Lp2LPathPos" />
      </DataItems>
    </Path>
  </Components>
</Controller>
</Components>
</Device>
</Devices>
</MTConnectDevices>

```

### 3.3 Lathe (2SP) Tags

```

<?xml version='1.0' encoding='UTF-8'?>
<MTConnectDevices
  xmlns:mt='urn:mtconnect.org:MTConnectDevices:1.2'
  xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
  xmlns='urn:mtconnect.org:MTConnectDevices:1.2'
  xsi:schemaLocation='urn:mtconnect.org:MTConnectDevices:1.2 ./schemas/MTConnectDevices_1.2.xsd'>
  <Header creationTime='2013-04-02T03:40:04Z' assetBufferSize='1024' sender='localhost' assetCount='0' version='1.2'
    instanceId='1' bufferSize='131072'/>
  <Devices>
    <Device uuid="OKUMA.Lathe.123456" name="OKUMA.Lathe" sampleInterval="100.0" id="L2dev1">
      <Description manufacturer="OKUMA" serialNumber="123456">
        Okuma MTConnect Adapter - Lathe
      </Description>
      <DataItems>
        <DataItem category="EVENT" id="L2avail" name="avail" type="AVAILABILITY" />
        <DataItem type="EMERGENCY_STOP" name="estop" category="EVENT" id="L2estop" />
      </DataItems>
    </Components>
  </Device>
</Devices>

```

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```

<Axes name="Axes" id="L2axes1">
  <Components>
    <!-- R Spindle-->
    <Rotary name="C1" nativeName="S" id="L2c1" >
      <DataItems>
        <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1speed"
          subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S1speed"/>
        <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"
          subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S1cmd"/>
        <DataItem type="LOAD" category="SAMPLE" name="S1load"
          units="PERCENT" nativeUnits="PERCENT" id="L2S1load"/>
        <DataItem category="EVENT" id="L2S1Mode" name="S1Mode" type="ROTARY_MODE">
          <Constraints>
            <Value>SPINDLE</Value>
          </Constraints>
        </DataItem>
      </DataItems>
    </Rotary>
    <!-- L Spindle -->
    <Rotary name="C2" nativeName="S" id="L2c2" >
      <DataItems>
        <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2speed"
          subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S2speed"/>
        <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2cmd"
          subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S2cmd"/>
        <DataItem type="LOAD" category="SAMPLE" name="S2load"
          units="PERCENT" nativeUnits="PERCENT" id="L2S2load"/>
        <DataItem category="EVENT" id="L2S2Mode" name="S2Mode" type="ROTARY_MODE">
          <Constraints>
            <Value>SPINDLE</Value>
          </Constraints>
        </DataItem>
      </DataItems>
    </Rotary>

    <!-- R Spindle function as C axis-->
    <Rotary name="C5" id="L2c5" >
      <DataItems>
        <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"
          name="C5actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="L2C5actm"/>
        <DataItem type="LOAD" category="SAMPLE" name="C5load"
          units="PERCENT" nativeUnits="PERCENT" id="L2C5load"/>
        <DataItem category="EVENT" id="L2C5Mode" name="C5Mode" type="ROTARY_MODE">
          <Constraints>
            <Value>INDEX</Value>
          </Constraints>
        </DataItem>
      </DataItems>
    </Rotary>
    <!-- L Spindle function as C axis-->
    <Rotary name="C6" id="L2c6" >
      <DataItems>
        <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"
          name="C6actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="L2C6actm"/>
        <DataItem type="LOAD" category="SAMPLE" name="C6load"
          units="PERCENT" nativeUnits="PERCENT" id="L2C6load"/>
        <DataItem category="EVENT" id="L2C6Mode" name="C6Mode" type="ROTARY_MODE">
          <Constraints>
            <Value>INDEX</Value>
          </Constraints>
        </DataItem>
      </DataItems>
    </Rotary>

    <!-- Standard Linear X axis respect to R side of machine-->
    <Linear name="X1" id="L2x1" >
      <DataItems>

```

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```

        <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
            name="X1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="L2X1actm"/>
        <DataItem type="LOAD" category="SAMPLE" name="X1load"
            units="PERCENT" nativeUnits="PERCENT" id="L2X1load"/>
    </DataItems>
</Linear>
<!-- Standard Linear X axis respect to L side of machine-->
<Linear name="X2" id="L2x2" >
    <DataItems>
        <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
            name="X2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="L2X2actm"/>
        <DataItem type="LOAD" category="SAMPLE" name="X2load"
            units="PERCENT" nativeUnits="PERCENT" id="L2X2load"/>
    </DataItems>
</Linear>
<!--Standard Linear Z axis respect to R side of machine-->
<Linear name="Z1" id="L2z1">
    <DataItems>
        <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
            name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="L2Z1actm" />
        <DataItem type="LOAD" category="SAMPLE" name="Z1load"
            units="PERCENT" nativeUnits="PERCENT" id="L2Z1load"/>
    </DataItems>
</Linear>
<!--Standard Linear Z axis respect to L side of machine-->
<Linear name="Z2" id="L2z2">
    <DataItems>
        <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"
            name="Z2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE" id="L2Z2actm" />
        <DataItem type="LOAD" category="SAMPLE" name="Z2load"
            units="PERCENT" nativeUnits="PERCENT" id="L2Z2load"/>
    </DataItems>
</Linear>
</Components>
</Axes>
<Controller name="Controller" id="L2ct1">
    <Components>
        <!-- Path 1 related to first machine side or R side-->
        <Path id="L2p1" name="path">
            <DataItems>
                <DataItem type="SYSTEM" category="CONDITION" id="L2p1system" name="p1system" />

                <DataItem type="CONTROLLER_MODE" name="p1mode" category="EVENT" id="L2p1mode"/>
                <DataItem type="EXECUTION" name="p1execution" category="EVENT" id="L2p1execution"/>
                <DataItem type="PATH_FEEDRATE" subType="OVERRIDE" name="p1Fovr" category="SAMPLE"
                    units="PERCENT" nativeUnits="PERCENT" id="L2p1Fovr" />
                <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p1Fact" category="SAMPLE" id="L2p1Fact"
                    units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
                <DataItem type="BLOCK" name="p1block" category="EVENT" id="L2p1block"/>
                <DataItem type="PATH_FEEDRATE" subType="COMMANDED" name="p1Fcmd" category="SAMPLE" id="L2p1Fcmd"
                    units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
                <DataItem type="PATH_POSITION" name="p1LPathPos" category="SAMPLE" units="MILLIMETER_3D"
                    nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="L2p1LPathPos" />

            </DataItems>
        </Path>
        <!-- Path 2 on second machine side or L side-->
        <Path id="L2p2" name="path2">
            <DataItems>
                <DataItem type="SYSTEM" category="CONDITION" id="L2p2system" name="p2system" />

                <DataItem type="CONTROLLER_MODE" name="p2mode" category="EVENT" id="L2p2mode"/>
                <DataItem type="EXECUTION" name="p2execution" category="EVENT" id="L2p2execution"/>
                <DataItem type="PATH_FEEDRATE" subType="OVERRIDE" name="p2Fovr" category="SAMPLE"
                    units="PERCENT" nativeUnits="PERCENT" id="L2p2Fovr" />

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        <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p2Fact" category="SAMPLE" id="L2p2Fact"
units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="BLOCK" name="p2block" category="EVENT" id="L2p2block"/>
        <DataItem type="PATH_FEEDRATE" subType="COMMANDED" name="p2Fcmd" category="SAMPLE" id="L2p2Fcmd"
units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
        <DataItem type="PATH_POSITION" name="p2LPPathPos" category="SAMPLE" units="MILLIMETER_3D"
nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="L2p2LPPathPos" />

    </DataItems>
</Path>
</Components>
</Controller>
</Components>
</Device>
</Devices>
</MTConnectDevices>

```

4. Defects fixed in this release

None