# **Okuma America Corporation**

Okuma MTConnect Adapter Software User Manual

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OKUMA MTConnect Adapter	S5053-03-00
User Manual	Date: 7/25/2011

# **Revision History**

Date	Version	Description	Author
7/25/2011	S5053-03-00	Initial Release	Linh Huynh

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# OKUMA MTConnect Adapter User Manual

# 1. Introduction

### 1.1 Purpose

The purpose of this document is to provide the instruction of installing and operating Okuma MTConnect Adapter. It also provides information on how to repair, and uninstall this software.

# 1.2 Scope

This manual will cover the installation, operation and trouble shooting for Okuma MTConnect Adapter running on OSP P100II/P200/P300 controls and on Windows XP x86 SP3, and Windows 7 x86 SP1 only.

# 1.3 Definitions, Acronyms and Abbreviations

None

# 1.4 Overview

The Okuma MTConnect Adapter is an application that is specifically designed to support the communication interfaces between MTConnect Agent and Okuma OSP P100II/P200/P300 controls.



For OKUMA controls, Adapter and Agent are installed on the control by default. An application resided on the control or on the network can consume information from an agent to perform tasks. Okuma MTConnect Adapter uses THINC-

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API to obtain machine data as defined in Devices.xml file and sends changed data to connected MTConnect agent.

# **1.5 Functions and Configuration**

# 1.5.1 Function

- This application will start after NC is started up using Startup service.
- This application allows MTConnect Agent provided by MTConnect.org to collect machine data.
- The system performs the following tasks routinely:
  - Send changed data to connected Agents
- Support MTConnect 1.2 spec only.

# 1.6 Scope

Current version of OKUMA MTConnect Adapter only supports OKUMA P100II/P200/P300 controls or higher. This adapter must be used with an agent developed by MTConnect.org and can be download at <u>https://github.com/mtconnect/cppagent</u>

Specific version of MTConnect Agent must be met per release of MTConnect Adapter – See Release Note

# 1.7 References

[1] Installation Manual for THINC-API

[2] Installation Manual for Startup Service

[3] MTConnect Agent - https://github.com/mtconnect/cppagent

# 2. Installation

The following steps in section 2.0 need to be performed in the same order:

- Installation of THINC API
- Installation of THINC Startup Service
- Installation of OKUMA MTConnect Adapter Software
- Installation of MTConnect Schemas (optional)

Note: All installation must be either installed directly from CD/DVD disks or copied to the local hard drive.

All security must be handled by end-user to allow the communications between client application, MTConnect agent, and OKUMA MTConnect Adapter.

# 2.1 Installation of THINC-API

This application requires THINC-API having the same version or greater to be installed on machine as specified in the Release Note of MTConnect Adapter.

Refer to THINC-API 'InstallationManual.pdf' provided on THINC-API Installation disk for instructions.

Tip: Try to run THINC-API Demo Application and see if it runs normally to make sure THINC-API is properly installed.

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It is always best to install the latest version of THINC-API on the machine if possible.

# 2.2 Installation of THINC Startup Service

This application requires Startup Service version 3.1.0.0 to be installed on target machine.

Refer to installation manual of Startup Service provided on Installation disk for instructions.

# 2.3 Installation of Okuma MTConnect Adapter Software

In Windows mode (press ESC and Cancel button during NC Startup screen to prevent NC from running), Run the 'Setup.exe' program from the Okuma MTConnect Adapter DVD to install Okuma MTConnect Adapter software. The setup program automatically checks if Microsoft .NET framework 4.0 is installed. If it is not installed, continue to section 2.3.1, otherwise refer to section 2.3.2.

<u>OSP software should not be running during the installation of Okuma MTConnect Adapter or .NET Framework 4.0.</u> During the .NET installation, it will be necessary to reboot multiple times. OSP software launch should be cancelled and the installation media should remain connected during the reboot.

For Windows XP, it must have Service Pack 3 installed in order to support .NET Framework 4.0

This installation can only be installed on 32-bit Windows XP or Windows 7.

<u>Note: This setup will check to see if the required version of THINC-API, and Startup Service installed on target</u> <u>machine before installing OKUMA MTConnect Adapter.</u>

# 2.3.1 Installation of Microsoft .NET Framework 4.0

The next dialog will be displayed if Microsoft .NET framework 4.0 is not installed.

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🕉 OKUMA TNMSA	MA Setup				X
For the following co	mponents;				
Microsoft .NET	Framework 4	(x86 a	nd x64)		_
Please read the folk see the rest of the a	owing license ag greement.	greemer	nt. Press the p	oage down k	ey to
					*
MICROSC	FT SOF	TW	ARE		
SUPPLEM	ENTAL I	LICE	INSE T	ERMS	
MICROSOFT	NET FRA	MEW VS OI	ORK 4 F	FOR IG	-
View EULA f	or printing				
Do you accept t	he terms of th	he pen	ding Licen:	se Agreema	ent?
If you choose Don't this agreement.	Accept, install (	will clos	e. To install y	ou must acci	ept
	Accept		Don't Accept		

Figure: .NET framework 4.0 license agreement dialog

Click 'Accept' to install .NET framework 4.0.

OKU	MA TAMSA MA Setup	
0	Installing Microsoft .NET Framework 4 (x86 and x64)	
~		

Figure: .NET framework 4.0 installation dialog

If the .NET installation requires rebooting then it needs to reboot the machine to continue the installation again.

# 2.3.2 Installation of Okuma MTConnect Adapter Software

The following dialog will be displayed once all of the required .NET frameworks are installed.

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Figure: Installation welcome dialog

Click 'Next' to continue.

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😸 OKUMA MT Connect Adapter	
Select Installation Folder	
The installer will install OKUMA MT Connect Adapter to the following folder.	
To install in this folder, click "Next". To install to a different folder, enter it be	elow or click "Browse".
<u>F</u> older:	
D:\Program Files\Okuma\OKUMA MT Connect Adapter\	Browse
	Disk Cost
Install OKUMA MT Connect Adapter for yourself, or for anyone who uses	this computer:
<ul> <li>Everyone</li> </ul>	
◯ Just me	
Cancel < Back	Next >

Figure: Installing Application folder

Click 'Next' to continue. User can also select a different folder other than the default one to install Okuma MTConnect Adapter Software.

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🙀 OKUMA MT Connect Adapter	
Installation Process:	
This installation will completely remove previous installation version before installing neccessary to note any existing configuration before continuing.	new files. It is
Cancel < Back	Next >

Figure: Installing Process

This dialog to inform user that the installation will completely remove any previous installation version before installing new version. It is necessary to note any custom agent/adapter information such as Adapter Device Name, Port, and Agent port number before proceeding the installation.

Click Next to continue

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🔂 OKUMA MT Connect Adapter	
Confirm Installation	Ĺ
The installer is ready to install OKUMA MT Connect Adapter on your computer. Click "Next" to start the installation.	
Cancel < Back	Next >

Figure: Confirm Installation

Click 'Next' to continue.

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🔀 OKUMA MT Connect Adapter			
Installing OKUMA MT C	Connect Adapt	er	Ĺ
OKUMA MT Connect Adapter is being	installed.		
Please wait			
	Cancel	< Back	Next >

Figure: Installing OKUMA MTConnect Adapter

Application is installing.

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Device Configuration Form	
Device Information	
Device Serial: 123456	
Device Name:	
OKUMA.MachiningCenter	
Device Description:	
Okuma MT Connect Adapter - Machining Center	
OK	Cancel

Figure: Device Information

This dialog provides custom setup for Okuma MTConnect Adapter.

1/ Device Information:

- o Device Name: Name of machine as specified in Devices.xml once it is configured per machine type
- o Device Serial Number: Unique machine number
- o Device Description: A description of this machine

# 2/ OK button:

The system will save current setting and update device configuration file accordingly.

# 3/ Cancel Button:

This will cancel current installation.

Click OK to move to next step

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😼 OKUMA MT Connect Adapter	
Installation Complete	
OKUMA MT Connect Adapter has been successfully installed.	
Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Framework	K.
Cancel < Back	Close

Figure: Installation completed dialog

Click 'Close' to complete the installation.

# It is necessary to reboot the machine after this step to complete the installation process.

OKUMA MTConnect Adapter application will be started automatically by THINC Startup Service after NC is completely started. By default, OKUMA MTConnect Adapter will be minimized to system tray after it runs without any error. The application can be shown up by double clicking the OKUMA icon

# screen.

# 2.4 Installation of MTConnect Schemas (Optional)

There are custom tags defined specifically for OKUMA controls. An extended schema, OkumaStreams\_1.3.xsd, for streaming data is included with the setup under Schemas folder where application is installed on target machine.

If stream data output from Agent needs to be validated then the standard and extended schemas need to be copied to target location where client application needs to check if needed.

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# 3. Repair/Uninstall Okuma MTConnect Adapter Software

### 3.1 Un-install Okuma MTConnect Adapter Software

Start the machine in Windows only mode. Click 'Start'  $\rightarrow$  Settings  $\rightarrow$  'Control Panel' to launch control panel. Double click 'Add or Remove Programs' in control panel, find the item 'Okuma MTConnect Adapter' and click 'Remove' to uninstall Okuma MTConnect Adapter Software.

<u>Note: Before performing un-installing Okuma MTConnect Adapter application, please shutdown the Okuma</u> <u>MTConnect Adapter application if it is running.</u>

🐻 Add or Re	mov	e Programs				
Change or	^	Currently installed programs and updates:	w up <u>d</u> ates	Sort by: Name	1,330.00MD	*
Remove Programs		🧆 NVIDIA nView Desktop Manager		Size	17.00MB	<u> </u>
		👸 Okuma Coolant Monitor		Size	59.39MB	
5		U Okuma Freedom eLog Interface		Size	2.57MB	
Add <u>N</u> ew Programs		🔜 OKUMA MT Connect Adapter		Size	<u>18.13MB</u>	
_		<u>Click here for support information.</u>		Used	rarely	
5		To change this program or remove it from your computer, click Change	je or Remove.	Change	Remove	
Add/Remove <u>W</u> indows	_	🛄 OKUMA TAMSA MB		Size	12.58MB	
Components		U Okuma THINC Startup Service		Size	2.61MB	
	~	Colores - Utilitan Marakina Alank		<b>_</b> .		<b>×</b>

# Figure: Uninstall Okuma MTConnect Adapter software dialog



Figure: Uninstall Okuma MTConnect Adapter software confirmation dialog

Click 'Yes' to confirm uninstalling Okuma MTConnect Adapter Software.

# 4. Installation Files

# 4.1 Okuma MTConnect Adapter Software

All the files are installed in the installation folder unless otherwise noted, by default, which is 'D:\Program Files\Okuma\Okuma MT Connect Adapter'.

The devices.xml configuration file will be configured per machine type and specification by OKUMA MTConnect Adapter. Once it is configured the device is available for communicating with an agent running on local machine only. OKUMA America Corporation, 2011 Page 16

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Note: In case of agent running on remote PC, the devices.xml must be manually copied to the target location where agent is running.

# 5. Usage

### 5.1 Start Okuma MTConnect Adapter Application

The Okuma MTConnect Adapter Software will be launched automatically by the Start-Up service after NC is started completely.

If user exits the software and wants to launch it again, press 'Ctrl +  $\frac{1}{2}$ ' on the operation panel to pop up Start Menu, then click 'Programs'  $\rightarrow$  'Okuma MTConnect Adapter'  $\rightarrow$  'Okuma MTConnect Adapter Application' to run.

After the application is launched without error, it will be minimized in the system tray and shown as an icon

user performs a double click on the icon or select 'Show' from the pop-up menu, the main user interface will be displayed.

Note: The detail messages displayed in the main user interface does depend on each machine configuration.

2 II S.T.M D	<u>)</u>	÷ ?	をまた	\$₩	Caps Lock	2014/11/12
	<sup>#</sup>			ост 1		
MANUAL OF ERATION					SFINDLE	
OKUMA MTCONNEC	T ADAPTER	2				
System Events Configurations	]					
System Events Configurations						-
Date:11/12/2014 Time:11:05:27 AM Info	ormation - Adapter se	ends all current da	ta to connected client	ld 1 - 2014-1	11-12T16:05:27.2	21760 🔺
Date:11/12/2014 Time:11:05:27 AM Info	rmation - Client ID 1 is	s connected				
Date:11/12/2014 Time:11:05:27 AM Info	rmation - Adapter Red	eived PING, send	ing PONG for * PONG	100000		=
Communication Status: OK						
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Adapter sta	rt monitoring				
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Initialization	completed.				
Date:11/12/2014 Time:11:05:17 AM Info	rmation - System star	ts monitoring				
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Loading app	plication configurat	on - OK			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: p2	_PathPos			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created data	a item named: p2F	cmd			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: p2F	act			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: p1	_PathPos			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created data	a item named: p1F	cmd			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: p1F	act			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	ta item named: pS	pindleRunTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: pC	uttingTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: pR	unningTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	a item named: pC	peratingTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created da	ta item named: p1	otalSpindleRunTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created dat	ta item named: pT	otalCuttingTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created da	ta item named: pT	otalRunningTime			
Date:11/12/2014 Time:11:05:17 AM Info	rmation - Created da	ta item named: pT	otalOperatingTime			
Date 11/12/2014 Time 11:05:17 AM Info	rmation - Created dat	a item_named <sup>.</sup> W2	load			-
TASK FILE CLEAR EVENTS BAR	TRACE ON/OFF	VINIMIZE TO GE	T CURRENT	D C	ISPLAY HANGE	ABOUT

Figure: Okuma MTConnect Adapter Software main user interface

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# 5.2 Exit Okuma MTConnect Adapter Application

When user shuts down the machine, the software will be terminated automatically without user interaction.

Click the button File/Exit will also terminate the software.

In normal operation, only user with administrative right can perform this operation.

### 5.3 Main User Interface

The main interface mainly contains 2 tabs:

System Events Configurations

### 5.3.1 System Events

It contains a menu bar as shown below. The menu item can be activated by clicking on it or pressing the correspond F Key from F1 to F9 if applicable.



### 5.3.1.1 File Menu

The 'File' menu has one submenu item, which is 'Exit'.

When the 'Exit' menu item is activated, the application will be closed. In normal operation, only user with administrative right can perform this operation.

TA	5 FILE	CLEAR EVENTS	TRACE ON/OFF	MINIMIZE TO	GET CURRENT	DISPLAY	ABOUT	
TASK BAR	EXIT						CLOSE	

# 5.3.1.2 Clear Events Menu

When the 'Clear Events' menu item is activated, all the messages displayed in the client area of the main user interface are cleared.

### 5.3.1.3 Trace ON/OFF Menu

When the Trace menu is activated it will toggle the TRACE mode. If Trace is ON tracing message is displayed when data item is changed.

### 5.3.1.4 System Tray Menu

When the 'System Tray' is activated, the main user interface is hidden and the icon for this application is shown in the system tray of windows task bar.

### 5.3.1.5 Get Current Menu

When the 'Get Current' menu is activated, the system will display a message in the System Events tab. The message contains all current values of all data items currently supported by the device.

Note: Data item might be UNAVAILBLE if it is not configured for monitoring in the Configuration tab.

### 5.3.1.6 Help Menu

When the 'About' menu item is activated, a dialog is displayed to show the information about this application.

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Okuma MTConnect Adapter-About			
	Okuma MTConnect Adapter		
	Version 1.0.0.0		
	Copyright © 2014		
	OKUMA		
0			
	ок		

Figure: Okuma MTConnect Adapter About box

By default, the system will write event messages to the System Events tab in the descending order such that newest event message will be displayed on the top of the list. If the 'Trace On' menu is checked, all messages will be displayed on the main user interface, otherwise only pre-selected event messages by the system will be displayed.

Event messages are categorized into different event types as following:

- Information Indicate normal event messages. It is in black color.
- Tracing Indicate tracing event messages when Trace On mode is enabled from menu. It is in blue color.
- Warning Indicate warning event message. It is in orange color.
- Error Indicate error event messages when system encounters. Error messages will be forced to display to main GUI and logged. It is in red color.
- Fatal Indicate critical error event messages when system encounters. Error messages will be forced to display to main GUI and logged. It is in violet color.

By double clicking on the event message in each row, a message box will be displayed contained the message in the current selected row.

Note: Error happened during initializing or applying new system configuration must be resolved in System Configuration.

### 5.3.2 Configurations

This tab provides configurations for the application.

<u>Notes: Any change in the System or Device Configuration might update the Devices.xml file, accordingly</u> and requires updating agent configuration file.

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OKUMA MTCONNECT ADAPTER					
System Events Config	gurations				-
			<pre><!-- EVENT DATA <DataItem type= <DataItem type= <DataItem type= <DataItem type= <DataItem type= <DataItem type= <DataItem type=</pre--></pre>		
System Configuration	Device Configurat	ion	Tags Configuration		
TASK CONFIG.	DEVICE TAGS CONFIG. CONFIG.	MINIMIZE TO TASKBAR	MINIMIZE TO SYSTEM TRAY		DISPLAY CHANGE

It contains a menu bar as shown. The menu item can be activated by clicking on it or pressing the correspond F Key.

# 5.3.2.1 System Config. Menu

This configuration allows user to configure different settings for the application. Upon completion of configuration, the system will try to re-initialize completely with new configuration. It requires an administrative level to perform. The system will verify the input user name and password before allowing user to save the configuration.

Dkuma MTConnect Adapter-Configuration Setting						
System Settings:						
Fast Polling Time (msec for events/cond	100					
Slow Polling Time (msec for sample/cus	Slow Polling Time (msec for sample/custom tags): 1000					
Server Setting:		Misc. Settings				
Max. Client Connections:	5	Hide TaskBar if Windows is active				
TCP Server Listening Port:	7878	Floating Windows				
Local Agents Only						
Heartbeat Time (second):	10					
OK		Cancel				

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- Fast Polling Time: The default value is 100 msec for fast polling interval. All event and conditional data items are monitored using fast polling time.
- Slow Polling Time: The default value is 1000 msec for slow polling interval. All sample and custom data items are monitored using slow polling time.
- Max. Client Connections: Number of agents can connect to this Adapter. Default value is 5 agents.
- TCP Server Listening Port: The port number where it is listening for incoming connection of agents. Default value is 7878.
- Local Agents Only: By checking, it only accepts agents running on local machine.
- Heartbeat Time: The numbers of seconds the adapter will send a message back to the connected agent when it received a ping from the connected server.
- Hide Taskbar if Windows is active: If it is enabled it will hide Windows Taskbar when application is active.
- Floating Windows: If it is enabled it will allow the application to freely move around.

In normal operation, only user with administrative right can perform this operation.

Note: All current agents must connect to the OKUMA MTConnect Adapter again after system configuration is changed.

#### 5.3.2.2 Device Config. Menu

This configuration allows user to set MTConnect device configuration for the application. Upon completion of device configuration, the system will try to re-initialize completely with new configuration. It requires an administrative level to perform. The system will verify the input user name and password before allowing user to save the configuration.

Note: The system configuration must have been configured first before Device Configuration is allowed. It is based the current Devices.xml configuration file of current machine specification.

Device Configuration Form	
Device Serial:	
Device Name:	
Device Description:	
<u>O</u> K	<u>C</u> ancel

This dialog provides custom setup for Okuma MTConnect Adapter.

1/ Device Information:

- o Device Name: Name of machine or device name as specified in device.xml.
- o Device Serial Number: Unique machine number
- Device Description: A description of this machine

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# 2/ OK button:

The system will save current setting and update Devices.xml accordingly. In normal operation, only user with administrative right can perform this operation.

### 3/ Cancel Button:

This will cancel current installation.

### Note: All current agents must connect to the OKUMA MTConnect Adapter again after system configuration.

### 5.3.2.3 Tags Config. Menu

2 1	ີ] S.T.M <u>ໂ</u> ວ	] )				∰— Caps Lock	2015,	/01/27 :11:00
TOOL DA	TA	BULKHEAD-3	DVM-2.MTN					
1002 0/		SCHED					<mark>(</mark>	
								$\smile$
OKUN		ST ADAPT	ER					
System	Events Configuration	IS					•	
Monitoring Ta	ags						1	
Name	Туре		Sub Type		Category	Current Value	<b>A</b>	
🔽 🖬 avail	AVAILA	ABILITY			EVENT	AVAILABLE		
🔽 🖬 S1Mo	de ROTA	RY_MODE			EVENT	SPINDLE		
🔽 🖬 estop	EMER	GENCY_STOP			EVENT	ARMED		
🗸 🖬 pmod	e CONTI	ROLLER_MODE			EVENT	MANUAL		
🔽 🖬 pprog	ram PROG	RAM			EVENT	BULKHEAD-3DVM-2.MIN		
V 🖬 pexed	cution EXECU	JTION			EVENT	STOPPED		
🛛 🖬 p1line	e LINE				EVENT	UNAVAILABLE		
📝 🖬 p1blo	ck BLOCH	κ			EVENT			
🗸 🖬 syste	m SYSTE	EM			CONDITION	system NORMAL		
📝 🖬 S1sp	eed ROTAF	RY_VELOCITY	ACTUAL		SAMPLE	0		
🗸 🖬 S1cm	nd ROTAF	RY_VELOCITY	COMMANDED		SAMPLE	0	=	
🗸 🖬 Slovi	r ROTAF	RY_VELOCITY	OVERRIDE		SAMPLE	100		
🔽 🖬 S1loa	d LOAD				SAMPLE	0		
🔽 🖬 X1act	tm POSIT	ION	ACTUAL		SAMPLE	-709		
🔽 🖬 X1loa	d LOAD				SAMPLE	0		
Vlact	tm POSIT	ION	ACTUAL		SAMPLE	-331		
🔽 🖬 Y1loa	d LOAD				SAMPLE	0		
🔽 🖬 Z1act	tm POSIT	ION	ACTUAL		SAMPLE	541		
📝 🖬 Z1loa	d LOAD				SAMPLE	0		
🗸 🖬 A1act	tm ANGLE	E	ACTUAL		SAMPLE	0		
🔽 🖬 A1loa	d LOAD				SAMPLE	0		
📝 🗟 C21a	ctm ANGLE	E	ACTUAL		SAMPLE	225		
📝 🖬 C211a	bad LOAD				SAMPLE	0		
V 🖬 pFovi	r PATH_	FEEDRATE	OVERRIDE		SAMPLE	190	-	
C		CHECK	UNCHECK	GET CURRENT		SAVE & CLOSE	CLOSE	
TASK BAR		SELECTED ITEM(S)	SELECTED ITEM(S)	GEFGORMENT		SAVE d'ELOSE		

# 5.3.2.3.1 Monitoring Tags Configuration

This configuration allows user to specify which data items to be monitored or not. By default, all data items are selected or enabled for monitoring.

Any tag is not checked or not monitored will be reported as UNAVAILABLE from agent.

# 5.3.2.3.1.1 Check All

Check all data items in the list

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# 5.3.2.3.1.2 UnCheck All

UnCheck all data items in the list

# 5.3.2.3.1.3 Check Selected Item(s) Check selected data items in the list

5.3.2.3.1.4 UnCheck Selected Item(s)

UnCheck selected data items in the list

# 5.3.2.3.1.5 Get Current

Update value of all data items in the list that are currently monitoring in the system

# 5.3.2.3.1.6 Save & Close

Save current setting and apply the new setting

# 5.3.2.3.1.7 Close

Close dialog without saving current setting

### 5.3.2.4 Minimize To Taskbar Menu

When this menu item is activated, the main user interface is hidden and the icon for this application is immunized to system task bar.

### 5.3.2.5 System Tray Menu

When this menu item is activated, the main user interface is hidden and the icon for this application is shown in the system tray of windows task bar.

### 5.3.2.6 Display Change Menu

When this menu is activated, the system will display a dialog that allows user to switch to other tabs

Screen Selec	tion	
Index	Screen Name	
> 1	System Events	
2	Configurations	
Cance	əl	ОК

# 5.3.3 Components/Data Items

The components and data items that can be supported by this adapter are described in the Devices.xml configuration file.

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Note: This file is only created once OKUMA MTConnect Adapter runs without error. Refer to section <u>MTConnect Tags</u> for more information

### 5.3.3.1 Data Items

The system will monitor all data items listed in Devices.xml per machine configuration and sends out only the data items having value being changed and being configured for monitoring to the connected agents.

Any agent first connects to the system will receive all data items values.

### 5.3.4 Agent & Adapter Communication

This adapter will send data to the connected MTConnect agents using socket in a pipe (|) delimited stream according to the descriptions given in the adapter guide by MTConnect.

The agent can be configured to run on the same PC where the adapter running or on a remote PC.

It is up to the end user to configure the agent configuration file and adapter communication channel for local or network connection.

Each time an agent is connected or disconnected a message will be displayed in the system event.

There are schemas of MTConnect included in the installation folder if needed by client applications. The OSP-P control does not natively include a compatible HTTP application for capturing the agent xml stream. Any web browser can be used to obtain data outputted from agent.

# 6. Event Log

# 6.1 Error Event Log

The error information for the application is logged in the Windows event log which user can read from windows system 'Event Viewer'. The source for this event log is 'Okuma MT Connect Adapter'.

To view the event log, press 'Ctrl + %' on the operation panel to pop up Start Menu, then click 'Settings'  $\rightarrow$  'Control Panel'  $\rightarrow$  'Administrative Tools'  $\rightarrow$  'Event Viewer' to launch windows event viewer, click 'OACMTAdapter' under 'Event Viewer (Local)' to see a list of events logged for Okuma MTConnect Adapter application. To see the detail of each event, double click the event item.

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Event Viewer		Same and Mark	2			x
File Action View Help						
🗢 🔿 🔀 🖬						
🛃 Event Viewer (Local)	OACMTAdapter Number of even	ts: 244		Act	ions	
D State Custom Views	Land	Data and Time			CMTAdapter	<b>^</b>
Windows Logs	Level	Date and Time			Oran Crued Lea	
Applications and Services Logs	Information	11/19/2014 11:44:52 AM			Open Saved Log	
Cisco	(i) Information	11/19/2014 11:44:52 AM		7	Create Custom View	
😭 Cisco AnyConnect Secure Mobility Client	(i) Information	11/19/2014 11:44:46 AM			Import Custom View	
CoolantMonitor	(i) Information	11/19/2014 11:44:46 AM			Charalter	- 11
😭 Dell	(i) Information	11/19/2014 11:44:45 AM			Clear Log	
Hardware Events	(i) Information	11/19/2014 11:44:45 AM		7	Filter Current Log	
Internet Explorer	(i) Information	11/19/2014 11:44:45 AM			Properties	
Key Management Service	(i) Information	11/19/2014 11:44:45 AM	-	000	End	=
Media Center	<		+	55	rina	_
Microsoft	Fuent 0. Okuma MTC annest Adapt		v		Save All Events As	
Microsoft Office Alerts	Event 0, Okuma Mir Connect Adapte		^		Attach a Task To this Log	
Microsoft-SQLServerDataTools	General Details				View	
Microsoft-SQLServerData LooisVS					VIEW	·
OACMachineAlert	Adapter sends all current data to	o connected client Id 1 - 2014-11-		Q	Refresh	
	19T16:44:52.4336676Z avail AVA	ILABLE fmode SETUP S1ovr 100 S1Mode	SPINDLE S2ovr =	?	Help	•
	IIS2ModelSPINDLEIC5ModelIND	EXlestopIARMEDIpmodeIAUTOMATICI	programIA.MIN		•	- 11
Ckuma API Notifier	Log Name: OACMTAda	nter		Eve	nt 0, Okuma MTConnect A 🔺	• 🛄
FILING Charton Canalan	Course MT	Connect Adapter January 11/1/	/2014 11-44-52		Event Properties	
Windows DowerShell	Source: Okuma Mito	Connect Adapter Logged: 11/19	7/2014 11:44:52 / *	5	Attach Tack To This Event	
Vindows Powersnell	+vent ID+ 0	Task Category' None	•		Attach Task TO This EVENT	
auscriptions				1	Сору	• -
	·					

### Windows XP

Γ

🖁 Event Viewer					- 🗆 X			
File Action View Help				6				
← → 🗈 🖪 💣 🙆 😫	1 😫 🛄			-73 -				
Event Viewer (Local)	OACMTAdapter 125 event(s)							
Application	Туре	Date	Time	Source	Category 🔺			
Notem System	Information	11/19/2014	12:51:04	Okuma MTConnect Adapter	None			
Barcode Reader	Information	11/19/2014	12:51:04	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:58	Okuma MTConnect Adapter	None			
LatheInterface	Information	11/19/2014	12:50:58	Okuma MTConnect Adapter	None			
OACCVButtons	Information	11/19/2014	12:50:58	Okuma MTConnect Adapter	None			
OACMachineAlert	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
🛛 🔢 Okuma API Notifier	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
52-57 (153-5) CONTRACTOR SOLVED	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None			
	Information	11/19/2014	12:50:57	Okuma MTConnect Adapter	None 🚽			
	1	1910A 069177 1965 363 197		Vestory in converting the state of the	► E			
l	(1994)							

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# 7. Trouble Shooting

By default, the system will write event messages to the main user interface. If the 'Trace On' menu is checked, all messages will be displayed on the main user interface, otherwise only pre-selected event messages by the system will be displayed.

Note: When the Trace On menu is enabled, all process states monitored in the system will be displayed on the event message tab when the states are changed as shown:

	0		? ****	44-	Caps Lock	2014/0 10:1	)5/13 L6:04
AUTO OPERATION			• 70	<b>B-TURRET</b>	1 SPIND	LE	3
							y
OKUMA MTCONNEC	T ADAPT	ER					
Sustam Evants Configurations							
System Events Configurations						-	
Date:5/13/2014 Time:10:15:36 AM Informat	ion - Client Connecti	ons= 0				<u> </u>	
Date:5/13/2014 Time:10:15:36 AM Inform	ation - Current Sar	mpling = 2014-05-13	3T14:15:36.3109357	7Z avail AVAILABLE S	31Mode SPINDLE	S2Mode SPI	
Communication Status: OK	A deptor start manit	oring					
B Date:5/13/2014 Time:10:11:09 AM Informati	ion - Initialization cor	nnleted				_	
Date:5/13/2014 Time:10:11:09 AM Informati	ion - Svetom starts n	nonitorina				=	
Date:5/13/2014 Time:10:11:09 Message Bo	x						
Date:5/13/2014 Time:10:11:09							
🖻 Date:5/13/2014 Time:10:11:09	Date:5/13/2	014 Time: 10: 15:3	36 AM Informati	on - Current Samp	oling 🔶 📗		
Date:5/13/2014 Time:10:11:09	= 2014-05-1	I3T14:15:36.3109	9357Z avail AV/	AILABLE S1Mode			
Date:5/13/2014 Time:10:11:09	SPINDLE S	2Mode SPINDL	E C5Mode IND	EX C6Mode INDE			
Date:5/13/2014 Time:10:11:09	B1Mode IN	DEX estop ARM	ED p_mode AU	JTOMATIC			
Date:5/13/2014 Time:10:11:09     Date:5/13/2014 Time:10:11:09	p_program	p_execution RE	ADY[p_partcou	int[0]			
Date:5/13/2014 Time:10:11:09	p1_Commo	nVariable[1:1000	100 [p1_MacMa	nPanelHistory			
Date:5/13/2014 Time:10:11:09	2014/05/13	09:19:54 One-to	uch Window Clo	se:RUN DISP			
Date:5/13/2014 Time:10:11:09	р [_block]]р		ABLE   p I_Curre		-		
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Date:5/13/2014 Time:10:11:09		o <del>n nanoa. p_i on</del>					
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data it	em named: W2load					
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data ite	em named: W2actm					
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data it	em named: W1load					
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data ite	em named: W1actm					
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data it	em named: Z2load				-	
TASK FILE CLEAR EVENTS	TRACE ON/OFF	MINIMIZE TO SYSTEM TRAY	GET CURRENT		DISPLAY Change	ABOUT	

# 7.1 Common Errors

### 7.1.1 OKUMA MTConnect Adapter application failed to start correctly

OKUMA MTConnect Adapter does use THINC-API libraries to collect machine data.

Probable faulty locations:

- Older version of THINC-API is installed on control
- Invalid THINC-API license file for this particular machine serial number
- THINC-API License is expired
- NC is not started or not fully started yet
- OKUMA MTConnect Adapter started before THINC-API is ready

Measure to take:

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- Install the required or higher version of THINC-API on control
- Install the correct THINC-API disk per machine serial
- Ensure that OKUMA MTConnect Adapter is registered with Startup Service so it can be started after THINC-API is ready.

Please refer to section <u>THINC-API</u> and <u>Setup Okuma MTConnect Adapter Software to Startup Automatically</u> for more information

### 7.1.2 MTConnect client applications cannot get machine data from running Agent

#### 7.1.2.1 Incorrect Device Name

Probable faulty locations:

- MTConnect device name is case-sensitive.
- MTConnect device name have been changed in the devices.xml file

#### Measure to take:

• Check Devices.xml file for correct device name

Refer to section Verifying Agent and Adapter Connectivity for more information

### 7.1.2.2 Incorrect Port Number

Probable faulty locations:

- By default, agent is running on port 5000
- Agent port number has been changed in agent.cfg file

### Measure to take:

- Ensure that client application uses the port number specified in agent.cfg file
- Check network configuration for allowing connection with current setting port number in agent configuration file

Refer to section Installation and Configuration of MTConnect Adapter for more information

### 7.1.2.3 Network issues

Probable faulty locations:

• Firewall is enabled on remote PC where agent is running

### Measure to take:

• Disable Firewall on remote PC

# Note: End-user is responsible for setting proper network connection and security to allow exchanging data between entities according to MTConnect specification.

### 7.1.3 Unable to perform Device Configuration/Tag Configuration

In order to perform these configurations, the application must be able to connect to NC. The adapter will create and configure the Devices.xml once it can connect to NC without error on its first run.

Probable faulty locations:

- Devices.xml file is not available yet due to NC is not running yet
- THINC-API is not installed on target machine or does not run correctly

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• NC is not started yet

Measure to take:

- Ensure the required version or higher version of THINC-API is installed on target machine
- Ensure that Startup Service is installed on target machine
- Registered Okuma MTConnect Adapter with Startup Service to allow the adapter to start after NC is fully
- Ensure that adapter runs without error.

Please refer to section <u>THINC-API</u> and <u>Setup Okuma MTConnect Adapter Software to Startup Automatically</u> for more information



### 7.1.4 Unable to install MTConnect Agent as Windows Service

Installing agent as Windows service requires 2 files to be existed. One is agent.cfg for MTConnect Agent application, the other is Devices.xml which is specified in agent.cfg file. Devices.xml is generated automatically when OKUMA MTConnect Adapter first runs on target machine without error.

Probable faulty locations:

- Devices.xml file does not exist
- Agent.cfg file does not exist
- Required administrator privilege in Windows 7

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Measure to take:

- Registered Okuma MTConnect Adapter with Startup Service to allow the adapter to start after NC is fully started so it can generated and configure Devices.xml file correctly.
- Verify if agent configuration has correct device file name such as Devices.xml
- If installing agent in Windows 7, it is necessary to run the bat file named RunAgentAsService.bat under administrator account.

Refer to section Installation and Configuration of MTConnect Agent for more information

# 7.1.5 No communication between running MTConnect agent and OKUMA MTConnect adapter

Once adapter is running it will listen for incoming connection from agent. Once an agent is connected the adapter will send first initial message to agent and display a message on System Event screen. If both agent and adapter are running but no data is sending then it probably is the setting in the configuration of agent and adapter is not matched.

Probable faulty locations:

- Adapter port number specified Adapter System configuration
- Adapter port number specified Agent configuration file, agent.cfg

### Measure to take:

- Check port number in adapter and agent configuration. Default port number is 7878
- Re-start agent service from Windows Services
- Ensure that adapter is running without error

Refer to section Installation and Configuration of MTConnect Adapter for more information

### 7.1.6 OKUMA MTConnect Adapter Not Running

In order for adapter to run automatically after NC is fully started, it is necessary to register the application with Startup Service.

By default, it is registered with Startup Service during setup.

Probable faulty locations:

- Startup Service is not running
- Adapter is not registered with Startup Service

### Measure to take:

- Ensure that THINC-API is running without error.
- Re-start Startup Service from Windows Service
- Register MTConnect Adapter with Startup Service

Refer to section <u>Setup Okuma MTConnect Adapter Software to Startup Automatically</u> for more information

### 7.1.7 MTConnect Agent Not Running

Agent is installed as Windows service by default. It is necessary to re-start the machine to allow agent service to run automatically when Windows is started.

When agent is started the following files must be available:

Devices.xml Agent.cfg

Probable faulty locations:

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- Agent.exe is missing
- Agent.exe is note registered as Windows Service yet
- Devices.xml is missing
- Agent.cfg is missing
- Machine has not been rebooted yet
- Invalid devices.xml file
- Invalid agent.cfg file

#### Measure to take:

- Ensure that devices.xml can be opened in any web browser without error
- Ensure that agent.cfg is configured with correct syntax. Please see README.pdf for detail information
- Ensure that agent service is configured to start automatically
- Re-install MTConnect Adapter on target machine

Refer to section Installation and Configuration of MTConnect Agent for more information

### 7.1.8 Agent reports UNAVAILABLE in all tags

Initially, agent will report UNAVAILABLE to all tags when it first started. Once agent is running it will try to connect with adapter at the specified host and port number. If adapter is running and agent can connect with it adapter will first send current value of all tags to the connected agent.

Probable faulty locations:

- Mismatch adapter port number specified in agent.cfg and adapter's system configuration
- Adapter is not running
- Adapter is running but in error state
- Tags are not configured for monitoring by adapter

### Measure to take:

- Check port number in adapter and agent configuration. Default port number is 7878
- Ensure that adapter is running without error
- Ensure tags are configured for monitoring by adapter. Tags are not monitoring will report as UNAVAILABLE.

Refer to section <u>Tags Config. Menu</u>, <u>Installation and Configuration of MTConnect Adapter</u>, and <u>Verifying Agent</u> and <u>Adapter Connectivity</u> for more information

### 7.1.9 Agent reports only Availability tag

After installing adapter and agent, agent service will run automatically when machine is rebooted. Agent reports tags defined in devices.xml file. Initially, the devices.xml will have default tags only and will be configured per machine specification after adapter is running without error. As a result, agent can report default tags only before adapter is running as shown below:

Note: By default, agent will wait for about 5 seconds or so before reloading the devices.xml or agent.cfg file if they are changed.

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← → C	UMA/current						@ ☆ 🙆
<ul> <li>creationTime: 2019</li> <li>sender: DLT-LHUYI</li> <li>instanceId: 142324</li> <li>version: 1.3.0.13</li> <li>bufferSize: 131072</li> <li>nextSequence: 4</li> <li>firstSequence: 1</li> <li>lastSequence: 3</li> </ul>	5-02-06T18:31: NH32 47475 2	55Z					
Device: OKUM Device : OKUMA Events	A; UUID: (	οκυ	MA.1	12345	56		
Device: OKUMA Device : OKUMA Events Timestamp	A; UUID: (	OKU Sub Type	MA.1	12345	5 <b>6</b> Id	Sequence	Value
Device: OKUMA Device : OKUMA Events Timestamp 2015-02- 06T18:31:15.092690Z	<b>A; UUID:</b> <b>Type</b> AssetChanged	OKU Sub Type	MA.1	L2345	56 Id _asset_chg	Sequence	<b>Value</b> UNAVAILAB
Device: OKUMA Device : OKUMA Events Timestamp 2015-02- 06T18:31:15.092690Z 2015-02- 06T18:31:15.092690Z	A; UUID: ( Type AssetChanged AssetRemoved	OKU Sub Type	MA.1	L2345 окима_ окима_	56 Id _asset_chg _asset_rem	Sequence 1 2	Value UNAVAILAB UNAVAILAB

Probable faulty locations:

• Devices.xml file has not been configured by adapter yet

Measure to take:

• Ensure that adapter is running without error

Refer to section <u>Installation and Configuration of MTConnect Adapter</u> and <u>Verifying Agent and Adapter</u> <u>Connectivity</u> for more information

# 7.1.10 Agent reports UNAVAILABLE in some tags

Probable faulty locations:

- Name of tags defined in Devices.xml has been changed
- Tags have been unchecked in the Tags Configuration dialog

Measure to take:

- Ensure tags have been checked in Tags Configuration dialog
- Ensure name of tags displayed int Tags Configuration dialog are the same in devices.xml

Refer to section <u>Tags Config. Menu</u> for more information Note: Devices.xml file should not be modified by any application.

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# 8. MTConnect Tags

All standard and custom tags are listed in the following files per machine type:

Standard Lathe: LatheDevices.xml

Dual Side Lathe: Lathe2SPDevices.xml Machining Center: MCDevices.xml

At run time the actual number of tags can be supported per machine specification will be changed and will be stored in Devices.xml file to be consumed by MTConnect agent.

Note: MTConnect Adapter does use tags information defined in Devices.xml file. By no means, the Devices.xml is modified directly by any other applications.

### 8.1 Standard Lathe Tags

```
<?xml version='1.0' encoding='UTF-8'?>
<MTConnectDevices</pre>
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'</pre>
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>
      <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"</pre>
                subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS1speed"/>
                <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"</pre>
                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"</pre>
                subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="LS2speed"/>
                <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2cmd"</pre>
                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>
```

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```
</DataItems>
            </Rotary>
            <!-- Main Spindle function as C/CA-axis-->
            <Rotary name="C5" nativeName="CA" id="Lc5" >
               <DataItems>
                 <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"</pre>
                 name="C5actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="LC5actm"/>
<DataItem type="LOAD" category="SAMPLE" name="C5load"</pre>
                 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"</pre>
                  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" >
              <DataItems>
                 <DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"</pre>
                  name="Blactm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="WORK" id="LBlactm"/>
                 <DataItem type="LOAD" category="SAMPLE" name="B1load"</pre>
                 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" >
              <DataTtems>
                 <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"</pre>
                  name="X2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="LX2actm"/>
                 <DataItem type="LOAD" category="SAMPLE" name="X2load"</pre>
                 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"</pre>
                  name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="LZ1actm" />
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                                                                                              Page 33
```

```
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```

```
<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"</pre>
                  name="Z2actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="LZ2actm" />
                <DataItem type="LOAD" category="SAMPLE" name="Z2load"</pre>
                units="PERCENT" nativeUnits="PERCENT" id="LZ2load"/>
              </DataItems>
            </Linear>
            <!-- Optional Linear W axis respect to A Turret-->
            <Linear name="Z4" nativeName="WA" id="Lz4">
              <DataTtems>
                <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"</pre>
                  name="Z4actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="LZ4actm" />
                <DataItem type="LOAD" category="SAMPLE" name="Z4load"</pre>
                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"</pre>
                  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>
        </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"</pre>
                        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"</pre>
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"</pre>
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"</pre>
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"
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```

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```
units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
                            <DataItem type="PATH POSITION" name="p2LPathPos" category="SAMPLE" units="MILLIMETER 3D"</pre>
        nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="Lp2LPathPos" />
                          </DataItems>
                        </Path>
                    </Components>
                 </Controller>
               </Components>
             </Device>
           </Devices>
         </MTConnectDevices>
8.2 Two Sides Lathe Tags
         <?xml version='1.0' encoding='UTF-8'?>
         <MTConnectDevices</pre>
           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'</pre>
         version='1.2' instanceId='1' bufferSize='131072'/>
           <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>
                 <Axes name="Axes" id="L2axes1">
                    <Components>
                      <!-- R Spindle-->
                      <Rotary name="C1" nativeName="S" id="L2c1" >
                        <DataItems>
                          <DataItem type="ROTARY VELOCITY" category="SAMPLE" name="S1speed"</pre>
                          subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S1speed"/>
                          <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"</pre>
                          subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S1cmd"/>
<DataItem type="LOAD" category="SAMPLE" name="S1load"</pre>
                                   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"</pre>
                          subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="L2S2speed"/>
<DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S2cmd"</pre>
                          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>
                          </PataTtem>
                        </DataItems>
                      </Rotary>
                      <!-- R Spindle function as C axis-->
                      <Rotary name="C5" id="L2c5" >
                        <DataItems>
```

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```
<DataItem type="ANGLE" subType="ACTUAL" category="SAMPLE"</pre>
                name="C5actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="L2C5actm"/>
<DataItem type="LOAD" category="SAMPLE" name="C5load"</pre>
                 units="PERCENT" nativeUnits="PERCENT" id="L2C5load"/>
                 <DataItem category="EVENT" id="L2C5Mode" name="C5Mode" type="R0TARY_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"</pre>
                  name="C6actm" units="DEGREE" nativeUnits="DEGREE" coordinateSystem="MACHINE" id="L2C6actm"/>
                 <DataItem type="LOAD" category="SAMPLE" name="C6load"</pre>
                 units="PERCENT" nativeUnits="PERCENT" id="L2C6load"/>
                 <DataItem category="EVENT" id="L2C6Mode" name="C6Mode" type="R0TARY_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>
                 <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"</pre>
                  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" >
              <DataTtems>
                 <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"</pre>
                  name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="L2Z1actm" />
                 <DataItem type="LOAD" category="SAMPLE" name="Z1load"</pre>
                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"</pre>
                  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>
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```

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```
<!-- 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="plexecution" category="EVENT" id="L2plexecution"/>
                          <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"</pre>
        units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
                          <DataItem type="BLOCK" name="plblock" category="EVENT" id="L2plblock"/>
                          <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"</pre>
        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"</pre>
                                    units="PERCENT" nativeUnits="PERCENT" id="L2p2Fovr" />
                          <DataItem type="PATH_FEEDRATE" subType="ACTUAL" name="p2Fact" category="SAMPLE" id="L2p2Fact"</pre>
        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"</pre>
                                    units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE" />
                          <DataItem type="PATH POSITION" name="p2LPathPos" category="SAMPLE" units="MILLIMETER 3D"</pre>
        nativeUnits="MILLIMETER_3D" coordinateSystem="WORK" id="L2p2LPathPos" />
                        </DataItems>
                     </Path>
                   </Components>
                 </Controller>
               </Components>
             </Device>
           </Devices>
         </MTConnectDevices>
8.3 Machining Center Tags
         <?xml version='1.0' encoding='UTF-8'?>
         <MTConnectDevices</pre>
           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>
                   <DataTtems>
                 <DataItem category="EVENT" id="Mavail" name="avail" type="AVAILABILITY" />
               </DataItems>
               <Components>
                 <Axes name="Axes" id="Maxes1">
```

<DataItem type="ROTARY\_VELOCITY" category="SAMPLE" name="S1speed"</pre>

<Rotary name="C1" nativeName="S" id="Mc1" >

<Components>

<DataItems>

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```
subType="ACTUAL" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="MS1speed"/>
                 <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1cmd"</pre>
                 subType="COMMANDED" units="REVOLUTION/MINUTE" nativeUnits="REVOLUTION/MINUTE" id="MS1cmd"/>
                 <DataItem type="ROTARY_VELOCITY" category="SAMPLE" name="S1ovr"</pre>
                          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"</pre>
                   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>
             <Linear name="Y1" id="My1" >
               <DataItems>
                 <DataItem type="POSITION" subType="ACTUAL" category="SAMPLE"</pre>
                   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"</pre>
                   name="Z1actm" units="MILLIMETER" nativeUnits="MILLIMETER" coordinateSystem="MACHINE"
id="MZ1actm" />
                 <DataItem type="LOAD" category="SAMPLE" name="Z1load"</pre>
                 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="p1line" category="EVENT" id="Mp1line"/>
<DataItem type="BLOCK" name="p1block" category="EVENT" id="Mp1block"/>
                   <!-- 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"</pre>
           units="MILLIMETER/SECOND" nativeUnits="MILLIMETER/MINUTE"/>
                    <DataItem type="PATH_POSITION" name="p1LPathPos" category="SAMPLE"</pre>
                              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"/>
```

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

# 9. Installation and Configuration of MTConnect Agent

By default, MTConnect Agent is already installed and configured with default values during installation.

MTConnect Agent, agent.exe, is installed into the same location of OKUMA MTConnect Adapter. It is, however, up to user to decide to run agent on the same or different PC. On either case, the same configuration information in agent.cfg must be used.

### 9.1 Installation of MTConnect Agent as Service

Manually, it can be quickly installed as Windows Service by running the BAT file named RunAgentAsService.bat at the installation folder on the machine as shown in the captured image below:

Note: It is necessary to run the BAT file named RunAgentAsService.bat under administrator account by selecting the BAT file and running it as administrator as shown in the captured image below.



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C:\WINDOWS\system32\cmd.exe	- 🗆 ×
C:\Documents and Settings\TEMP>D:	<b>^</b>
D:\>CD D:\Program Files\Okuma\OKUMA MT Connect Adapter	
D:\Program Files\Okuma\OKUMA MT Connect Adapter>agent install agent.cfg MTConnect Agent Version 1.2.0.13 - built on Wed Jun 20 12:23:52 2012	
2013-11-07T16:32:45.0964Z: INFO [0] init.config: Starting agent on port 50 2013-11-07T16:32:46.0105Z: INFO [0] init.config: Adding adapter for OKUMA. ningCenter1234 on localhost:7878 2013-11-07T16:32:46.0777Z: INFO [0] init.service: Service installed succes y.	00 Machi sfull
D:\Program Files\Okuma\OKUMA MT Connect Adapter>	

The agent now will run automatically when machine first boots up.

### 9.2 Un-installation of MTConnect Agent Service

Note: If needed current agent installed in Windows services can be removed by issuing the following command from command prompt or running the bat file named UninstallAgentAsService.bat:

### agent remove

# 9.3 Configuration of MTConnect Agent

Please refer to the MTConnect Agent installation file named, README.pdf, for further instruction how to configure it to connect to adapter.

The default agent configuration file, named agent.cfg, is installed in the same folder with MTConnect Adapter and having default information as shown below:

Device	es = Devices.xml	
Schem	aVersion = 1.2	# using schema version 1.2
Port=5	000	# default port number for agent
Upcas	eDataltemValue = false	
Monito	rConfigFiles = true	# True = reload devices.xml and agent.cfg if they are changed
MinimumConfigReloadAge = 1 config files		# Number of seconds agent service will wait before performing reload
Adapte	ers	
{		
	OKUMA.Machine.Adapter	# for reference OKUMA machine adapter
	{	
	Host = localhost	
	Port = 7878	# default port number for OKUMA MTConnect Adapter
	}	

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# }

### 9.3.1 Agent Running Port

By default, agent is binding to port 5000 for accepting client requests and connecting to OKUMA MTConnect Adapter at port 7878.

The information can be changed by editing agent.cfg as shown below:

### Port=5001

# default port number for agent

Agent is now running on port 5001.

### 9.3.2 Adapter Host

In case of agent is configured to run on remote PC, Adapter 'Host' must be configured to where adapter is running.

For agent running on the same PC as adapter:

Host = localhost

For agent running on the remote PC:

Host = IPAddress

Where IPAddress is the IP address of the machine that adapter is running.

For example:

Host = 172.22.50.10

### 9.3.3 Adapter Running Port

By default, agent is communicating with adapter at port 7878. If adapter port is changed to different port number then it is necessary to change agent configuration file to the same port number such as port 7979 as shown below:

Adapter system configuration setting:

Okuma MTConnect Adapter-Configuration S	etting	
System Settings:		
Fast Polling Time (msec for ev	vents/conditions tags):	100
Slow Polling Time (msec for s	ample/custom tags):	1000
Server Setting:		Misc. Settings
Max. Client Connections:	5	Hide TaskBar if Windows is active
TCP Server Listening Port:	7879	Floating Windows
Local Agents Only		
Heartbeat Time (second):	100	
	ОК	Cancel

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### Port = 7879 # default port number for OKUMA MTConnect Adapter

### 9.3.4 Start and Stop Agent Service

MTConnect Agent is a Windows service that can be started and stopped from Services dialog as shown below



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Q Services							1×
File Action View	Help						
	🤹 📑 🚺 📷 🕨 🔳 💵 🕪						Ĵ
Services (Local)	🖏 Services (Local)						
	MTConnect Agent	Name 🔺		Description	Status	Startup Type	
	-	🔍 Microsoft .NET Framework No	GEN v2.0.5	Microsoft		Disabled	
	Start the service	🔍 Microsoft .NET Framework No	GEN v4.0.3	Microsoft		Automatic (D	
		🎑 Microsoft iSCSI Initiator Serv	ice	Manages I		Manual	
		🔍 Microsoft Software Shadow (	Copy Provider	Manages s		Manual	
		🔍 MTConnect Agent 💦 👝	1	-		Automatic	
		🧠 Multimedia Class Scheduler 📘	Start	bles rel	Started	Automatic	
		🧠 Net. Msmq Listener Adapter	Stop 🔨	eives a		Disabled	
		💁 Net.Pipe Listener Adapter	Pause	eives a		Disabled	
		强 Net. Tcp Listener Adapter	Resume	eives a		Disabled	
		🔍 Net. Tcp Port Sharing Servic	Restart	vides a		Disabled	
		Retlogon	All Tasks	htains a		Manual	
		Network Access Protection –	Defrech	Netwo	-	Manual	
		Network Connections	Refresh	hages o	Started	Manual	
		Wetwork List Service	Properties	htifies t	Started	Manual	-
			Help	_		<u>P</u>	
	Extended / Standard /		1.010				
Start service MTConnec	t Agent on Local Computer						

# 10. Setup Okuma MTConnect Adapter Software to Startup Automatically

By default, OKUMA MTConnect Adapter is automatically registered with Startup Service so it will be run after NC is fully started.

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FREEDOM ELOG	📴 24 💷				
DKUMA TAMSA MB	🗉 Read Only				
	File	D:\Program files\Okuma\Okuma MT Conr			
UNUMA MILCUNNECT ADAPTER	Name Name	OkumaMTConnectAdapter			
	Туре	Process			
	E Read/Write				
	Enabled	True			
	Launch	Once			
	Wait	True			

The following steps are only needed if the registration of OKUMA MTConnect Adapter has been removed.

To enable the Okuma MTConnect Adapter Software run automatically when NC OSP system is started, user needs to setup THINC Startup Service properly. Click 'Start'  $\rightarrow$  'Programs'  $\rightarrow$  'Okuma'  $\rightarrow$  'THINC Startup Service'  $\rightarrow$  'THINC Start Settings' to activate the startup service setup dialog as follows.

L Thinc Startup Settings				<u>_                                    </u>
	2↓ □			
New Entry Delete Entry	Restart After Changes Applied	Save	Cancel	Apply

Figure 1 THINC startup settings dialog

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Click 'New Entry' button at the lower left side of the dialog to add an entry for the Okuma MTConnect Adapter application.



Figure: THINC startup settings add item welcome dialog

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🛄 Add Item	X
Startup Type. Select the startup type.	
Divelop Name	
Type Process Service	
	K Back Next Cancel

Figure: THINC startup settings add item name dialog

In the 'Add Item' welcome window, click 'Next' to enter the 'Startup Type' selection dialog, enter 'Okuma MTConnect Adapter' as display name and select 'Process' for the startup type, then click 'Next' button and a new dialog will pop up to allow user to browse which application to startup.

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Figure: THINC startup settings add item destination dialog

Click the 'Browse' button to select file 'OkumaMTConnectAdapter.exe' in the Okuma MTConnect Adapter installation folder (By default, it is 'D:\Program Files\Okuma\Okuma MT Connect Adapter\'.). Click 'Next' to proceed to next 'Startup Options' dialog.

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Add Item Startup Optio Select Desired	<b>ns.</b> 1 Options.				×
Option	Included				
Enabled					
Launch		Select All			
Wait		Clear All			
Sequence					
Delay					
Argument					
Username					
Password					
			< Back	Next >	Cancel

Figure: THINC startup settings add item options dialog

In the 'Startup Options' dialog, check 'Enabled', 'Launch' and 'Wait', then click 'Next' button to go to next step

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Add Item				×
•				
The following	startup entry will be created.			
Display	OKUMA MTCONNECT ADAPTER			
Туре	Process			
Name	OkumaMTConnectAdapter			
File	D:\Program files\Okuma\Okuma M	T Conne	ect Adapter\Oku	maMTCo
Startup option	S.			
Enabled	Included			
Launch	Included			
₩ait	Included			
Sequence	Not Included			
Delay	Not Included			
Argument	Not Included			
Username	Not Included			
Password	Not Included			
	<1	3ack	Finish	Cancel

Click 'Finish' button to finish the setup for Okuma MTConnect Adapter Software.

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FREEDOM ELOG					
OKUMA TAMSA MB	🗆 Read Only				
THINC APP OKUMA MTCONNECT ADAPTER (New)	File	D:\Program files\Okuma\Okuma MT Con			
	Name	OkumaMTConnectAdapter Process			
	Туре				
	🖂 Read/Write				
	Enabled	True			
	Launch	Once			
	Wait	True			
	Name				

Figure: THINC startup settings add item completed dialog

Click 'Save' to save the settings and exit the setup process. The Okuma MTConnect Adapter Software should be launched automatically after the NC OSP system is started.

Note: User needs to restart the machine to ensure that the startup service works properly.

# **11. Verifying Agent and Adapter Connectivity**

The following steps are to check if:

- Adapter runs without error.
- o Adapter can get machine data
- o Agent can communicate with adapter
- o MTConnect data can be obtained from agent

# 11.1 OKUMA MTConnect Adapter

Once the adapter is running, it is normally minimized to system tray. It can be shown by double clicking the

OKUMA icon in the system tray located on the lower left corner of the screen. The main application will show as seen below.

If OKUMA MTConnect adapter is running without error, the system is ready for accepting agent connections.

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	Б.Т. <b>М [_]</b>	•				Caps Lock	2015/02/04 <u>S™</u> 11:13:33
AUTO OPERATI	ON			A-MTD			
		SCHEDUL	.E				
OKUMA M	<b>FCONNEC</b>	T ADAPTE	R				
System Events	Configurations						•
Communication Statu	ls: OK						<u> </u>
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Adapter start	monitoring				
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Initialization of	completed.				
Date:2/4/2015 Time:1	11:13:22 AM Inform	ation - System starts	s monitoring				
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Loading appl	ication configura	tion - OK			E
Date:2/4/2015 Time:1	11:13:22 AM Inform	ation - Created data	item named: p1	Fcmd			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: pl	ILPathPos			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: p1	IFact			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: p	ISpindleRun I im	e		
Date:2/4/2015 Time:	11:13:22 ANI Inform	ation - Created data	item named: p	1Cutting Time			
Date:2/4/2015 Time:	11:13:22 Alvi Inform	ation - Created data	i item named: p	1OperatingTime			
Date:2/4/2015 Time:	11.13.22 AW Inform 11.12:22 AM Inform	ation - Created data	item named: p	1TotalSpindleBu	nTime		
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: p	1TotalOuttingTim			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: p	1TotalRunningTin	me		
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: p	1TotalOperating1	Time		
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: C	21load			
Date:2/4/2015 Time:	11.13:22 AM Inform	ation - Created data	item named: C2	21actw			
Date:2/4/2015 Time:	11.13.22 AM Inform	ation - Created data	item named: C2	21actm			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: A	1load			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: A1	lactw			
Date:2/4/2015 Time:	11:13:22 AM Inform	ation - Created data	item named: A1	lactm			
Date:2/4/2015 Time:	11-13-22 AM Inform	ation - Created data	item named: 7	1load			-
TASK FILE BAR	CLEAR EVENTS	TRACE ON/OFF	MINIMIZE TO SYSTEM TRAY	GET CURRENT		DISPLAY CHANGE	ABOUT

# 11.2 Obtaining Current Monitoring Machine Data

OKUMA MTConnect Adapter is using THINC-API to collection machine data. By clicking the 'Get Current' from menu bar, the system will get current monitoring data and display a message under System Events screen. A detail message is shown in the message box by double clicking on the 'Current Sampling' message in the System Events.

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	0	ATC ?	1W	Caps Lock	2014/05/13 10:16:04
AUTO OPERATION			B-TURRET	1 SPINDLE	
OKUMA MTCONNEC	T ADAPTE	R			
System Events Configurations					
Date:5/13/2014 Time:10:15:36 AM Informat	I ion - Client Connections	s= 0			
Date:5/13/2014 Time:10:15:36 AM Inform	ation - Current Sampl	ling = 2014-05-13T14:15:36.310	9357Z avail AVAILABLE S1N	Iode SPINDLE S2M	ode SPI
Communication Status: OK					
Date:5/13/2014 Time:10:11:09 AM Tracing -	Adapter start monitorin	ng			
Date:5/13/2014 Time:10:11:09 AM Informati	on - Initialization compl	eted.			=
Date:5/13/2014 Time:10:11:09 Att Intermet	on - System starts mon	utoring			
Date:5/13/2014 Time:10:11:09     Date:5/13/2014 Time:10:11:09	a construction of the	a compress of			
Date:5/13/2014 Time:10:11:09	Date:5/13/201	4 Time 10:15:36 AM Inform	nation - Current Samplin		
Date:5/13/2014 Time:10:11:09	= 2014-05-131	[14:15:36 31093577]avail/	AVAILABLEIS1Model		
Date:5/13/2014 Time:10:11:09	SPINDLEIS2N	ModelSPINDLEIC5ModelIN	DEXIC6ModelINDEX	=	
Date:5/13/2014 Time:10:11:09	B1ModelINDE	XlestopIARMEDIp mode	IAUTOMATICI		
Date:5/13/2014 Time:10:11:09	p program[]p	execution READY parte	count[0]		
Date:5/13/2014 Time:10:11:09	p1 CommonV	ariable 1:100000  p1 Macl	ManPanelHistory		
Date:5/13/2014 Time:10:11:09	2014/05/13 09	):19:54 One-touch Window	Close:RUN DISP		
Date:5/13/2014 Time:10:11:09	p1 block  p1	line UNAVAILABLE p1 Cu	urrentTool[100]	-	
Date:5/13/2014 Time:10:11:09					
Date:5/13/2014 Time:10:11:09			OK		
Date:5/13/2014 Time:10:11:09					
Date:5/13/2014 Time:10:11:09	ion Created data item	namoa. p_r ori			
Date:5/13/2014 Time: 10:11:09 AM Informat     Date:5/13/2014 Time: 10:11:09 AM Informat	ion - Created data item	named: W2ioad			
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data item	named: Wilload			
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data item	named: W1actm			
Date:5/13/2014 Time:10:11:09 AM Informat	ion - Created data item	named: Z2load			-
	Situated data from				
TASK FILE CLEAR EVENTS	TRACE ON/OFF	MINIMIZE TO SYSTEM TRAY	NT	DISPLAY CHANGE	ABOUT

# 11.3 Agent and Adapter Connectivity

When an agent runs and first connects to adapter, a message will be displayed in the System Events. Adapter will sent an initial message of the current monitoring data to the connected agent.

Note: Double clicking on the System Event message to have a detail message displaying on a message box. For more information on setting up agent to run on local machine please refer to section <u>Installing MTConnect Agent</u>

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▶ [⊥] S.Т.М []]		2015/02/04
AUTO OPERATION	A-MTD	
	SCHEDULE	
OKUMA MTCONNECT A	DAPTER	
System Events Configurations		•
Date:2/4/2015 Time:11:14:23 AM Information	- Adapter sends all current data to connected client Id 1 - 2015-02-04T16:14:23.5824950	<b>^</b>
Date:2/4/2015 Time:11:14:23 AM Information -	Client ID 1 is connected	
Date:2/4/2015 Time:11:14:23 AM Information -	<ul> <li>Adapter Received PING, sending PONG for * PONG 100000</li> </ul>	
Date:2/4/2015 Time:11:14:14 AM Information -	- Client Connections= 0	-
Date:2/4/2015 Time:11:14:14 AM Information	on - Current Sampling = 2015-02-04T16:14:14.3136416Z avail AVAILABLE fmode SETUP	=
Communication Status: OK		
Date:2/4/2015 Time:11:13:22 AM Information	- Adapter start monitoring	
Date:2/4/2015 Time:11:13:22 AM Information	- Initialization completed.	
Date:2/4/2015 Time:11:13:22 AM Information -	- System starts monitoring	
Date:2/4/2015 Time:11:13:22 AW Information	Created data item named: n1Eamd	
Date:2/4/2015 Time:11:13:22 AM Information -	- Created data item named: p1rCitiu	
Date:2/4/2015 Time:11:13:22 AM Information -	- Created data item named: n1Eact	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1 act	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1CuttingTime	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1RunningTime	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1OperatingTime	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1TotalSpindleRunTime	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1TotalCuttingTime	
Date:2/4/2015 Time:11:13:22 AM Information	- Created data item named: p1TotalRunningTime	
Date:2/4/2015 Time:11:13:22 AM Information	<ul> <li>Created data item named: p1TotalOperatingTime</li> </ul>	
Date:2/4/2015 Time:11:13:22 AM Information -	- Created data item named: C21load	
Date:2/4/2015 Time:11:13:22 AM Information -	- Created data item named: C21actw	-
TASK FILE CLEAR EVENTS TRA BAR	CE ON/OFF MINIMIZE TO SYSTEM TRAY GET CURRENT DISPLAY ABOUT	

# 11.4 MTConnect Data

Once agent is running and connecting to adapter, current monitoring machine data can be getting by issuing the following command from a web browser for getting current data or device information in the following format:

# http://IPAddress:port/DeviceName/MTConnectCommand

- IPAddress: localhost or IP address of computer running agent
- Port: Default to port 5000 of running agent. It can be changed in agent.cfg configuration file.
- Device Name: A case-sensitive of device name specified in the Devices.xml file or adapter device information
- MTConnect Command: A valid MTConnect Command such as 'current' to get current monitoring machine data.

### Examples:

<u>http://localhost:5000/OKUMA.MachiningCenter/current</u> for getting monitoring machine data <u>http://localhost:5000/OKUMA.MachiningCenter/probe</u> for getting device information

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### Device information:

le Edit	View Favorites	Tools	Help	a.iVlachinin	igCenter/pro	ope	÷ ر		MTConnec	Device	e Streams	×				w X
<ul> <li>crea</li> <li>seno</li> <li>insta</li> <li>vers</li> <li>asse</li> <li>asse</li> <li>buffe</li> </ul>	tionTime: 2015 der: DLT-LHUYN anceId: 142315 sion: 1.3.0.13 ±BufferSize: 10 etCount: 0 erSize: 131072	-02-05T10 H32 2919 24	5:21:	:00Z												
evice: OK • man • seria • Oku	CUMA.Machinin nufacturer: OKUI alNumber: 1234 ma MT Connect	<b>gCenter;</b> MA 56 Adapter -	UUI Mac	ID: OKUI	MA.Machir	ningCente	er.12	3456								
Category	Туре	S Ty	ub 'pe			Id			Name	Units	s Native Units	Represe	ntation	Sample Rate	Native Scale	Statistic
VENT	AVAILABILITY			Mavail					avail							
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							45.0									
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VENT VENT • Axe	ASSET_CHANG ASSET_REMOV S: Axes () • Rotary: C ( Category SAMPLE SAMPLE	ED ED S) ROTARY ROTARY		OKUMA.N OKUMA.N Type OCITY OCITY	MachiningC	enter.123 enter.123 Sub Ty ACTUAL PROGRAM	1456_1 1456_1 <b>pe</b>	Id MS1spee	Nam ed S1spe	e RE		s I/MINUTE	Nat REVOLU REVOLU	tive Units JTION/MIN JTION/MIN	Re IUTE IUTE	presentat
VENT VENT • Axe	ASSET_CHANG ASSET_REMOV s: Axes () • Rotary: C ( Category SAMPLE SAMPLE EVENT	ED ED S) ROTARY. ROTARY. ROTARY.		OKUMA.1 OKUMA.1 Type OCITY OCITY_O	MachiningC MachiningC	enter.123 enter.123 Sub Ty ACTUAL PROGRAM PROGRAM	456_ 456_ Pe IMED	Id MS1spee MS1cmd MS1ovr	Nam ed S1spe S1cmo S1ovr	e RE	Unit	s I/MINUTE I/MINUTE	Nat REVOLU REVOLU PERCEN	tive Units ITION/MIN ITION/MIN	IUTE	presentat
VENT VENT • Axe	ASSET_CHANG ASSET_REMOV SE: Axes () Rotary: C ( Category SAMPLE SAMPLE EVENT SAMPLE	ED ED S) ROTARY. ROTARY. ROTARY. LOAD	_VEL	OKUMA.1 OKUMA.1 Type OCITY OCITY_O	MachiningC MachiningC	enter.123 enter.123 Sub Tyr ACTUAL PROGRAM	456_3 456_3 pe IMED IMED	Id MS1spee MS1cmd MS1ovr MS1oad	Nam Nam Sispe Sispe Siovr Siovr	e RE I RE I PE	Unit EVOLUTION EVOLUTION ERCENT ERCENT	s I/MINUTE I/MINUTE	Nat REVOLL REVOLL PERCEN PERCEN	tive Units ITION/MIN ITION/MIN ITION/MIN IT	IUTE	presentat
VENT VENT • Axe	ASSET_CHANG ASSET_REMOV S: Axes () • Rotary: C ( Category SAMPLE SAMPLE EVENT SAMPLE EVENT	ED ED ED S) ED	    	OKUMA.1 OKUMA.1 Type OCITY OCITY OCITY_O DE	MachiningC MachiningC	enter.123 enter.123 Sub Tyj ACTUAL PROGRAM	1456_1 1456_1 1456_1 1456_1 1456_1	Id MS1spee MS1cmd MS1ovr MS1load	Nam Nam ed S1spe S1cm S1ovr S1oad le S1Mod	e RE ed RE I RE I PE I PE	Unit EVOLUTION EVOLUTION ERCENT ERCENT	s I/MINUTE I/MINUTE	Nat REVOLL REVOLL PERCEN	t <b>ive Units</b> ITION/MIN ITION/MIN ITI	IUTE	presentat
VENT • Axe	ASSET_CHANG ASSET_REMOV Rotary: C ( Category SAMPLE SAMPLE EVENT SAMPLE EVENT SAMPLE EVENT • Linear: X (	ED ED S) S) ROTARY ROTARY LOAD ROTARY DATA ROTARY LOAD ROTARY DATA ROTARY D	    	0KUMA.1 0KUMA.1 0CITY 0CITY 0CITY_0 DE	MachiningC MachiningC	Sub Tyn ACTUAL PROGRAM	456_1 456_1 PPE	Id MS1spee MS1cmd MS1ovr MS1load MS1Mod	Mam ed S1spe S1cm S1cvr S1ovr S1ovr S1oad	e RE ed RE I RE I PE I PE	Unit EVOLUTION EVOLUTION ERCENT ERCENT	s I/MINUTE I/MINUTE	Nat REVOLL REVOLL PERCEN PERCEN	tive Units ITION/MIN ITION/MIN IT IT	IUTE	presentat
VENT • Axe	ASSET_CHANG ASSET_REMOV SCATE: Axes () • Rotary: C ( Category SAMPLE SAMPLE EVENT • Linear: X ( Category	ED ED ED S) S S S S S S S S S S S S S S S S S S		OKUMA.1           OKUMA.1           OKUMA.1           OCUTY           OCUTY           OCUTY_O           DE           Sub Type	MachiningC MachiningC VERRIDE	sub Typ ACTUAL PROGRAM Name	456_ 456_ MED IMED	Id MS1spee MS1cmd MS1ovr MS1load MS1Mod	Mam ed S1spe S1cm S1cm S1ovr S1ovr S1ovr S1ovr S1ovr Nativ Units	e RE i RE i PE i PE e	Unit EVOLUTION EVOLUTION ERCENT ERCENT	s I/MINUTE I/MINUTE	Nat REVOLL REVOLL PERCEN PERCEN	tive Units ITION/MIN ITION/MIN IT IT	IUTE I	presentat
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# Current Monitoring Data:

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E Attp://localhost:5000/OKUMA.Machi	ningCenter/curren	t 🔎 🗸 🖉	MTConnect [	Device Streams	×		☆ ☆		
File Edit View Favorites Tools Help									
File Edit View Favorites Tools Help         • creationTime: 2015-02-05T16:21:42Z         • sender: DLT-LHUYNH32         • instanceId: 1423152919         • version: 1.3.0.13         • bufferSize: 131072         • nextSequence: 483         • firstSequence: 1         • lastSequence: 482    Device: OKUMA.MachiningCenter; UUID: OKUMA.MachiningCenter.123456 Rotary : A									
Samples									
Timestamp	Туре	Sub Type	Name	Id	Sequence	Value			
2015-02-05T16:15:19.19279	89Z Angle	ACTUAL	A1actm	A1actm	83	-175			
2015-02-05T16:15:19.19279	89Z Angle	ACTUAL	A1actw	A1actw	84	-175			
2015-02-05T16:15:19.19279	89Z Load		A1load	Alload	85	0			
Rotary : C Samples									
Timestamp	Туре	Sub	Туре	Name	Id	Sequence	Value		
2015-02- 05T16:15:19.1927989Z	RotaryVelo	ocity PROGI	RAMMED	S1cmd	MS1cmd	72	0		
2015-02-							_   `		

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the System Events screen for verifying purpose. There is also a message displaying heartbeat (PING PONG message) to connected agents for every pre-determined number of seconds for checking connectivity.

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OKUMA M	TCONN	ECT	ADA	<b>PTER</b>									
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Date:11/12/2014	Time:11:08:09	AM Tra	acing - S	Sampling/Event	Data Ite	ms:	2014-11-1	2T16:08:0	9.1667947	Z pTota	IRunningT	ime 93352 p.	
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# 12. THINC-API

# 12.1 Running Statuses

After NC is fully started, THINC-API Notifier Status should have a green icon displayed at the lower left corner of the screen as shown below:

Windows XP:



#### Windows 7:

Note: The API icon status can only be supported on Windows 7 if THINC-API installed on target has a version 1.17.1.0 or greater.

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If the color of icon is red, THINC-API has encountered an error state. By clicking on the API icon, a dialog will display and show detail error message as shown in the captured image below:

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🛄 API Notifier Status					X				
Name	A	PI No	tifier	Status					
Version	1.	1.2.0							
Machine Type	м	АСН	INING	CENTER					
API Version	1.	17.2	0						
API Falied Exception mes check out licer 'Okuma.CMDA location 'D:\Pro \okuma.api.lic'	API Falied Exception message: E01080013006 Failed to check out license feature name 'Okuma.CMDATAPI.All', feature version '2.6' at location 'D:\Program files\Okuma\Licenses \okuma.api.lic' - No such feature exists. (-5,357)								
Exception full r System.Applic	Exception full message: System.ApplicationException: E01080013006								
			ОК						

Please contact OKUMA distributor for further assistant on THINC-API error.

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# 12.2 Version

:

The version of THINC-API can be checked by clicking on the API icon. A dialog will be displayed and showing API version number.

🛄 API Notifier Status		<b>-</b>
Name	API Notifier Status	
Version	1.1.2.0	
Machine Type	MACHINING CENTER	
API Version	1.17.2.0	
API Initialized		*
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