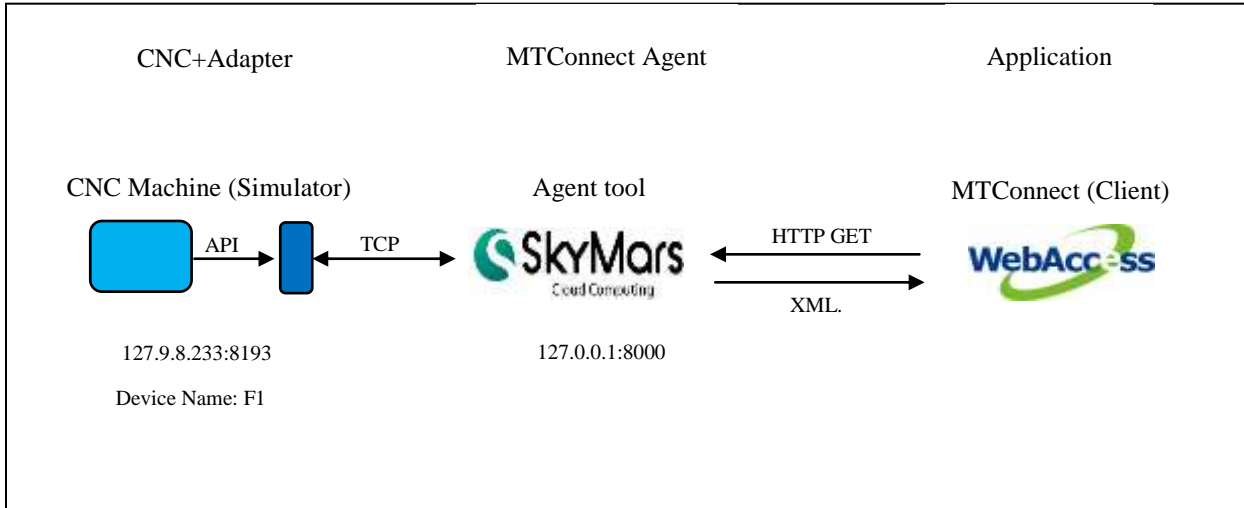


MTConnect Driver Guide

MTConnect Driver Guide

1. Block Diagram
2. WebAccess Setting
3. Appendix

1. Block Diagram



Adapter: Collects machine data from CNC and sends to Agent.

Agent: A process that implements the MTConnect® HTTP protocol, XML generation, and MTConnect protocol.

Application: A process or set of processes that access the MTConnect® Agent to perform some task.

2. WebAccess Setting

2.1. Add Comport

Select **TCPIP** and set up **Comport Number** and **Scan Time**.

Create New Comport [Cancel] Submit

Interface Name	TCPIP
Comport Number	1
Description	Description
Scan Time	1 <input type="radio"/> MilliSecond <input checked="" type="radio"/> Second <input type="radio"/> Minute <input type="radio"/> Hour
Timeout	1000 MilliSecond
Retry Count	3
Auto Recover Time	60 Second
Backup Port Number	0
Scan Devices in Parallel	<input type="radio"/> Yes <input checked="" type="radio"/> No

[Cancel] Submit

2.2. Add Device

In this case, SkyMars as a MTCConnect Agent. Device Type select to **MTCConnect** and According to MTCConnect Agent, fill in the parameter of **IP**, **Port** and **Device Name**.

Create New Device [Cancel] Submit

Device Name	Device
Description	
Unit Number	0
Device Type	MTCConnect
Primary IP Address	127.0.0.1
Primary Port Number	8000
Secondary Device Address	
Secondary IP Address	
Secondary Port Number	
Secondary Device Address	

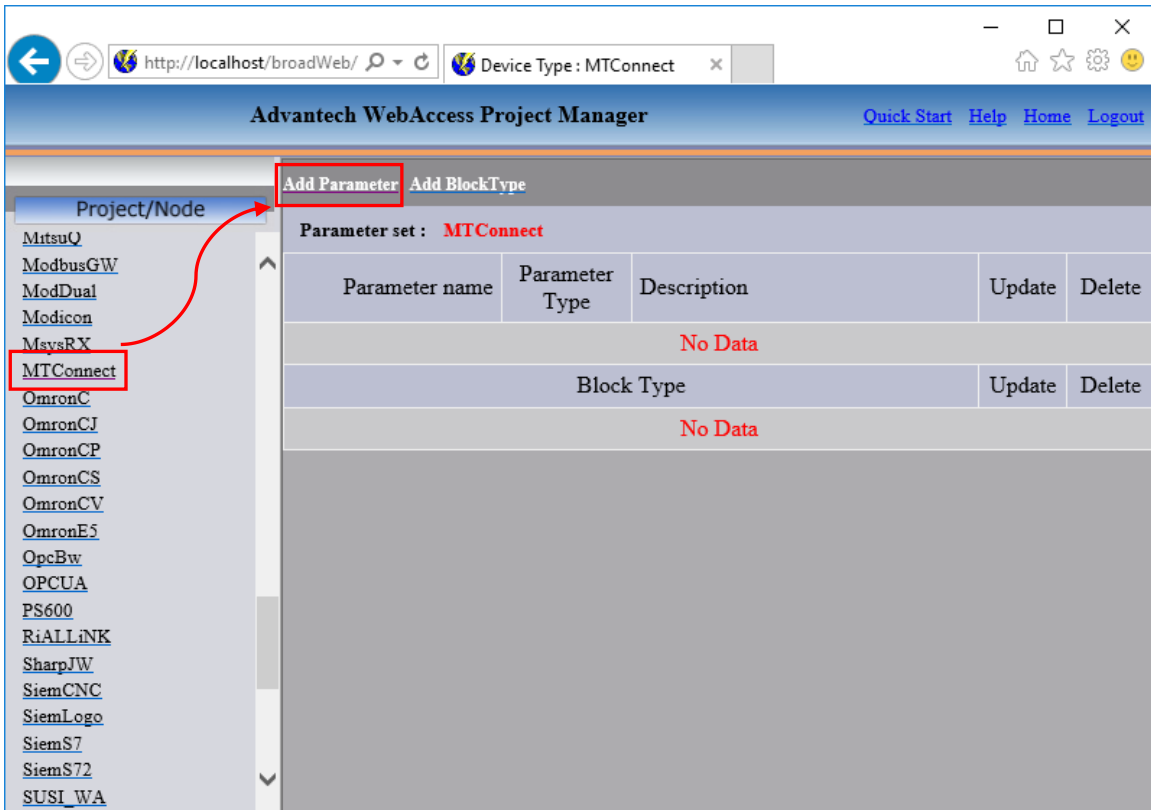
Device Name: f1

SkyMars Express Ver.3.071 (TAINAN Precision Machinery Research & Development Center)

Connect	CNC Type	Name	CNC IP	CNC Port	CNC Controller
<input checked="" type="checkbox"/>	FANUC	F1	124.9.8.233	8193	8y16v18v21v30v31v32v

Advantech Corp., Ltd.

2.3. Add Parameter



Send HTTP URL (<http://127.0.0.1:8000/f1/current>) by browser to get XML document from MTConnect agent and use **DataItemId** as an address.

For example: <http://127.0.0.1:8000/f1/current>, time_power as an address and 141:46:0 is text format, thus parameter type selects Text parameter.

The content of Element between “>” and “</”.

The image shows a browser window displaying XML data from a URL. The XML structure includes a header with instanceId="1270534765" and several streams. The 'path' stream contains multiple events, including 'time_power' with a value of '8141:46:0'. A 'Create Parameter' dialog box is overlaid on the right, with 'Parameter Type' set to 'Text parameter' and 'Address' set to 'time_power'. Red boxes and arrows highlight the 'time_power' value in the XML and its corresponding field in the dialog.

Add estop

MTConnect protocol can only send HTTP request to MTConnect agent and get device status, it can't write data to MTConnect agent to change device information, so that Read Only must set **YES**.

`dataItemId="estop">ARMED</EmergencyStop>`

Parameter set : MTConnect	
Create Parameter [Cancel] <input type="button" value="Submit"/>	
Parameter Type	Text parameter ▼
Parameter name	estop
Description	Description
Address	estop
Scan Type	Constant Scan ▼
Conversion Code	Auto Conversion ▼
TextLen	128
Read Only	<input checked="" type="radio"/> Yes <input type="radio"/> No
Initial Value	
Array Size	0

Add Xpos_sample

dataItemId="Xpos_sample">145.5950</Position>

Parameter set : **MTConnect**

Create Parameter [\[Cancel\]](#)

Parameter Type	Analog parameter ▾
Parameter name	X_pos
Description	Description
Address	Xpos_sample
Scan Type	Constant Scan ▾
Conversion Code	Auto Conversion ▾
Start Bit	0
Length	16
Scaling Type	No Scale ▾
Scaling factor 1	0
Scaling factor 2	0
Signal Reverse	<input type="radio"/> Yes <input checked="" type="radio"/> No
Read Only	<input checked="" type="radio"/> Yes <input type="radio"/> No

Parameter set

Parameter set : MTConnect				
Parameter name	Parameter Type	Description	Update	Delete
X_pos	analog	Description	Update	Delete
estop	text	Description	Update	Delete
t_power	text	Description	Update	Delete
Block Type			Update	Delete
No Data				

2.4. Add Tag

Add estop

Parameter field select to **estop**.

Create New Tag		[Cancel]	Submit
Parameter	estop	Point (text)	
Tag Name	estop x		
Description	Description		
Scan Type	Constant Scan		
Address	estop		
Conversion Code	Auto Conversion		
Text Length	128		
Write Action Log	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Read Only	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Keep Previous Value	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Initial Value			
Security area	0		
Security level	0		
Log To ODBC	<input type="radio"/> Yes <input checked="" type="radio"/> No		
ODBC Log Data Source	Default		
Array Size	0		
		[Cancel]	Submit

Add time_power

Create New Tag		[Cancel]	Submit
Parameter	t_power	Point (text)	
Tag Name	time_power	x	
Description	Description		
Scan Type	Constant Scan		
Address	time_power		
Conversion Code	Auto Conversion		
Text Length	128		
Write Action Log	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Read Only	<input checked="" type="radio"/> Yes <input type="radio"/> No		
Keep Previous Value	<input type="radio"/> Yes <input checked="" type="radio"/> No		
Initial Value			
Security area	0		
Security level	0		
Log To ODBC	<input type="radio"/> Yes <input checked="" type="radio"/> No		
ODBC Log Data Source	Default		
Array Size	0		
		[Cancel]	Submit

Add Xpos_sample

Create New Tag		[Cancel]	Submit
Parameter	X_pos	Point (analog)	
Alarm	No Alarm		
Tag Name	X_pos		x
Description	Description		
Scan Type	Constant Scan		
Address	Xpos_sample		
Conversion Code	Auto Conversion		
Start Bit	0		
Length	16		
Signal Reverse	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Scaling Type	No Scale		
Scaling factor 1	0		
Scaling factor 2	0		
Log Data	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Data Log Dead Band	3	%	
Write Action Log	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Read Only	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Keep Previous Value	<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Initial Value	0		

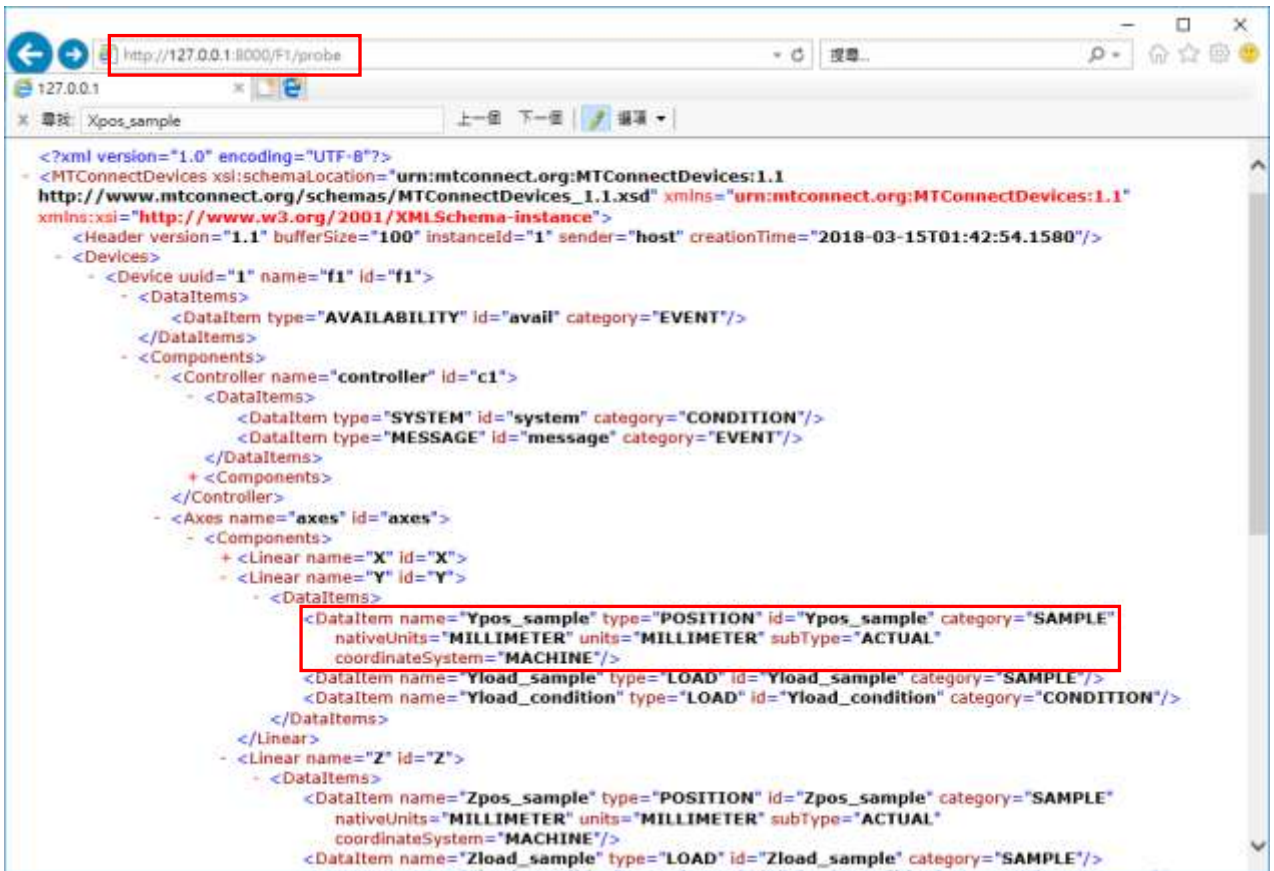
3. Appendix

3.1. Probe Request

We use request type (current) to get XML document from MTConnect agent in chapter 2, section 3,
 Can also use request type (probe) to find XML document and DataItem.

As follow:

DataItem name="Ypos_sample" type="POSITION" id="Ypos_sample" category="SAMPLE" nativeUnits="MILLIMETER" units="MILLIMETER" subType="ACTUAL"



3.2. Reference

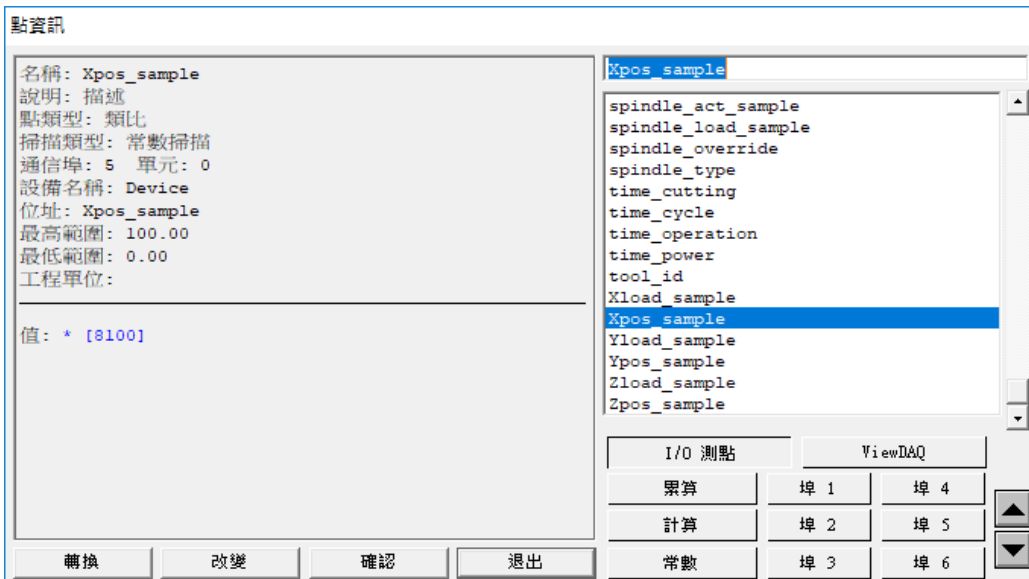
MTConnect Standard

<http://www.mtconnect.org/standard-documents/>

MTConnect Application Development

https://static1.squarespace.com/static/54011775e4b0bc1fe0fb8494/t/55a95a6de4b0761435642d65/1437162093593/MTConnectWorkshop_2015_Evans_MTConnectApplicationDevelopment.pdf

3.3. Error Code



8100: Failed to Connect to MTConnect agent error.

80A0: XML document is empty.

80B0: Parse XML document error.

80C0: The tag's content is empty or can't find the dataItemID in XML document.

3.4. Error String

C:\WebAccess\Node\Dspool



[MTConnect] HTTP GET request error.

[MTConnect] XML document is empty.

[MTConnect] XML Parse Error:

"out of memory"

"syntax error"

"no element found"

"not well-formed (invalid token)"

"unclosed token"

"partial character"

"mismatched tag"

"duplicate attribute"

"junk after document element"

"illegal parameter entity reference"

"undefined entity"
"recursive entity reference"
"asynchronous entity"
"reference to invalid character number"
"reference to binary entity"
"reference to external entity in attribute"
"XML or text declaration not at start of entity"
"unknown encoding"
"encoding specified in XML declaration is incorrect"
"unclosed CDATA section"
"error in processing external entity reference"
"document is not standalone"
"unexpected parser state - please send a bug report"
"entity declared in parameter entity"
"requested feature requires XML_DTD support in Expat"
"cannot change setting once parsing has begun"
"unbound prefix"
"must not undeclare prefix"
"incomplete markup in parameter entity"
"XML declaration not well-formed"
"text declaration not well-formed"
"illegal character(s) in public id"
"parser suspended"
"parser not suspended"
"parsing aborted"
"parsing finished"
"cannot suspend in external parameter entity"

"reserved prefix (xml) must not be undeclared or bound to another namespace name"

"reserved prefix (xmlns) must not be declared or undeclared"

"prefix must not be bound to one of the reserved namespace names"

"invalid argument"