

FUJI

MES Interface (Host Interface) Provider

Version 1.0.3

User's Guide

April 19, 2021

NOTE:

[Revision History]

Version	Date	Description
1.0.0	2020-7-21	First edition
1.0.1	2021-2-8	Change OnMessage to synchronous processing
	2021-2-10	Corrected packet size analysis processing of received data
1.0.2	2021-3-4	Fixed a bug that caused a deadlock
1.0.3	2021-4-19	Modified to check the response results of SETEV and STARTEV when AddController is used. Added an original error code for AddController. Fixed a data analysis bug in PRINTCONDITION.

[Operation check device]

Model	Notes
Fujitrax	Supports TCP/IP connectivity

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1. Introduction

This user's guide is for CAO providers that connect TCP/IP to FUJI Mounting Process Control System (Fujitrax) and receive data from Fujitrax. The CAO-providers (CaoProvFUJIFujitrax.dll) covered in this document are called Fujitax providers.

Chapter 2 provides an overview of Fujitrax providers, as well as detailed information about the variables/commands.

The sample program is described in Chapter 3.

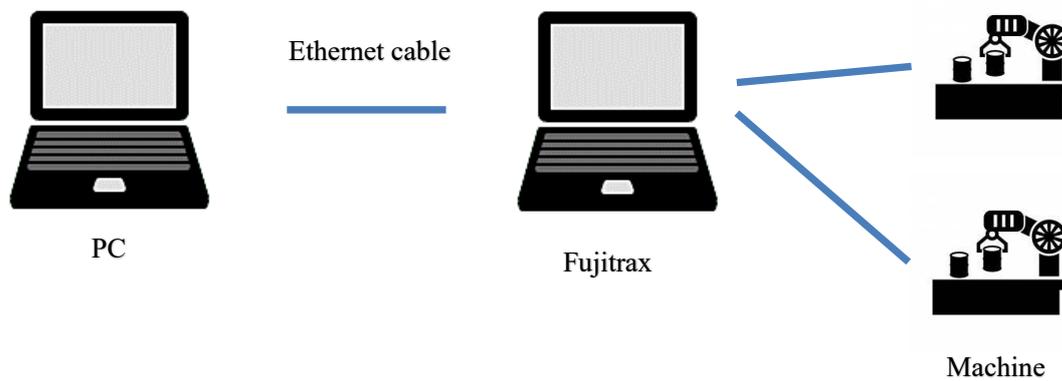


Figure 1-1 Connection image

2. Provider Overview

2.1. Introduction

Fujitrax providers are providers that connect to Fujitrax to retrieve information.

The data coming from Fujitrax can be retrieved as OnMessage events in CaoController or as Value properties in CaoVariable.

CaoController manages the connectivity to Fujitrax and CaoExtention manages the properties of the devices connected to Fujitrax.

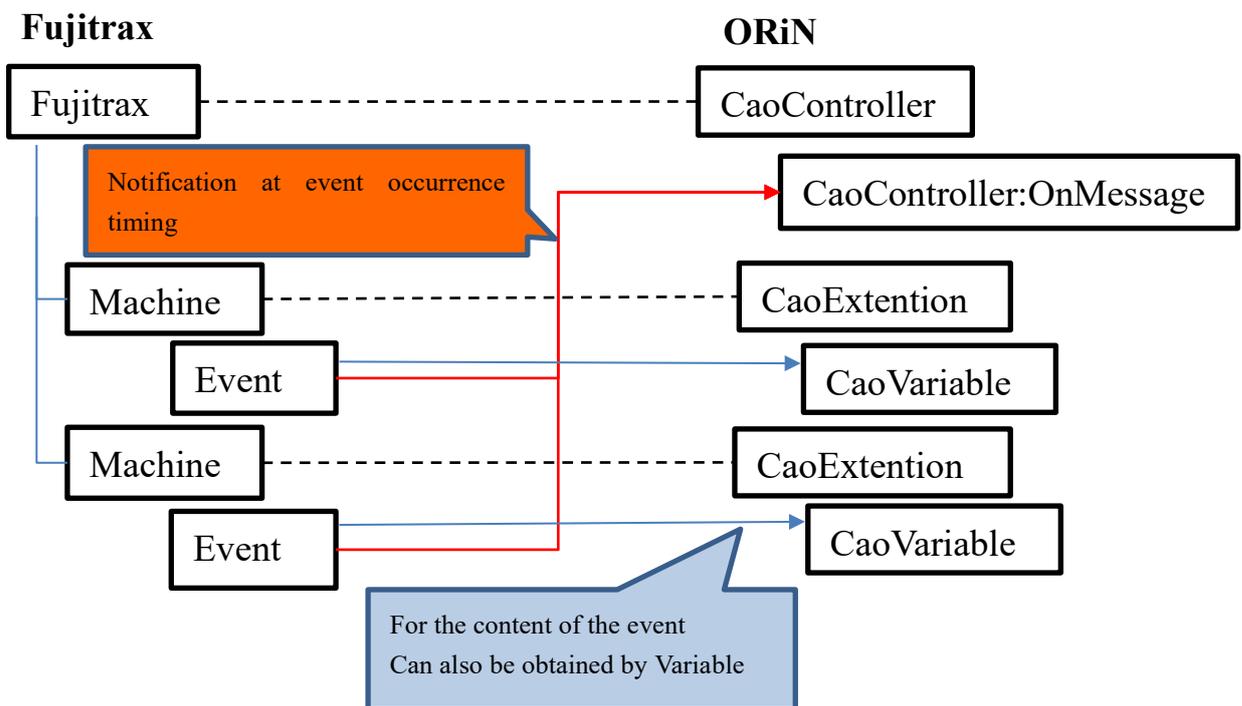


Figure 2-1 Correspondence between device configuration and provider configuration

Note :

The requirement that managed by Fujitrax will only work if the connection between the provider and Fujitrax is maintained. Therefore, if disconnected, Fujitrax or the managed facility is automatically shut down.

Fujitrax providers have a DLL (Dynamic Link Library) file format that is dynamically loaded when used by the CAO engine. To use Fujitrax providers, you must install ORiN2 SDKs or manually register the registry by referring to the following table.¹

Table 2-1 Fujitrax Providers

File name	CaoProvFUJIFujitrax.dll
ProgID	CaoProv.FUJI.Fujitrax
Registry registration	RegistAsm.bat CaoProvFUJIFujitrax.dll
Deletion of Registry Registration	UnregistAsm.bat CaoProvFUJIFujitrax.dll

¹ The batch file (RegistAsm.bat or UnregistAsm.bat) is located under {ORiN2 install folder}\¥ DotNet¥BAT.

2.2. Limitations

When using this provider, pay attention to the following.

- Only one-to-one connection can be made using Fujitrax main unit specifications.
- Due to Fujitrax specifications, if Fujitrax is disconnected from the provider, Fujitrax automatically shuts down the managed facilities.

2.3. Method properties

2.3.1. CaoWorkspace::AddController method

Fujitrax providers set connection parameters for communication during AddController and connect communication.

SYNOPSIS AddController (<bstrCtrlName:BSTRT>,<bstrProvName:BSTRT>,
<bstrPcName:BSTRT>, [<bstrOption:BSTRT>])

<bstrCtrlName> : [in] Controller name
 <bstrProvName> : [in] Provider name. Fixed value = "CaoProv.FUJI.Fujitrax"
 <bstrPcName> : [in] Provider's running machine name (unused)
 <bstrOption> : [In] Option character string

The following is a listing for Option character string:

Table 2-2 Option character string in the CaoWorkspace::AddController

Option	Meaning
Conn = <connection parameter>	Required. Set the communication mode and its connection parameters. (See 2.3.1.1)2.3.1.1
Timeout[=<timeout>]	Specifies the timeout (in milliseconds) for the response command. (Default: 3000)
Message [=<TRUE/FALSE>]	Specifies whether to notify with an OnMessage event when data is received from Fujitrax. If TRUE is specified, notification will be sent by the OnMessage event. (Defaults to TRUE)
RecordData[=<TRUE/FALSE>]	Specifies whether to notify the record data included in the message with the OnMessage event when receiving data from Fujitrax. If TRUE is specified, notification will be sent by the OnMessage event. If the message contains multiple record data, multiple OnMessage events will occur. (Defaults to TRUE)

2.3.1.1. Conn Optional

The following is a Conn optional connection parameter string: Here, brackets ("[]") are optional. In the explanation of each parameter, the underlined part indicates the default value when no option is specified.

[Ethernet Devices]

TCP/IP

"Conn=TCP:<Dest IP Address>:<Dest Port No>"

<Dest IP Address> : The IP address to connect to.

<Dest Port No> : Number of the specific port

The defaults for connecting to Fujitrax are shown below.

Central Sever : 30040(defalut)

Kitting Station : 30041(defalut)

Parts Registration Service : 30042(defalut)

Usage example

```
// For TCP connection
var option = "Conn=TCP:192.168.1.1:30040,Timeout=4000,Message=True, RecordData =True";

// Connecting to a Fujitrax
this.ctrl = ws.AddController("Sample","CaoProv.FUJI.Fujitrax","",option);
```

2.3.2. CaoController::GetVariableNames Properties

Obtain the list of system variable names shown in 2.4.1.

2.3.3. CaoController::AddVariable method

Creates a variable object for reading data from the provider's information or Fujitrax.

For the variable object names that can be created, see 2.4.1.2.4.1 Variable list

SYNOPSIS AddVariable (<bstrVariableName:BSTR>, [<bstrOption:BSTR>])

<bstrVariableName> : [in] Variable name

<bstrOption> : [In] Option character string

Usage example

```
var result = this.ctrl .AddVariable("@MAKER_NAME","");
```

2.3.4. CaoController::AddExtention method

Creates an extended object that manages data for each appliance for Fujitrax.

SYNOPSIS AddExtention(<bstrExtentionName:BSTR>, [<bstrOption:BSTR>])

<bstrVariableName> : [in] Variable name
 <bstrOption> : [In] Option character string

The following is a listing for Option character string:

Table 2-3 Option character string in the CaoWorkspace::AddController

Option	Meaning
MachineName = <device_name>	Mandatory. Specify the device name managed by Fujitrax.

Usage example

```
var extention = this.ctrl .AddExtention("test", " MachineName = test");
```

2.3.5. CaoExtention::AddVariable method

Create a variable object to read data from the device managed by Fujitrax.

For the variable object names that can be created, see 2.4.22.4Variable list

SYNOPSIS AddVariable (<bstrVariableName:BSTR>, [<bstrOption:BSTR>])

<bstrVariableName> : [in] Variable name
<bstrOption> : [In] Option character string

Usage example

```
var result = this.extention.AddVariable("@MODULENO_PICKUP_STATUS","");
```

2.3.6. CaoController::OnMessage event

When Fujitrax providers receive data, they pass the data to the client as CaoController class-of-OnMessage events. Refer to 2.5 for the correspondence of properties.2.5OnMessage event

Properties	Description
Number	Event number
Description	Event Name
Source	Device name
Value	Receive data

2.3.7. CaoExtention::GetVariableNames Properties

Obtain the list of system variable names shown in 2.4.2.

2.3.8. CaoVariable::get_Value Property

Sends a read command to the data to be accessed.

2.4. Variable list

2.4.1. CaoController classes

2.4.1.1. System Variables

Table 2-4 CaoController Class System Variable List

Variable name	Data Type	Description	Attribute	
			Get	Put
@MAKER_NAME	VT_BSTR	Returns the manufacturer = FUJI.	✓	-
@VERSION	VT_BSTR	Returns the provider version.	✓	-
@ISCONNECTED	VT_BOOL	Returns TRUE if connected to Fujitrax. Otherwise, it returns an FALSE.	✓	-
@MACHINE_NAME_LIST	VT_BSTR VT_ARRAY	Returns a listing of device names that have received event reports from Fujitrax.	✓	-

2.4.2. CaoExtension classes

Defines variables for accessing the data of the devices managed by Fujitrax.

※ Returns VT_EMPTY if Fujitrax providers have not received a report of the target from Fujitrax.

2.4.2.1. System Variables

Table 2-5 CaoExtension Class System Variable List

Variable name	Data Type	Description	Attribute																																		
			Get	Put																																	
@PCBCHECKOUT II_DATAS	VT_VARIANT VT_ARRAY	Returns the record data of the board payout report 2 event as an array with the following format as one element and the number of record data as an array.	✓	-																																	
		<table border="1"> <thead> <tr> <th>Index</th> <th>Data Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>VT_I4</td> <td>Sequence number (1 to 999999)</td> </tr> <tr> <td>1</td> <td>VT_UI1</td> <td>Module number</td> </tr> <tr> <td>2</td> <td>VT_I4</td> <td>Stage number</td> </tr> <tr> <td>3</td> <td>VT_I4</td> <td>Slot number</td> </tr> <tr> <td>4</td> <td>VT_BSTR</td> <td>Part number (code used to verify Fujitrax components)</td> </tr> <tr> <td>5</td> <td>VT_BSTR</td> <td>ID (unique ID) of the reel used</td> </tr> <tr> <td>6</td> <td>VT_BSTR</td> <td>ID of the feeder used (unique ID)</td> </tr> <tr> <td>7</td> <td>VT_UI1</td> <td>Result of snapping operation 0: Normal 1: Error part (image processing error) 2: Discarding parts 3: Part not snapped 4: Unconsumed attraction</td> </tr> <tr> <td>8</td> <td>VT_UI2</td> <td>Block number (1 to 1000)</td> </tr> <tr> <td>9</td> <td>VT_BSTR</td> <td>Circuit symbol</td> </tr> </tbody> </table>			Index	Data Type	Description	0	VT_I4	Sequence number (1 to 999999)	1	VT_UI1	Module number	2	VT_I4	Stage number	3	VT_I4	Slot number	4	VT_BSTR	Part number (code used to verify Fujitrax components)	5	VT_BSTR	ID (unique ID) of the reel used	6	VT_BSTR	ID of the feeder used (unique ID)	7	VT_UI1	Result of snapping operation 0: Normal 1: Error part (image processing error) 2: Discarding parts 3: Part not snapped 4: Unconsumed attraction	8	VT_UI2	Block number (1 to 1000)	9	VT_BSTR	Circuit symbol
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8	VT_UI2	Block number (1 to 1000)																																			
9	VT_BSTR	Circuit symbol																																			
@LAODCOMP_TIME	VT_BSTR	Date and time of the event of the part supply report Returns (YYYYMMDDhhmmss) text.	✓	-																																	
@PRODSTARTED_TIME	VT_BSTR	Returns the date and time (YYYYMMDDhhmmss) when the Production Start Report event occurred.	✓	-																																	
@FEEDERUSAGE_DATAS	VT_VARIANT VT_ARRAY	Returns the record data of the feeder snap count report event as an array with the following format as one element	✓	-																																	

		<p>and the number of record data as an array.</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Data Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>VT_UI1</td> <td>Stage number</td> </tr> <tr> <td>1</td> <td>VT_I4</td> <td>Slot number</td> </tr> <tr> <td>2</td> <td>VT_BSTR</td> <td>Feeder ID (unique ID)</td> </tr> <tr> <td>3</td> <td>VT_BSTR</td> <td>Feeder name</td> </tr> <tr> <td>4</td> <td>VT_I4</td> <td>① Attachment Count</td> </tr> <tr> <td>5</td> <td>VT_I8</td> <td>② Number of errors (Values of ③ + ④ + ⑤ + ⑥ + ⑦)</td> </tr> <tr> <td>6</td> <td>VT_I4</td> <td>③ Number of errors discarded</td> </tr> <tr> <td>7</td> <td>VT_I4</td> <td>④ Machine convenience discard count</td> </tr> <tr> <td>8</td> <td>VT_I4</td> <td>⑤ Number of attraction errors</td> </tr> <tr> <td>9</td> <td>VT_I4</td> <td>⑥ Number of rescans</td> </tr> <tr> <td>10</td> <td>VT_I4</td> <td>⑦ Unconsumed adsorption number</td> </tr> </tbody> </table>	Index	Data Type	Description	0	VT_UI1	Stage number	1	VT_I4	Slot number	2	VT_BSTR	Feeder ID (unique ID)	3	VT_BSTR	Feeder name	4	VT_I4	① Attachment Count	5	VT_I8	② Number of errors (Values of ③ + ④ + ⑤ + ⑥ + ⑦)	6	VT_I4	③ Number of errors discarded	7	VT_I4	④ Machine convenience discard count	8	VT_I4	⑤ Number of attraction errors	9	VT_I4	⑥ Number of rescans	10	VT_I4	⑦ Unconsumed adsorption number					
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9	VT_I4	⑥ Number of rescans																																									
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@NOZZLEUSAGE _DATAS	VT_VARIANT VT_ARRAY	<p>Returns the record data of the nozzle adsorption count report event as an array with the following format as one element and the number of record data as many as the number of record data.</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Data Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>VT_UI1</td> <td>Nozzle station number (1 to 4)</td> </tr> <tr> <td>1</td> <td>VT_UI1</td> <td>Nozzle pit number (1 to 32)</td> </tr> <tr> <td>2</td> <td>VT_BSTR</td> <td>Nozzle ID</td> </tr> <tr> <td>3</td> <td>VT_BSTR</td> <td>Nozzle name</td> </tr> <tr> <td>4</td> <td>VT_BSTR</td> <td>Nozzle station ID</td> </tr> <tr> <td>5</td> <td>VT_BSTR</td> <td>Nozzle Station Name</td> </tr> <tr> <td>6</td> <td>VT_I4</td> <td>① Attachment Count</td> </tr> <tr> <td>7</td> <td>VT_I8</td> <td>② Number of errors (Values of ③ + ④ + ⑤ + ⑥ + ⑦)</td> </tr> <tr> <td>8</td> <td>VT_I4</td> <td>③ Number of errors discarded</td> </tr> <tr> <td>9</td> <td>VT_I4</td> <td>④ Machine convenience discard count</td> </tr> <tr> <td>10</td> <td>VT_I4</td> <td>⑤ Number of attraction errors</td> </tr> <tr> <td>11</td> <td>VT_I4</td> <td>⑥ Number of rescans</td> </tr> </tbody> </table>	Index	Data Type	Description	0	VT_UI1	Nozzle station number (1 to 4)	1	VT_UI1	Nozzle pit number (1 to 32)	2	VT_BSTR	Nozzle ID	3	VT_BSTR	Nozzle name	4	VT_BSTR	Nozzle station ID	5	VT_BSTR	Nozzle Station Name	6	VT_I4	① Attachment Count	7	VT_I8	② Number of errors (Values of ③ + ④ + ⑤ + ⑥ + ⑦)	8	VT_I4	③ Number of errors discarded	9	VT_I4	④ Machine convenience discard count	10	VT_I4	⑤ Number of attraction errors	11	VT_I4	⑥ Number of rescans	✓	-
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11	VT_I4	⑥ Number of rescans																																									

		12	VT_I4	⑦ Unconsumed adsorption number		
@TEMPERATURE	VT_I2	Returns the temperature (unit: 0.1°C) of the printer board dispensing report.			✓	-
@SCREENID	VT_BSTR	Returns the screen ID of the printer board dispense report.			✓	-
@PANEL_OFFSET_AMOUNT_X	VT_I4	In the Printing Machine Board Payment Report Returns the amount of printed circuit board offset in X direction (unit: um).			✓	-
@PANEL_OFFSET_AMOUNT_Y	VT_I4	In the Printing Machine Board Payment Report Returns the amount of printed circuit board offset in Y direction (unit: um).			✓	-
@PANEL_OFFSET_AMOUNT_Q	VT_I4	In the Printing Machine Board Payment Report Returns the printed circuit board offset amount (unit: um) in the theta direction.			✓	-
@SOLDERID	VT_BSTR	Returns the solder ID of the printer board unloading report.			✓	-
@SNAPOFFSPEED_DATAS	VT_VARIANT VT_ARRAY	Returns the record data of the release rate of the print condition report event as an array of only the number of record data, using an array of the following format as one element.			✓	-
		Index	Data Type	Description		
		0	VT_UI1	Area number from the separation start position 1 to 10		
		1	VT_I8	Height position with the separation start position set to 0 [um]		
		2	VT_UI2	Plate release speed [0.01mm/s] 1 to 8000		
@PRINTSPEED_D ATAS	VT_VARIANT VT_ARRAY	Returns the record data of the print speed of the print condition report event as an array with the following format as one element and the number of record data as an array.			✓	-
		Index	Data Type	Description		
		0	VT_UI1	Area number from the separation start position 1 to 10		

		1	VT_UI1	0:Front→Rear 1:Rear→Front		
		2	VT_I4	Y coordinate with the lower left of the board as 0 [0.01mm] -50000 ~ 50000		
		3	VT_UI2	Print Rate [mm/s] 1~999		
		4	VT_UI2	Mean value of actual printing pressure (unit: N) 10~500		
@CYCLETIME	VT_I8	Returns the time from the start of production to the completion of production for the target panel for production completion II. Time per module.			✓	-
@PANEL_NO	VT_I4	Returns the serial number (0 to 99999) of the Production Panel for Production Completion II. For NXT, one panel is reported with the same serial number when it is produced by a module in the instrument.			✓	-

2.5. OnMessage event

2.5.1. Introduction

On Fujitrax providers, when the event report from Fujitrax received, the following OnMessage event occurs when 2.3.1 CaoWorkspace::AddController method Message option in TRUE is specified.2.3.1CaoWorkspace::AddController method

※ In addition to the above, When RecordData option of 2.3.1 CaoWorkspace::AddController method is specified as TRUE, a OnMessage event is also generated for **_record data.2.3.1CaoWorkspace::AddController method

Number	Description	Source	Description	Page
0	KEEPALIVE	Device name	Alive confirmation event	p.19
1	PCBCHECKOUTII	Device name	Board disbursement report event	p.19
2	PCBCHECKOUTII	Device name	Board disbursement report event_record data	p.20
3	LOADCOMP	Device name	Parts Supply Report Event	p.21
4	PRODSTARTED	Device name	Event production start report event	p.21
5	FEEDERUSAGE	Device name	Feeder suction count reporting event	p.22
6	FEEDERUSAGE	Device name	Feeder adsorption count report event_record data	p.23
7	NOZZLEUSAGE	Device name	Nozzle adsorption count report event	p.24
8	NOZZLEUSAGE	Device name	Nozzle adsorption count report event_record data	p.25
9	PCBCHECKOUTP	Device name	Printing press disbursement report event	p.26
10	PRODCOMPLETEDII	Device name	Production completion II event	p.27
11	PRINTCONDITION	Device name	Print Condition Report Event	p.29
12	PRINTCONDITION	Device name	Print Condition Report Event_Record Data (Speed of Version)	p.29
13	PRINTCONDITION	Device name	Print Condition Report Event_Record Data (Print Speed)	p.30

2.5.2. Message Details

2.5.2.1. KEEPALIVE (confirm alive)

Property Name	Description	
Number	0	
Description	KEEPALIVE	
Source	Equipment name reported by Fujitrax	
Value	Data Type	Message Description
	VT_I4	Sequence number (1 to 999999)

2.5.2.2. PCBCHECKOUTII (substrate dispensing report)

Property Name	Description			
Number	1			
Description	PCBCHECKOUTII			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Description		
	VT_VARIANT VT_ARRAY	Returns an array of the following formats:		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999) ※ Sequence number of the received event itself
1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)		

2.5.2.3. PCBCHECKOUTII (board payout report)_record data

This event occurs as many times as the number of record data included in the board disbursement report event.

Property Name	Description			
Number	2			
Description	PCBCHECKOUTII			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Description		
	VT_VARIANT VT_ARRAY	Returns an array of the following formats:		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999) ※ Sequence number of the received event itself
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_I4	Sequence number (1 to 999999) ※ Sequence number within the received event
		3	VT_UI1	Module number
		4	VT_I4	Stage number
		5	VT_I4	Slot number
		6	VT_BSTR	Part number (code used to verify Fujitrax components)
		7	VT_BSTR	ID (unique ID) of the reel used
		8	VT_BSTR	ID of the feeder used (unique ID)
	9	VT_UI1	Result of snapping operation 0: Normal 1: Error part (image processing error) 2: Discarding parts 3: Part not snapped 4: Unconsumed attraction	
	10	VT_UI2	Block number (1 to 1000)	
	11	VT_BSTR	Circuit symbol	

2.5.2.4. LOADCOMP (Component Supply Report)

Property Name	Description			
Number	3			
Description	LOADCOMP			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)		

2.5.2.5. PRODSTARTED (Production Startup Report)

Property Name	Description			
Number	4			
Description	PRODSTARTED			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)		

2.5.2.6. FEEDERUSAGE (Report on the number of feeders adsorbed)

Property Name	Description		
Number	5		
Description	FEEDERUSAGE		
Source	Equipment name reported by Fujitrax		
Value	Data Type	Message Description	
	VT_VARIANT VT_ARRAY	Returns the following format array.	
		Index	Data Type
		Description	
	0	VT_I4	Sequence number (1 to 999999)
	1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)

2.5.2.7. FEEDERUSAGE (Feeder adsorption count report)_Record data

This event occurs as many times as the number of record data included in the feeder adsorption count report event.

Property Name	Description			
Number	6			
Description	FEEDERUSAGE			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_UI1	Stage number
		3	VT_I4	Slot number
		4	VT_BSTR	Feeder ID (unique ID)
		5	VT_BSTR	Feeder name
		6	VT_I4	① Attachment number
		7	VT_I8	② Error Attachment Count (Values of ③ + ④ + ⑤ + ⑥ + ⑦)
		8	VT_I4	③ Number of errors discarded
		9	VT_I4	④ Machine convenience discard count
	10	VT_I4	⑤ Number of attraction errors	
	11	VT_I4	⑥ Number of rescans	
	12	VT_I4	⑦ Unconsumed adsorption number	

2.5.2.8. NOZZLEUSAGE (nozzle suction count report)

Property Name	Description			
Number	7			
Description	NOZZLEUSAGE			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)		

2.5.2.9. NOZZLEUSAGE (Report on the number of nozzles sucked)_record data

This event occurs as many times as the number of record data included in the nozzle adsorption count report event.

Property Name	Description			
Number	7			
Description	NOZZLEUSAGE			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_UI1	Nozzle station number (1 to 4)
		3	VT_UI1	Nozzle pit number (1 to 32)
		4	VT_BSTR	Nozzle ID
		5	VT_BSTR	Nozzle name
		6	VT_BSTR	Nozzle station ID
		7	VT_BSTR	Nozzle Station Name
		8	VT_I4	① Attachment number
		9	VT_I8	② Error Attachment Count (Values of ③ + ④ + ⑤ + ⑥ + ⑦)
		10	VT_I4	③ Number of errors discarded
		11	VT_I4	④ Machine convenience discard count
	12	VT_I4	⑤ Number of attraction errors	
	13	VT_I4	⑥ Number of rescans	
	14	VT_I4	⑦ Unconsumed adsorption number	

2.5.2.10. PCBCHECKOUTP (Printed Board Payout Report)

Property Name	Description			
Number	9			
Description	PCBCHECKOUTP			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_I2	Temperature at the end of printing (Unit: 0.1°C) (Option)
		3	VT_BSTR	Screen ID
		4	VT_I4	Board offset in X direction (Unit: um)
		5	VT_I4	Board offset in Y direction (Unit: um)
	6	VT_I4	Amount of printed circuit board offset in theta direction (Unit: um)	
	7	VT_BSTR	Solder ID	

2.5.2.11. PRODCOMPLETEDII (Production Completion II)

Property Name	Description			
Number	10			
Description	PRODCOMPLETEDII			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_BSTR	Line name
		3	VT_UI1	Module number
		4	VT_UI1	Conveyor name 1: Front side 2: Back side
		5	VT_UI1	Production mode (not supported) 0:Product 1:Pass
		6	VT_BSTR	Program name Format: JOB name + front and back identifiers + Revision Front and back identifiers Table: "_T" Back: "_B"
	7	VT_I4	Serial number of the production panel (-999999~99999) For NXT, a panel is reported with the same serial number when it is produced by a module in the device.	
	8	VT_UI2	Number of Blocks Produced (0 to 9999)	
	9	VT_UI2	Number of skipped blocks (0 to 9999)	
	10	VT_UI1 VT_ARRAY	Skip status of each board is set. Expressed in bits (0: Production 1:	

				<p>Skip). Since the data is reported in hexadecimal (ASCII code), the size is "maximum board number/8" bytes (rounded up to the nearest decimal point).</p> <p>The skip status of board numbers #1, #2, #3, etc. is set in order from the most significant bit to the least significant bit.</p> <p>If the max. board number is small and only represented by a 1byte, it is displayed in a format such as 1byte value: 2byte value: 3byte value... when it is represented by the value multi byte of 1byte.</p> <p>Example) If the maximum board number is 50 and 1, 3, 7, 12, and 34 are skipped,</p> <p>1Byte =0xA2, 2Byte =0x10, 3Byte =0x00, 4Byte =0x00, 5Byte eye =0x40, 6Byte =0x00, 7Byte =0x00</p>
		11	VT_I8	<p>Time from the start of production to the completion of production for each module.</p>

2.5.2.12. PRINTCONDITION (print condition report)

Property Name	Description			
Number	11			
Description	PRINTCONDITION			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)		

2.5.2.13. PRINTCONDITION (print condition report)_record data (plate release rate)

This event occurs as many times as the number of release rate record data included in the print condition report event.

Property Name	Description			
Number	12			
Description	PRINTCONDITION			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_UI1	Area number from the separation start position 1 to 10
3	VT_UI2	Plate release speed [0.01mm/s] 1 to 8000		

2.5.2.14. PRINTCONDITION (print condition report)_record data (print rate)

This event occurs only for the number of print speed record data included in the Print Condition Report event.

Property Name	Description			
Number	13			
Description	PRINTCONDITION			
Source	Equipment name reported by Fujitrax			
Value	Data Type	Message Description		
	VT_VARIANT VT_ARRAY	Returns the following format array.		
		Index	Data Type	Description
		0	VT_I4	Sequence number (1 to 999999)
		1	VT_BSTR	Event-occurred date and time (YYYYMMDDhhmmss)
		2	VT_UI1	Area number from the separation start position 1 to 10
	3	VT_UI2	Print Speed [mm/s] 1 to 999	
	4	VT_UI2	Mean value of actual printing pressure (unit: N) 10 to 500	

3. Sample program

The following is a sample C# that performs a variety of Variable retrieval.

List 3-131

```

... (Omitted)...
using ORiN2.ManagedCAO ;

namespace FUJI_Fujitrax_Sample
{
    public partial class Sample : Form
    {
        private CCaoEngine eng;
        private CCaoWorkspace ws;
        private CCaoWorkspaces wss;
        private CCaoControllers ctrls;
        private CCaoController ctrl;
        private CCaoExtension extention;

        public Sample()
        {
            InitializeComponent();
        }

        private void Sample_Load(object sender, EventArgs e)
        {
            // Generate Cao engine
            this.eng = new CCaoEngine();
            this.wss = this.eng.Workspaces;
            this.ws = this.wss[0];
            this.ctrls = this.ws.Controllers;

            // For TCP connection
            var option

                = "Conn=TCP:127.0.0.1:30040,Timeout=4000,Message=TRUE,RecordData=TRUE";

            // Connect Fujitrax
            this.ctrl = this.ws.AddController("Sample",
                                           "CaoProv.FUJI.Fujitrax",
                                           "",
                                           option);
            this.ctrl.OnMessage += new OnMesssageEventHandler(OnMessage);
            this.extention = this.ctrl.AddExtension("extentionName", "MachineName=test");
        }

        private void OnMessage(object sender, OnMessageEventArgs msgArg)
        {
            Console.WriteLine(msgArg.Message.Value);
        }

        private void btnGetVariable_Click(object sender, EventArgs e)
        {
            // Adding Various Variable
            // System Variables
            // Controller
            var tempVal1 = this.ctrl.AddVariable("@MAKER_NAME", null);
            var tempVal2 = this.ctrl.AddVariable("@VERSION", null);
            var tempVal3 = this.ctrl.AddVariable("@MACHINE_NAME_LIST", null);

            // Extention
            var tempVal4 = this.extention.AddVariable("@PCBCHECKOUTII_DATAS", null);
        }
    }
}

```

```

var tempVal5 = this.extention.AddVariable("@LAODCOMP_TIME", null);
var tempVal6 = this.extention.AddVariable("@PRODSTARTED_TIME", null);
var tempVal7 = this.extention.AddVariable("@FEEDERUSAGE_DATAS", null);
var tempVal8 = this.extention.AddVariable("@NOZZLEUSAGE_DATAS", null);
var tempVal9 = this.extention.AddVariable("@TEMPERATURE", null);
var tempVal10 = this.extention.AddVariable("@SCREENID", null);
var tempVal11 = this.extention.AddVariable("@PANEL_OFFSET_AMOUNT_X", null);
var tempVal12 = this.extention.AddVariable("@PANEL_OFFSET_AMOUNT_Y", null);
var tempVal13 = this.extention.AddVariable("@PANEL_OFFSET_AMOUNT_Q", null);
var tempVal14 = this.extention.AddVariable("@SOLDERID", null);
var tempVal15 = this.extention.AddVariable("@SNAPOFFSPEED_DATAS", null);
var tempVal16 = this.extention.AddVariable("@PRINTSPEED_DATAS ", null);
var tempVal17 = this.extention.AddVariable("@CYCLETIME", null);
var tempVal18 = this.extention.AddVariable("@PANEL_NO", null);

```

```
// GetValue of various Variable
```

```
// Controller
```

```
var val1 = tempVal1.Value;
var val2 = tempVal2.Value;
var val3 = tempVal3.Value;
```

```
// Extention
```

```
var val4 = tempVal4.Value;
var val5 = tempVal5.Value;
var val6 = tempVal6.Value;
var val7 = tempVal7.Value;
var val8 = tempVal8.Value;
var val9 = tempVal9.Value;
var val10 = tempVal10.Value;
var val11 = tempVal11.Value;
var val12 = tempVal12.Value;
var val13 = tempVal13.Value;
var val14 = tempVal14.Value;
var val15 = tempVal15.Value;
var val16 = tempVal16.Value;
var val17 = tempVal17.Value;
var val18 = tempVal18.Value;
```

```
}
```

```
private void Sample_FormClosed(object sender, FormClosedEventArgs e)
```

```
{
```

```
// Free Cao-related objects
```

```
if (this.eng != null)
```

```
{
```

```
    this.eng.Dispose();
```

```
    this.eng = null;
```

```
}
```

```
}
```

```
}
```

```
}
```

4. Error code

This provider defines a unique error code. Unique error codes are shown in **Table 4-1**.

Table 4-1 Unique error codes

Error Number	Description
0x80110001	This error occurs when the valid event setting report response from the Fujitrax side is NG in the AddController method.
0x80110002	This error occurs when the event notification start report response from the Fujitrax side is NG in the AddController method.