Total Vu™ OPC Server Properties

ProgID: LaserLinc.TotalVu.1
AppID: {4C733CE0-D6BB-11DA-8314-002078153AE2}
CLSID: {4C733CE0-D6BB-11DA-8314-002078153AE2}
AppName: TotalVuServer
VendorName: LaserLinc, Inc.

All I/O is asynchronous

NOTE to RSView32 Users

Rockwell Automation RSView®32™ uses local registry entries to find information about OPC servers. Therefore, in a client-server PC network configuration, Total Vu must be installed and registered as an OPC Server on both the client and server PCs.

Measurement Tag Names

A set of tags is available for each measurement defined in the Total Vu Software. In the tags listed below, '<MeasName>' represents the case-sensitive name given to the measurement in the Total Vu Software.

Measurement.<MeasName>.Value	VT_R8	Read
Measurement.<MeasName>.ValueLength	VT_R8[2]	Read
Measurement.<MeasName>.URL	VT_R8	Read/Write
Measurement.<MeasName>.URT	VT_R8	Read/Write
Measurement.<MeasName>.USL	VT_R8	Read/Write
Measurement.<MeasName>.UST	VT_R8	Read/Write
Measurement.<MeasName>.UWL	VT_R8	Read/Write
Measurement.<MeasName>.UWT	VT_R8	Read/Write
Measurement.<MeasName>.Nominal	VT_R8	Read/Write
Measurement.<MeasName>.LWT	VT_R8	Read/Write
Measurement.<MeasName>.LWL	VT_R8	Read/Write
Measurement.<MeasName>.LST	VT_R8	Read/Write
Measurement.<MeasName>.LSL	VT_R8	Read/Write
Measurement.<MeasName>.LRT	VT_R8	Read/Write
Measurement.<MeasName>.LRL	VT_R8	Read/Write
Measurement.<MeasName>.MultiLimitsChange	VT_Bool	Read/Write
Measurement.<MeasName>.Status	VT_UI2	Read
Measurement.<MeasName>.ToleranceStatus	VT_UI2	Read
Measurement.<MeasName>.Offset	VT_R8	Read/Write
Measurement.<MeasName>.Lumps	VT_I4	Read
Measurement.<MeasName>.Neckdowns	VT_I4	Read

Status Tag

Possible values are:

0	OK
1	Disabled
2	Missing
3	Too Few Events
4	Too Many Events
7	Pending
8	Old
9	Off
10	Scan Paused
11	Missing Axis
12	No Scan
13	No Part
14	Beam Blocked
16	Uncalibrated
24	Baseline Error
25	Echo Error
26	Echo Truncated
27	DSP FIFO Error

ToleranceStatus Tag

Possible values are:

0	Value is within the warning limits
1	Value is above upper reasonable limit
2	Value is above upper spec limit
3	Value is above upper warning limit
4	Value is below lower warning limit
5	Value is below lower spec limit
6	Value is below lower reasonable limit
7	Value not yet updated

Assigning Spec Limits to Measurements

Clients may assign new Spec Limit values at any time by writing the values to the appropriate Read/Write spec limit measurement tags defined above ('.URL', '.URT', '.USL', '.UST', '.UWL', '.UWT', '.Nominal', '.LWT', '.LWL', '.LST', '.LSL', '.LRT', '.LRL'). The tags ending in 'L' are absolute limits. The tags ending in 'T' are tolerances relative to the nominal, all positive values. In order for the Spec Limits to take effect, the measurement(s) must be part of a loaded recipe. If multiple measurements share the same set of Spec Limits in the recipe, assigning a new Spec Limit value to one measurement will update all measurements that share the same Spec Limits.

Changing Multiple Limits Settings

To change multiple Spec Limit settings, first set the '.MultiLimitsChange' tag to True (1). Then, set each Spec Limit tag to the appropriate value. Finally, set the '.MultiLimitsChange' tag to False (0). Once the '.MultiLimitsChange' tag is set to False, the new Spec Limit settings will be propagated throughout Total Vu.

Changing Nominal With Automatic Limit Values Adjustment

To change the nominal value with automatic adjustment of the upper and lower limit values relative to the nominal, first ensure that the '.MultiLimitsChange' tag is set to False (0). Then, set the '.Nominal' tag to the appropriate value. The upper and lower limit values will be adjusted accordingly relative to the new nominal value. For example, consider the following set of specs:

USL: 0.54
UWL: 0.52
Nom: 0.5
LWL: 0.47
LSL: 0.46

With the '.MultiLimitsChange' tag set to False, setting the '.Nominal' tag to 0.51 will result in the following set of specs:

USL: 0.55
UWL: 0.53
Nom: 0.51
LWL: 0.48
LSL: 0.47

Changing Nominal and Preserving Limit Values

To change the nominal value and preserve the upper and lower limit settings, first set the '.MultiLimitsChange' tag to True (1). Then, set the '.Nominal' tag to the appropriate value. Finally, set the '.MultiLimitsChange' tag to False (0). For example, consider the following set of specs:

USL: 0.54
UWL: 0.52
Nom: 0.5
LWL: 0.47
LSL: 0.46

With the '.MultiLimitsChange' tag set to True, setting the '.Nominal' tag to 0.51 will result in the following set of specs:

USL: 0.54
UWL: 0.52
Nom: 0.51
LWL: 0.47
LSL: 0.46

Flaw Detection Settings

For measurements that support flaw detection, the following tags are provided. All tags are Read/Write so that flaw detection settings can be set by the client.

Measurement.<MeasName>.Flaw.Mode	VT_Bstr
Measurement.<MeasName>.Flaw.LengthUnit	VT_Bstr
Measurement.<MeasName>.Flaw.Length	VT_R8
Measurement.<MeasName>.Flaw.Interval	VT_R8
Measurement.<MeasName>.Flaw.ResetLength	VT_R8
Measurement.<MeasName>.Flaw.AbsoluteStyle	VT_Bstr
Measurement.<MeasName>.Flaw.AbsoluteSize	VT_R8
Measurement.<MeasName>.Flaw.RelativeStyle	VT_Bstr
Measurement.<MeasName>.Flaw.RelativeSize	VT_R8
Measurement.<MeasName>.Flaw.Averaging	VT_I4

Flaw.Mode Tag

Possible values are: 'Disabled', 'Absolute', 'Relative', 'Both'. 'Both' indicates that both Absolute and Relative flaw detection modes are being used.

Flaw.LengthUnit Tag

Possible values are: 'Scans', 'Time', 'Distance'. For 'Time', the flaw length settings (Length, Interval, ResetLength) are in milliseconds. For 'Distance', the flaw length settings are in the current units setting of the encoder.

Flaw.AbsoluteStyle Tag

Possible values are: 'Size', 'Percent', 'Specs'. For 'Size', the AbsoluteSize setting is the dimensional change from the nominal (e.g. 0.001). For 'Percent', the AbsoluteSize setting is the percent change from the nominal (e.g. 5 for 5%). For 'Specs', AbsoluteSize is ignored – flaws are based on the USL and LSL settings.

Flaw.RelativeStyle Tag

Possible values are: 'Size', 'Percent'. For 'Size', the RelativeSize setting is the dimensional change from the current measurement average (e.g. 0.001). For 'Percent', the RelativeSize setting is the percent change from the current measurement average (e.g. 5 for 5%).

Scanner Tag Names

A scanner status tag is available for each scanner defined in the Total Vu Software. '<ScannerName>' represents the case-sensitive name given to the scanner in the Total Vu Software.

Scanner.<ScannerName>.Status   VT_UI2   Read

The status bit masks are as follows:

      0x01   Scanner Off
      0x02   No Scan
      0x04   Beam Blocked
      0x08   Index Error
      0x10   Uncalibrated

Server Time Tag Names

The server time tag ('TotalVu.ServerTime') serves as a 'heartbeat' and is updated with the system time every second. The server ticks tag ('TotalVu.ServerTicks') is a counter that increments by one for every server time tag update (this tag is provided for those clients that cannot read a VT_Date value).

TotalVu.ServerTime   VT_Date   Read
TotalVu.ServerTicks   VT_I4   Read

Action Tag Names

A set of tags is available for each Action defined in the Total Vu Software. In the tags listed below, '<ActionName>' represents the case-sensitive name given to the Action in the Total Vu Software.

Action.<ActionName>.Execute   VT_Bool   Read/Write
Action.<ActionName>.LastExecuteTime   VT_Date   Read
Action.<ActionName>.LastExecuteAsDouble VT_R8   Read

Clients can execute an action by writing the value True (1) to the '.Execute' tag. The '.LastExecuteTime' tag is updated with the time that the action last executed successfully. The 'LastExecuteAsDouble' tag provides the time as a double precision floating point for OPC clients that cannot deal with VT_Date (integral part is days since 12/30/1899, fractional part is time as a fractional part of the day).

SPC Tag Names

A set of tags is available for each set of statistics defined in the Total Vu Software. In the tags listed below, '<PlanName>' represents the case-sensitive name given to the SPC Plan in the Total Vu Software, and '<MeasName>' represents the case-sensitive name given to the measurement in the Total Vu Software.

SPC.<PlanName>.<MeasName>.Average	VT_R8	Read
SPC.<PlanName>.<MeasName>.StdDev	VT_R8	Read
SPC.<PlanName>.<MeasName>.Cp	VT_R8	Read
SPC.<PlanName>.<MeasName>.CpK	VT_R8	Read
SPC.<PlanName>.<MeasName>.Minimum	VT_R8	Read
SPC.<PlanName>.<MeasName>.Maximum	VT_R8	Read
SPC.<PlanName>.<MeasName>.Pp	VT_R8	Read
SPC.<PlanName>.<MeasName>.PpK	VT_R8	Read

Recipe Tag Names

The Recipe tags provide for recipe management by clients.

Recipe.Load	VT_Bstr	Read/Write
Recipe.Unload	VT_Bstr	Read/Write
Recipe.Active	VT_Bstr	Read
Recipe.Save	VT_Bstr	Read/Write

Clients can load a Recipe by writing the case-sensitive recipe name to the '.Load' tag. Clients can unload a Recipe by writing the case-sensitive recipe name to the '.Unload' tag. Writing an empty string ('') to either the '.Load' or '.Unload' tag will cause Total Vu to unload all active recipes. The '.Active' tag indicates the currently loaded recipes in Total Vu. If multiple recipes are loaded, the '.Active' tag lists the recipe names delimited with '|'. Clients can save a Recipe by writing the case-sensitive recipe name to the '.Save' tag. Writing an empty string ('') to the '.Save' tag will cause Total Vu to save all recipes.

Alarm Tag Names

A set of tags is available for each Alarm defined in the Total Vu Software. In the tags listed below, '<AlarmName>' represents the case-sensitive name given to the Alarm in the Total Vu Software.

```
Alarm.<AlarmName>.State            VT_Bool    Read
Alarm.<AlarmName>.DetailedState    VT_UI2     Read
Alarm.<AlarmName>.Clear            VT_Bool    Read/Write
```

The '.DetailedState' status bit masks are as follows:

```
0x00       Alarm On
0x02       Alarm Waiting for On Condition Time
0x04       Alarm Delayed
```

Clients can clear an Alarm by writing the value True (1) to the '.Clear' tag.

Attribute Tag Names

A set of tags is available for each Attribute defined in the Total Vu Software. In the tags listed below, '<AttributeName>' represents the case-sensitive name given to the Attribute in the Total Vu Software.

```
Attribute.<AttributeName>.Value            VT_Bstr   Read/Write
Attribute.<AttributeName>.LastAcceptTime   VT_Date   Read
Attribute.<AttributeName>.LastAcceptAsDouble  VT_Double Read
```

Clients can set an attribute value by writing the value to the '.Value' tag. The '.LastAcceptTime' tag is updated with the time that the attribute was last accepted successfully. The '.LastAcceptAsDouble' tag provides the time as a double precision floating point for OPC clients that cannot deal with VT_Date (integral part is days since 12/30/1899, fractional part is time as a fractional part of the day).

Control Loop Tag Names

A set of tags is available for each Control Loop defined in the Total Vu Software. In the tags listed below, '<CtrlLoopName>' represents the case-sensitive name given to the Control Loop in the Total Vu Software.

Control.<CtrlLoopName>.Value	VT_R8	Read/Write
Control.<CtrlLoopName>.Mode	VT_UI2	Read/Write
Control.<CtrlLoopName>.Status	VT_UI2	Read
Control.<CtrlLoopName>.Gain	VT_R8	Read/Write
Control.<CtrlLoopName>.Delay	VT_R8	Read/Write
Control.<CtrlLoopName>.MinVoltage	VT_R8	Read/Write
Control.<CtrlLoopName>.MaxVoltage	VT_R8	Read/Write
Control.<CtrlLoopName>.ChangeAck	VT_Bool	Read/Write
Control.<CtrlLoopName>.VoltageIn	VT_R8	Write
Control.<CtrlLoopName>.VoltageInTrim	VT_R8	Write

NOTE: For Software control loops, all the above tags are available. For control loops that directly control hardware (e.g. digital, analog), the Mode, Status, Gain, and Delay tags are available.

Value Tag
The Value tag indicates the current voltage. A value of 0 is a special indicator to the client (see ChangeAck below). The control loop voltage can be changed by the client when the control loop is in manual mode.

Mode Tag
The Mode tag indicates whether the control loop is in Manual or Automatic mode. Possible values are:

0	Manual Mode
1	Automatic Mode

Status Tag

The Status tag bits indicate various states of the control loop. The status bit masks are as follows:

0x0001	Manual Mode
0x0002	Automatic Mode
0x0004	Control Loop is currently in delay following a control change
0x0008	Waiting for control change acknowledgement from client
0x0010	Last control change was an Increase
0x0020	Last control change was a Decrease
0x0040	No Specs on control measurement
0x0080	No Deadband specified for specs on control measurement
0x0100	Control Loop is Disconnected (no changes will be made)

Gain Tag

The Gain tag indicates the multiplier for the deviation from the setpoint when making control changes. The gain can be changed by the client when the control loop is in manual mode.

Delay Tag

The Delay tag indicates the delay time or distance following a control change before another change will be attempted. The delay can be changed by the client when the control loop is in manual mode.

MinVoltage Tag

The MinVoltage tag indicates the minimum allowable voltage for the control loop voltage value. The minimum voltage can be changed by the client when the control loop is in manual mode.

MaxVoltage Tag

The MaxVoltage tag indicates the maximum allowable voltage for the control loop voltage value. The maximum voltage can be changed by the client when the control loop is in manual mode.

ChangeAck Tag

The ChangeAck tag is used by the client to acknowledge the most recent control change. After a control change, Total Vu will not make another change until: 1) the ChangeAck tag has been set to True (1) by the client; and 2) the control delay time/distance has elapsed.

IMPORTANT NOTE: After the client sets the ChangeAck tag to True (1), the ChangeAck tag is set to False (0), and the Value tag is set to 0. The Value tag change is made for clients that can only detect tag changes.

VoltageIn Tag

The VoltageIn tag is used by the client to set the software control loop voltage independent of the control loop mode (Manual or Automatic). For Relative Voltage Mode, the Initial Voltage is set to the specified VoltageIn value – all Deviation * Gain adjustments will be based off this new Initial Voltage.

VoltageInTrim Tag

The VoltageInTrim tag is used by the client to establish the reference voltage for the control loop. Total Vu trims this voltage to maintain product size. Changes in the reference voltage are reflected in the Value tag, whether in Automatic or Manual mode. Value tag = Value tag + ΔVoltageInTrim.

When in Manual mode and the client writes to the VoltageInTrim tag, the current voltage (Value tag) is set to the specified VoltageInTrim value and ΔVoltageInTrim is set to 0.

When in Automatic mode and the client writes to the VoltageInTrim tag, the difference between the two most recent VoltageInTrim values are accumulated in ΔVoltageInTrim. For example, if the Total Vu control loop Value tag equals 4.38 and the current value of the VoltageInTrim tag equals 4.2, a write of 4.3 to VoltageInTrim by the client will result in a new ΔVoltageInTrim voltage of 0.1 and a Value tag of 4.48. Value = 4.38 + (4.3 - 4.2) = 4.38 + 0.1 = 4.48. If the client then writes a subsequent VoltageInTrim value of 4.5, the new ΔVoltageInTrim voltage will be 0.3 (0.1 + (4.5 – 4.3)) and the new Value tag will be 4.68. Value = 4.38 + 0.3 = 4.68.

Data Logging Tag Names

A set of tags is available for each Data Log defined in the Total Vu Software. In the tags listed below, '<LogName>' represents the case-sensitive name given to the Data Log in the Total Vu Software.

Log.<LogName>.FileName	VT_Bstr	Read
Log.<LogName>.Status	VT_I4	Read
Log.<LogName>.NextFileName	VT_Bstr	Read/Write
Log.<LogName>.RecordCount	VT_I4	Read

FileName Tag
The FileName tag indicates the current file name for the data log.

Status Tag
The Status tag indicates whether the file is Closed (0), Open (1), or in Error (2).

NextFileName Tag
Clients write to the NextFileName tag to start a new data log file with the given file name. If the given file name is not fully qualified, the file will reside in the Total Vu DataLogging folder.

RecordCount Tag
The RecordCount tag indicates the total number of records in the current data log file.