

Knowledge Base Article

Performance Limitations in Process History View

Article ID:	AUS1-115-990607142410
Publish Date:	19 Jun 2015
Article Status:	Approved
Article Type:	General Product Technical Information
Required Action:	Information Only

Recent Article Revision History:

Revision/Publish	Description of Revision
19 Jun 2015	Reviewed and determined applicable to DeltaV v13.3
(See end of article for a	a complete revision history listing.)

Affected Products:

	alegoly	Device	version
DeltaV W	Iorkstation Software	VE2145PHV History View (PHV)	v5.x - v13.3

This Knowledge Base Article, **AUS1-115-990607142410**, discusses an issue in which the Process History View application may cause considerable resource loading on a workstation if certain configurations are attempted. In order to avoid sluggish response, we recommend implementing the following configurations in the Process History View application:

- A. Keep only up to 4 pages of trends open in Process History View, each with a maximum of 8 tags plotted.
- B. Do not maximize the Process History View window to prevent obscuring the whole screen and to allow an operator to access/select another application, e.g. DeltaV Operator Interface.
- C. Increase the Process History View update rate to 2 seconds or greater. The Update Rate can be modified by selecting **Chart | Configure Chart** and clicking on the Time Scale tab, as shown in Figure 1. By default, the value for the update rate is set to 5 seconds.

figure Chart	K:			?
Configure Chart	Time Scale	Multiple Y-Axes		
	Time Start	Span (days hours:mins)	Time End	
yesterday		1 03:14 *	<u></u>	
{ex: * (cu	urrent time); 1-M yesterday	lay-97 8:00 (absolute time); Yesterda or today); Monday+10h (10:00 of most	ay or Today (00:00 t recent Monday) }	
Update R	late (seconds):	5 Display Compr	ession: Automatic 💌	
		<u> </u>		

Figure 1 - Setting the Update Rate of a Chart

D. Pens 6, 7, and 8 effectively "share" some common settings, usually based on the highest-numbered pen that is enabled. These common settings include Plot Method and Y-Axis. The Plot Method determines the style of the trend and is inferred based on the data type of the parameter being trended. The following plot methods are available from **Trend | Plot Method**: line, step, area, points and line with points. The Configure Chart tab in the Configure Chart dialog box has only 6 boxes for "New Axis" (see Figure 2) as Pens 6, 7 and 8 all use the same axis. It is recommended that the parameter fields using pens 6, 7, and 8 are all of the same data type and have the same Y-Axis range.

onfigure Chart	Time Scale Multiple Y-Axes	
	Subiile:	
	Parameter References	New Axis
Add	TRIAL/SGGN1/OUT.CV SGGN/SGGN1/OUT.CV PID_LOOP_1/PID1/MODE.ACTUAL	
Details	PID_LOOP_1/PID1/MODE.TARGET SGGN/SGGN2/OUT.CV SGGN/SGGN3/OUT.CV SGGN/SGGN5/OUT.CV SGGN/SGGN5/OUT.CV	Dn
	Auto-adjust ASCII color?	

Figure 2 – Only 6 "New Axis" can be defined for the 8 pens

E. Do not trend ASCII data on pens 6, 7, or 8. To identify if a tag in the Process History View chart is an ASCII type, select **Chart | Configure Chart** and double-click the tag in question. The Configure Trend window will be displayed. The tag properties will indicate the data type used in the chart, as shown in Figure 2. Click OK to close this window.

ID LOOP 1/PID1/MODE.AC	TUAL		
✓ Show Y-Scale? ✓ Show Events?	Show Right Y-Scale?	Browse	Cancel
Sample Label	scii Text		
Auto-adjust ASCII color?	User Descriptor?		
Define Y-Scale Limits			_
Y-Scale High: 0	Set to EU limits at run-time Auto-scale to data values		
Y-Scale Low: 0	C Define limits	Current EU	
Start Time (if differer	nt than Time Scale):	_	
{ ex: 1-May-97 8:00	(absolute time); Yesterday or Today (00:00	yesterday	

Figure 3 - Tag property showing data type as ASCII Text

- F. In DeltaV v6.3.4 and earlier, each trend trace has a 2,500 sample limit per tag. Starting with v7.1, the allocation was changed to 25,000 points per chart or 3,125 per trend line on a chart with 8 tags plotted. Exceeding this limit causes the trend to not be drawn. Decrease the sampling frequency or shorten the time period of the trend to stay within the limit.
- G. Process History View E+Chart performance is for the most part going to correspond to the number of events in the Alarms and Events database for the time span specified on the chart. If the time span on the chart is over several

days, and that corresponds to several hundred thousand events from the Alarms and Events database that need to be retrieved and filtered for display on the E+Chart, it is going to take some time for this retrieval and filtering to occur. In order to meet the required Process History View performance with respect to E+Chart response time, either or both of the following is recommended:

1) Reduce the size of the active data set found in Alarms and Events Properties of the Event Chronicle Server via DeltaV Explorer.

larms And Events Properties	×
General Advanced	
Active Event History Data Set Storage	
Active Event History Data Set Storage Target: 100 Mbytes	
Age for Copying Events to Current History Data Set: 12 Hours	
Current Event History Data Set Storage	5
Current Event History Data Set Size Target: 100 Mbytes	
🗖 Enable data set time span	
Monthly	
C Weekly	
O Daily	
Current Event History Data Set Total Storage Target: 0 Mbytes	
Automatic Current Event History Data Set Export	
Enable Automatic Current Event History Data Set Export	
Automatic Export Directory:	
Ensure that the path chosen for the export directory is valid on the DeltaV workstation where the Alarm and Events resides	
	-
Browse	
OK Cancel Help	

Figure 4 - Decreasing the Active Event History Data Set Storage

- 2) Split plant areas into multiple Event Chronicles so that there are fewer events stored in each Alarms and Events database. Similar performance issues may also be seen on the Process History View "Events view". The ability to filter thorough "Events view" is available for many of the data columns. Performance of filtering is greatly affected by the total number of rows of data in the data set being used, typically the active data set. This filtering involves retrieving every row in the database, and searching through the data for that particular filter. This occurs right when you select a new filter tab from the filter settings window, even before you select the string to filter on. This is observed since, as soon as you select the new tab, the filter function is building a list of valid strings to filter on, and it has to look at every row in the database to build this list
- H. Starting DeltaV v12.3, code changes were made to the Process History View application to correct a previously existing issue on its connection to the Event Chronicle server running on a domain environment. As a result of this change, a delay may be observed when connecting to the Event Chronicle server through Process History View. As a workaround, it is advised to add both the 10.4 and 10.8 network IDs to the reverse lookup zone of the DNS server. A sample procedure is shown below, where the DeltaV domain name is ANALYZE.DELTAV.EMERSON.LOCAL.

Note: These changes are also applicable to DeltaV v11.3.1 systems having hotfix bundle DeltaV_1131_WS_20_CSS or later installed. Hence, the workaround below may be done on v11.3.1 systems as well.

- 1) From DNS Server machine, open DNS Management Console via Start\Programs\Administrative Tools\DNS.
- 2) Right-click on the Reverse Lookup Zone folder and select 'New Zone...'





- 3) Click 'Next' to proceed to the next dialog.
- 4) Select 'Primary Zone' for the Zone Type.

New Zone Wizard	×
Zone Type The DNS server supports various types of zones and storage.	
Select the type of zone you want to create:	
Creates a copy of a zone that exists on another server. This option helps balan the processing load of primary servers and provides fault tolerance.	се
Stub zone Creates a copy of a zone containing only Name Server (NS), Start of Authority (SOA), and possibly glue Host (A) records. A server containing a stub zone is no authoritative for that zone.	ot
Store the zone in <u>Active Directory</u> (available only if DNS server is a writeable do controller)	main
< <u>B</u> ack <u>N</u> ext > Ca	ancel

Figure 6

5) Select the third option 'To all domain controllers in the Active Directory domain ANALYZE.DELTAV.EMERSON.LOCAL' for the Active Directory.

New Zone Wizard	×
Active Directory Zone Replication Scope You can select how you want DNS data replicated throughout your network.	
Select how you want zone data replicated: O To all DNS servers in this forest: ANALYZE.DELTAV.EMERSON.LOCAL	
○ To all <u>D</u> NS servers in this domain: ANALYZE.DELTAV.EMERSON.LOCAL	
To all domain controllers in this domain (for Windows 2000 compatibility): ANALYZE.DELTAV.EMERSON.LOCAL	
igodot To all domain controllers specified in the scope of this directory partition:	
	7
< <u>B</u> ack <u>N</u> ext >	Cancel

Figure 7

6) Select IPv4 Reverse Lookup Zone

New Zone Wizard	×
Reverse Lookup Zone Name A reverse lookup zone translates IP addresses into DNS names.	
Choose whether you want to create a reverse lookup zone for IPv4 addresses or IPv addresses.	/6
IPv <u>4</u> Reverse Lookup Zone	
C IPv <u>6</u> Reverse Lookup Zone	
< <u>B</u> ack <u>N</u> ext > Car	ncel



7) For the Reverse Lookup Zone Name, enter a 10.4 for the Network ID option. This will represent the DeltaV Primary network.

New Zone Wizard	×
Reverse Lookup Zone Name A reverse lookup zone translates IP address	ses into DNS names.
To identify the reverse lookup zone, type th Network ID: 10 .4 The network ID is the portion of the IP a network ID in its normal (not reversed) o If you use a zero in the network ID, it wi network ID 10 would create zone 10.in-a zone 0.10.in-addr.arpa.	e network ID or the name of the zone. ddresses that belongs to this zone. Enter the order. Il appear in the zone name. For example, addr.arpa, and network ID 10.0 would create
C Reverse lookup zone name: 4.10.in-addr.arpa	
	< <u>B</u> ack <u>N</u> ext > Cancel



8) Select 'Allow only secure dynamic updates (recommended for Active Directory)' for the Dynamic Update type.

New Zone Wizard X
Dynamic Update You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.
 Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur. Select the type of dynamic updates you want to allow: Allow only secure dynamic updates (recommended for Active Directory) This option is available only for Active Directory-integrated zones. Allow both nonsecure and secure dynamic updates pyramic updates pyramic updates of resource records are accepted from any client. This option is a significant security vulnerability because updates can be accepted from untrusted sources. Do not allow dynamic updates Dynamic updates of resource records are not accepted by this zone. You must update these records manually.
< <u>B</u> ack <u>N</u> ext > Cancel



9) Click on Finish to create the new Reverse Name Lookup Zone.

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<u>File Action View H</u> elp					
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DNS PPLUSANALYZE Global Logs Forward Lookup Zones Reverse Lookup Zones () 4.10.in-addr.arpa Conditional Forwarders	Name Name 1.10.in-addr.arpa	Type Active Direct	Status Running		

Figure 11

10) Repeat steps 1 to 9, changing the Network ID at step 7 to 10.8 for the DeltaV Secondary network.

New Zone Wizard	×
Reverse Lookup Zone Name A reverse lookup zone translates IP addresses into DNS names.	-
 To identify the reverse lookup zone, type the network ID or the name of the zone. Network ID: 10 .8 The network ID is the portion of the IP addresses that belongs to this zone. Enter the network ID in its normal (not reversed) order. If you use a zero in the network ID, it will appear in the zone name. For example, network ID 10 would create zone 10.in-addr.arpa, and network ID 10.0 would create zone 0.10.in-addr.arpa. Reverse lookup zone name: 8.10.in-addr.arpa 	
< <u>Back</u> Cancel	

Figure 12

🌲 DNS Manager				
<u>File Action View H</u> elp				
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 DNS PPLUSANALYZE Global Logs Forward Lookup Zones Reverse Lookup Zones 1.10.in-addr.arpa 8.10.in-addr.arpa Conditional Forwarders 	Name 1.10.in-addr.arpa 8.10.in-addr.arpa	Type Active Direct Active Direct	Status Running Running	

Figure 13

I. Process History View trend may interpret a sudden change in data differently when Display Compression is set to Automatic and having a decreased resolution. Setting the Display Compression to None will most likely represent the data better. An example is found below:



Figure 14 - Trend with Display Compression set to Automatic, at lower resolution.



Figure 15 - Trend with Display Compression set to None, at higher resolution

This is an expected behavior of Display Compression in Process History View and is further explained in KBA AP-0600-0033: Information on the Display Compression Feature in Process History View.

Contact Information

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Complete Article Revision History:

Revision/Publish	Description of Revision
19 Jun 2015	Reviewed and determined applicable to DeltaV v13.3
09 Feb 2015	Added note on section H to incorporate v11.3.1 in the procedure
19 Jan 2015	Added Process History View limits on DeltaV v12.3.x
04 Nov 2008	Updated the current sample limit per tag of 2,500 to 3,125 for DeltaV v7.1 and above.
20 Dec 2003	KnowledgeBase Article Revision History feature added. Any revisions to this article made
	before December 20, 2003 are not tracked by this Article Revision History feature.

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