



Knowledge Base Article

Performance Limitations in Process History View

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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 complete revision history listing.)

Affected Products:

Product Line	Category	Device	Version
DeltaV	Workstation 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.

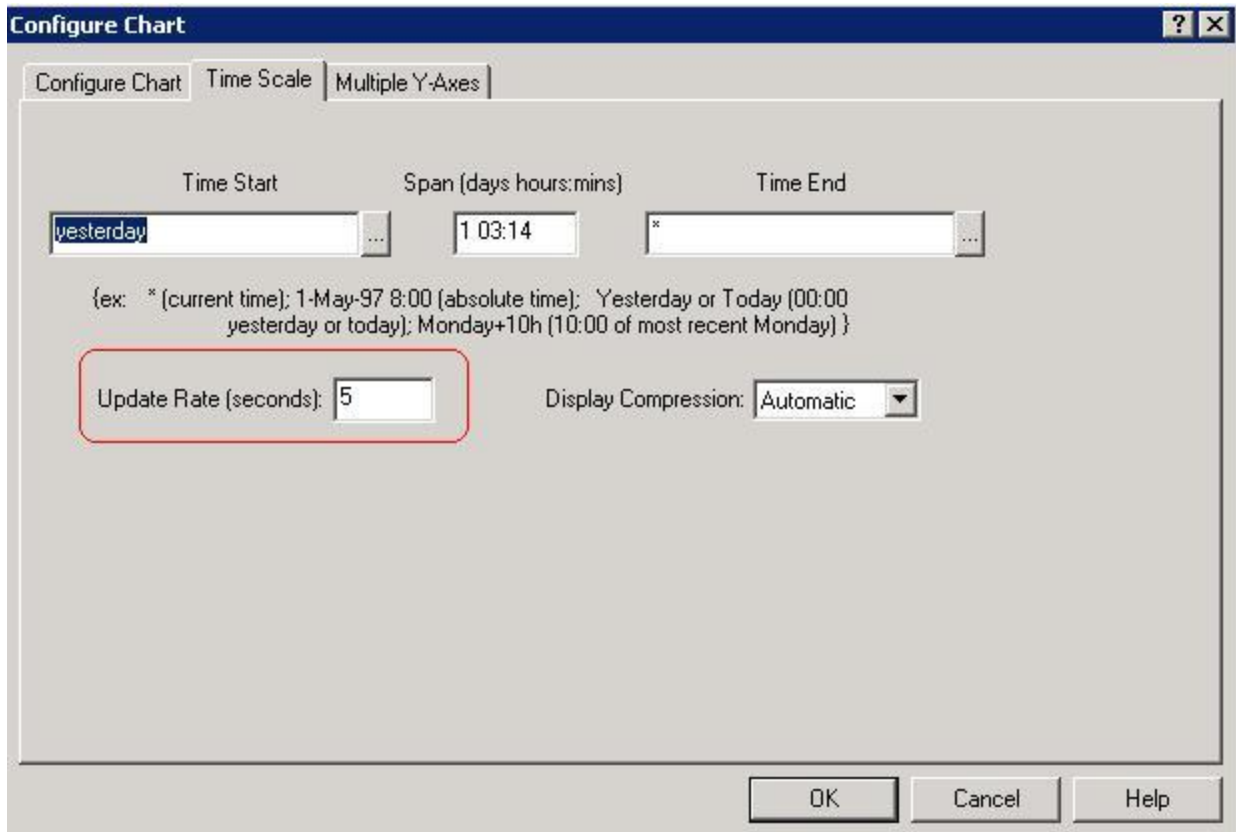


Figure 1 - Setting the Update Rate of a Chart

- 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.

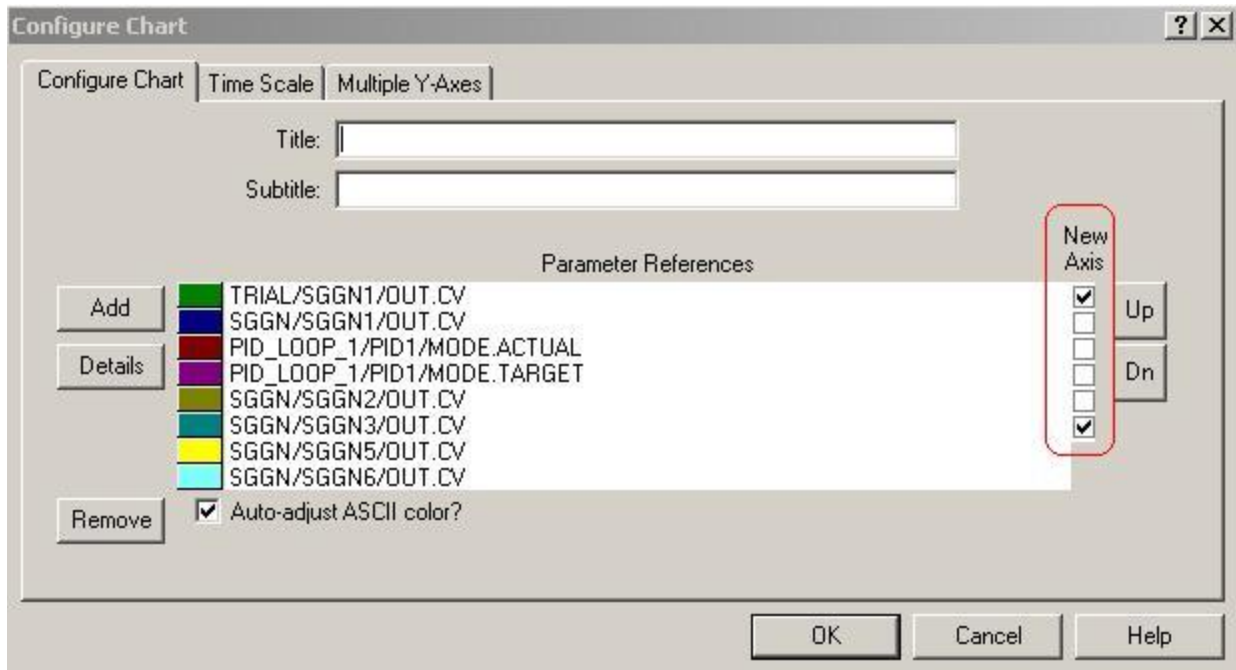


Figure 2 – Only 6 “New Axis” can be defined for the 8 pens

- 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.

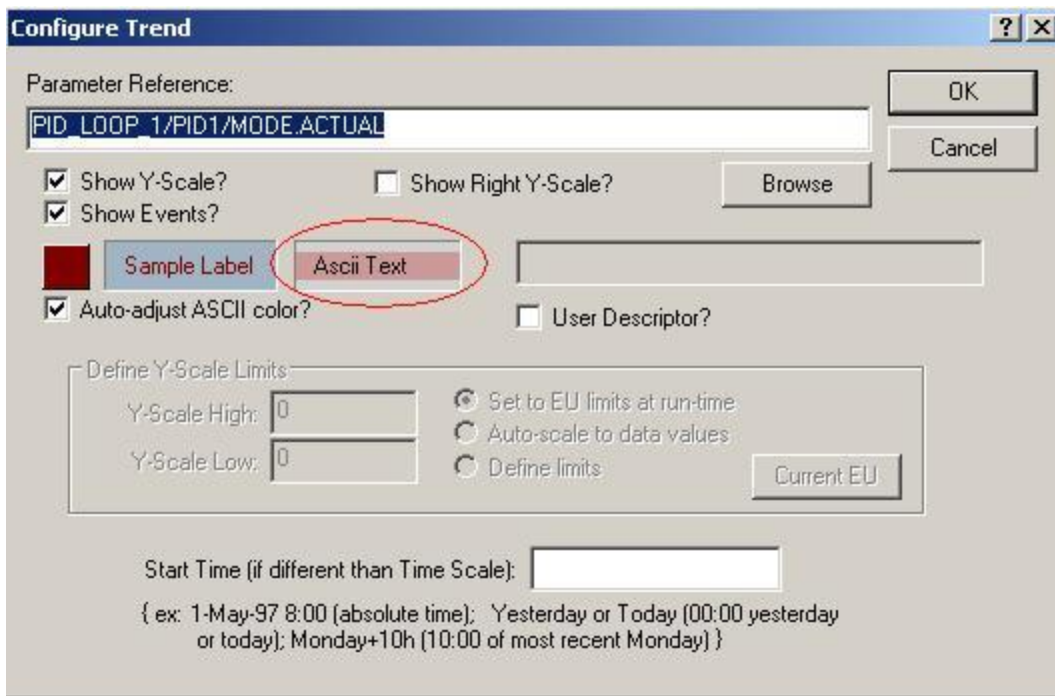


Figure 3 - Tag property showing data type as ASCII Text

- 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.

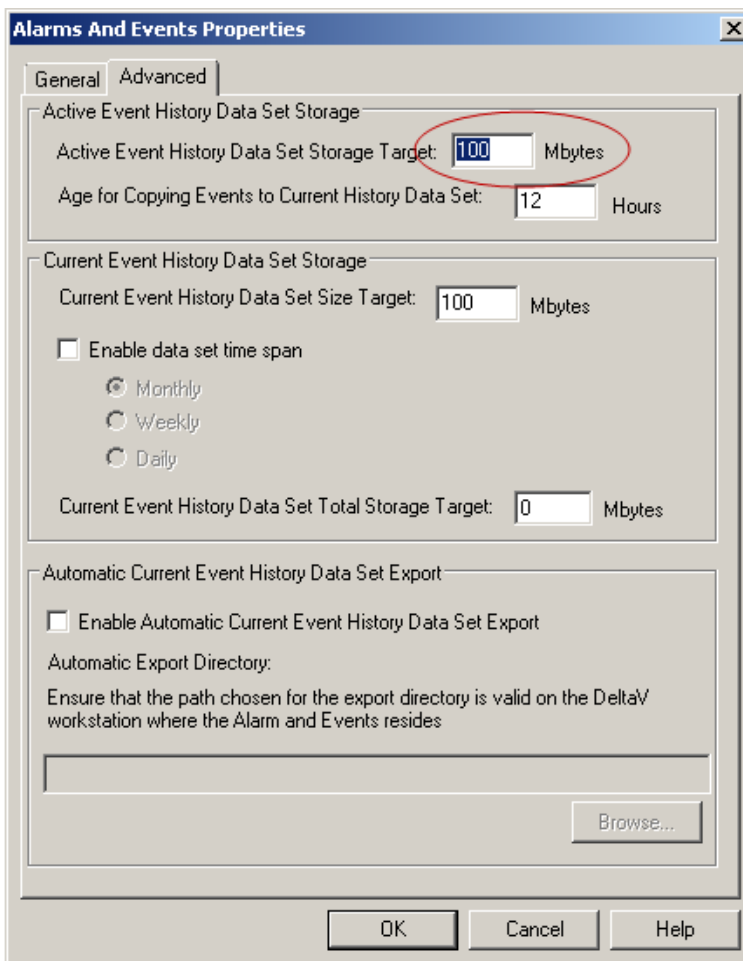


Figure 4 - Decreasing the Active Event History Data Set Storage

- 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 through “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...'

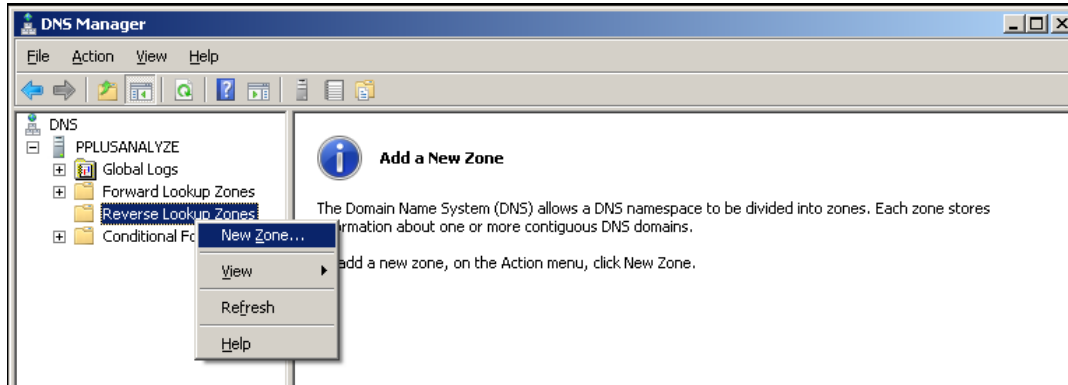


Figure 5

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

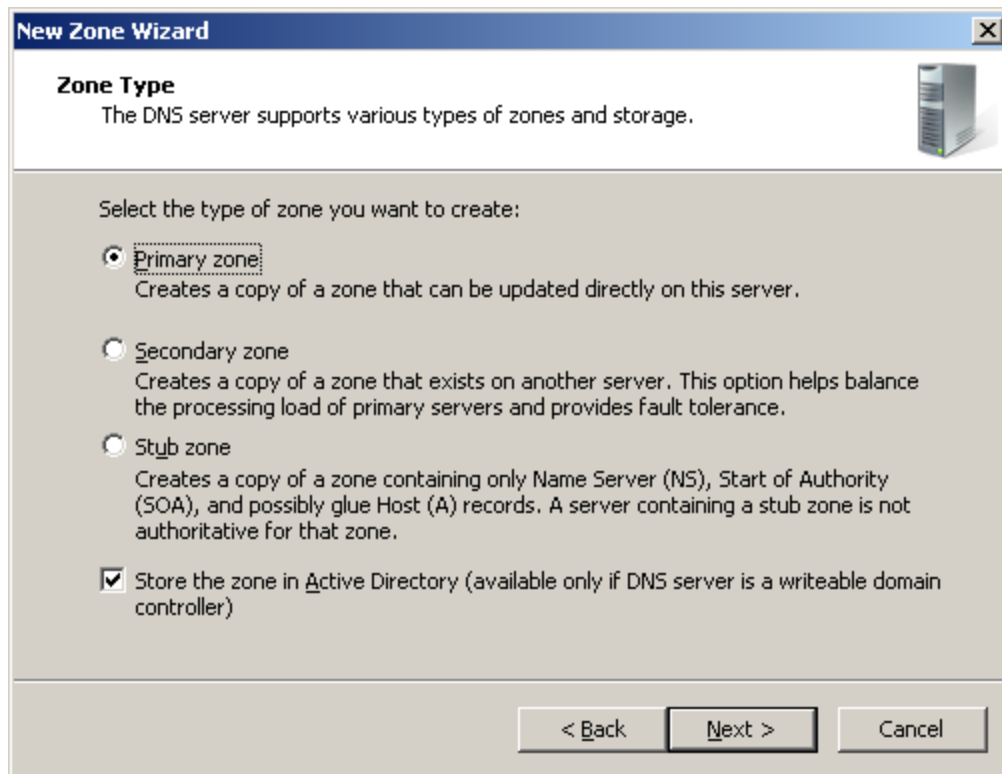


Figure 6

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

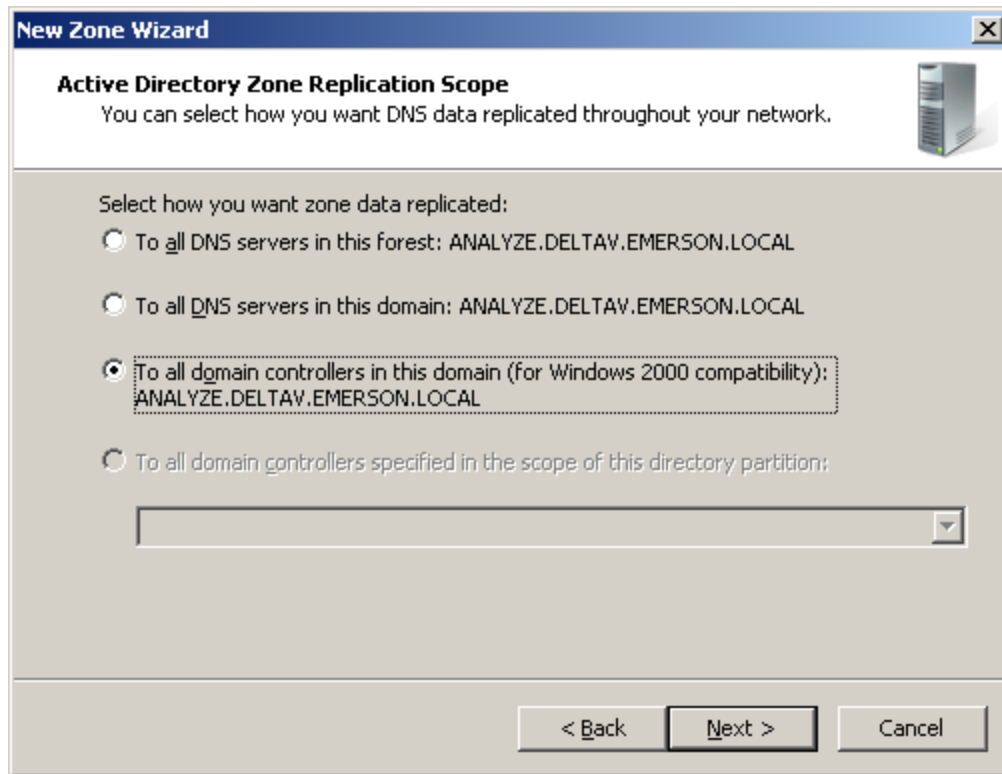


Figure 7

6) Select IPv4 Reverse Lookup Zone

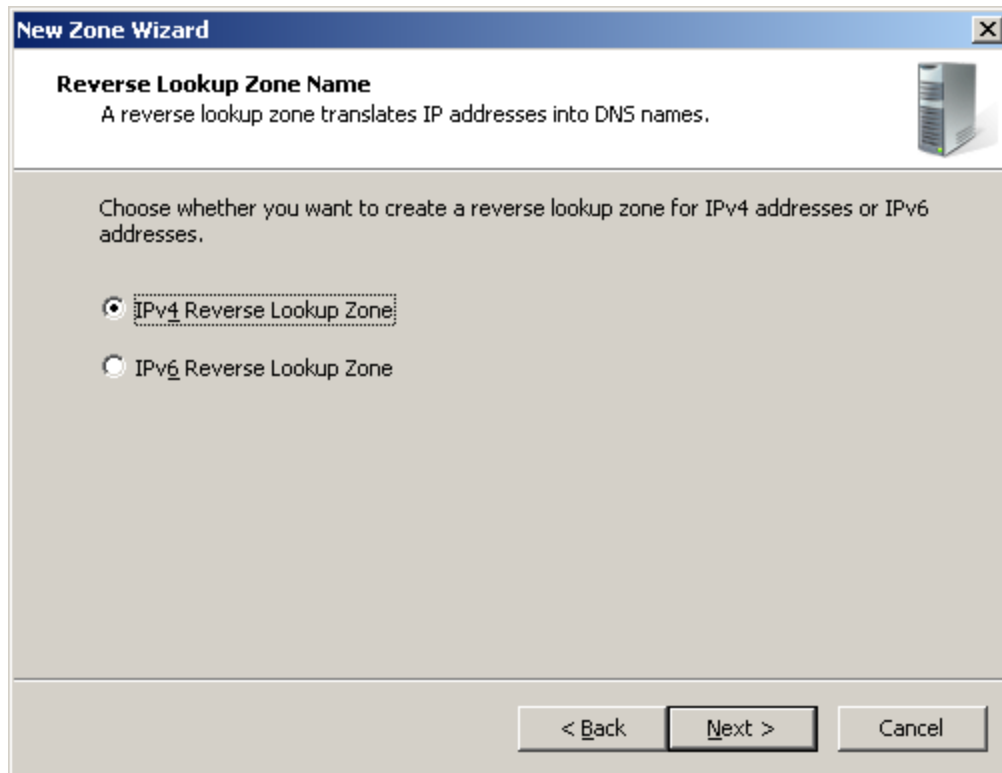


Figure 8

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

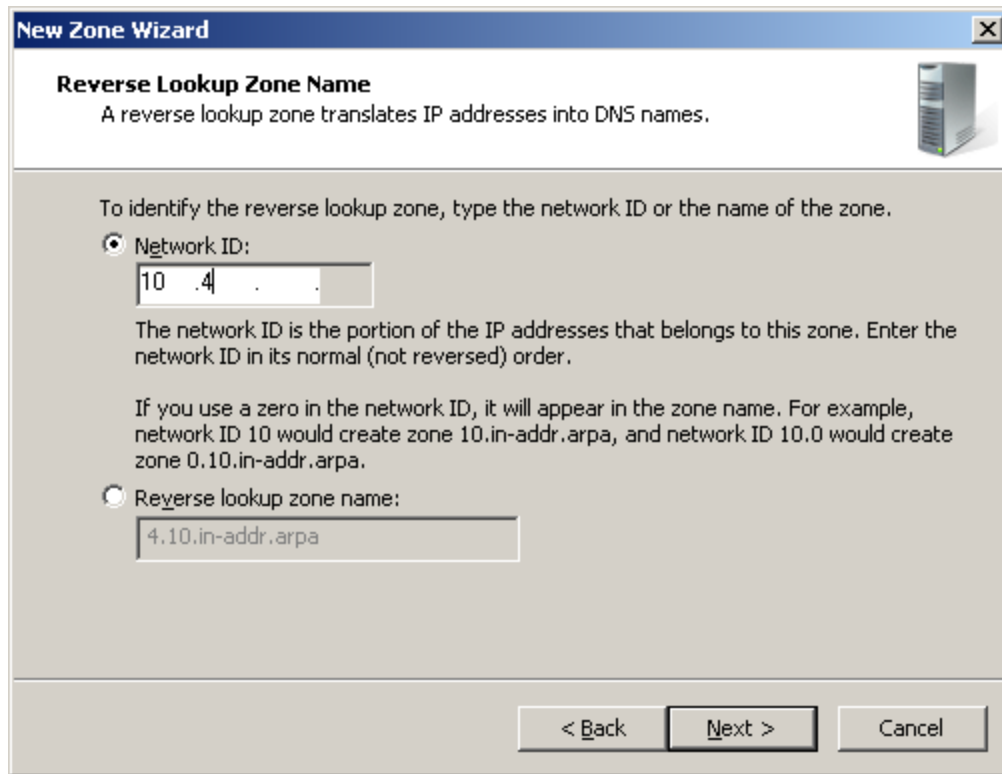


Figure 9

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

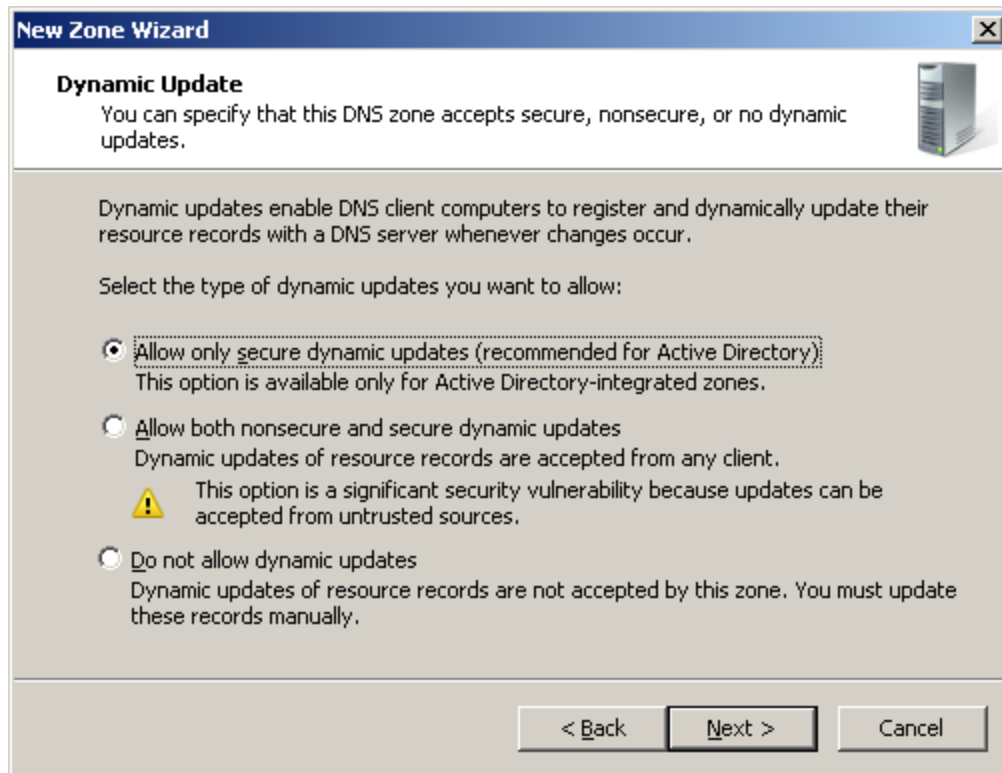


Figure 10

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

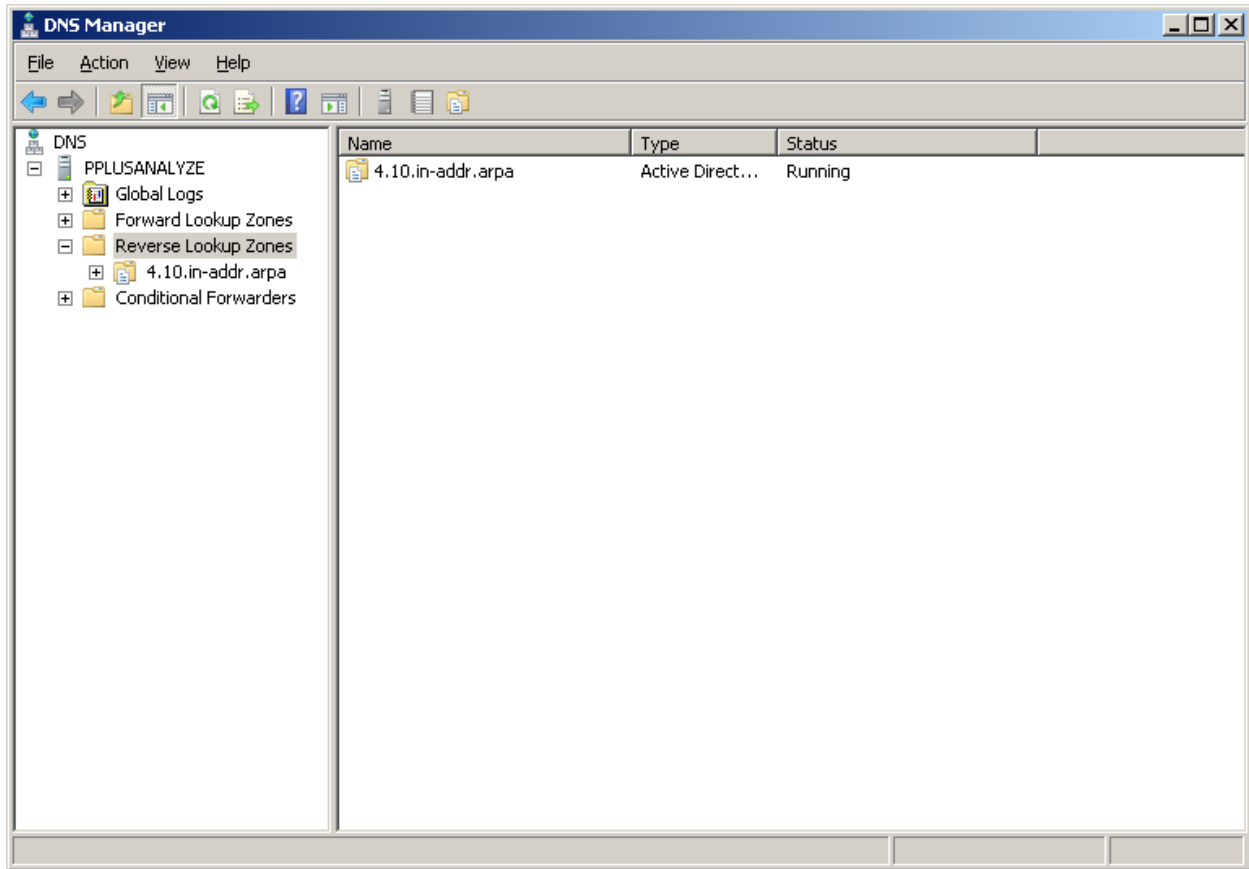


Figure 11

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

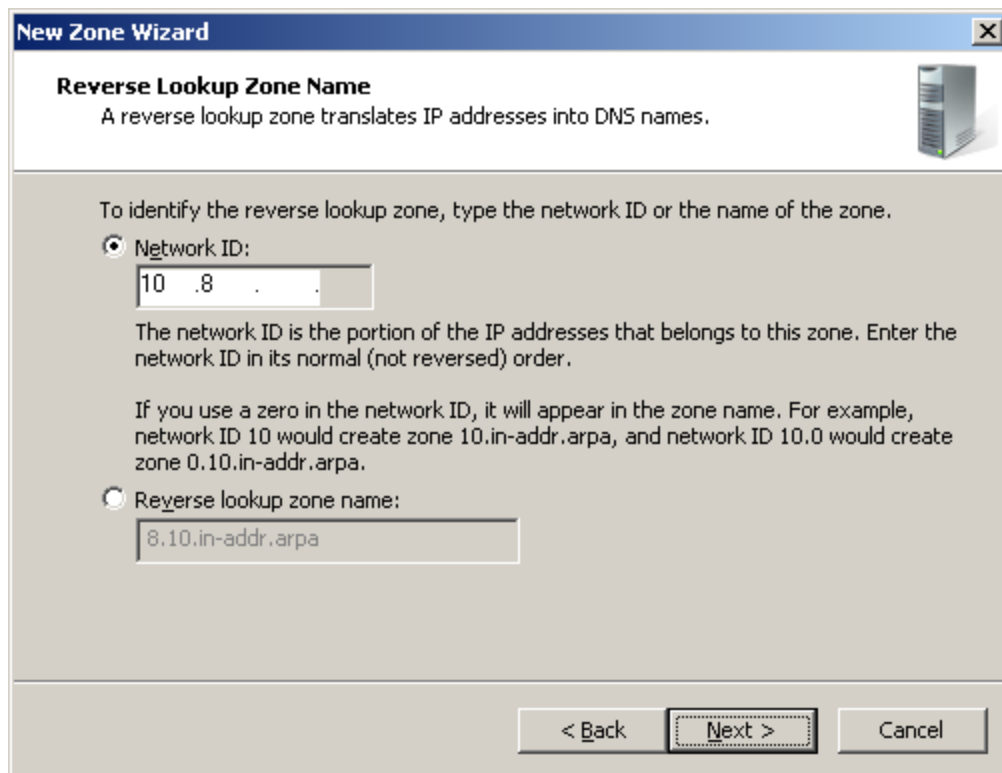


Figure 12

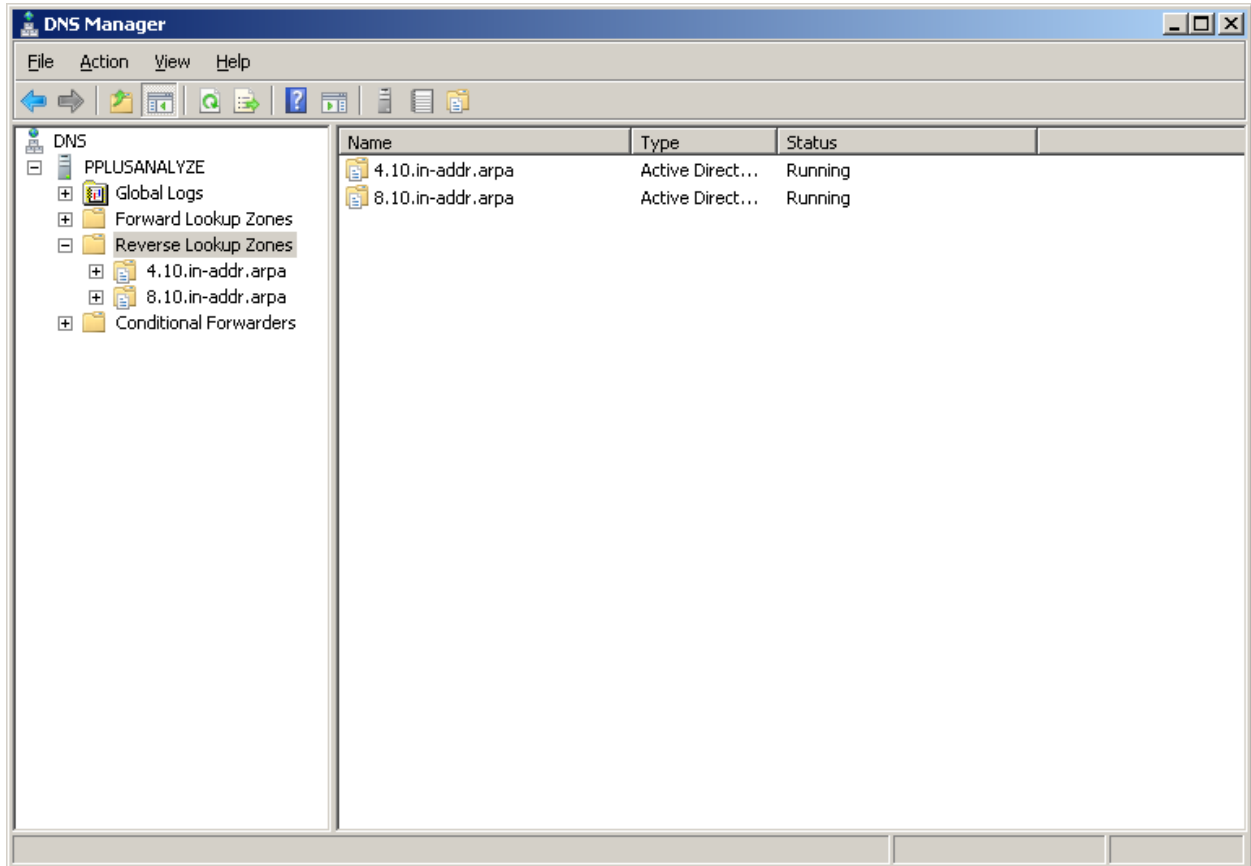


Figure 13

- 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:

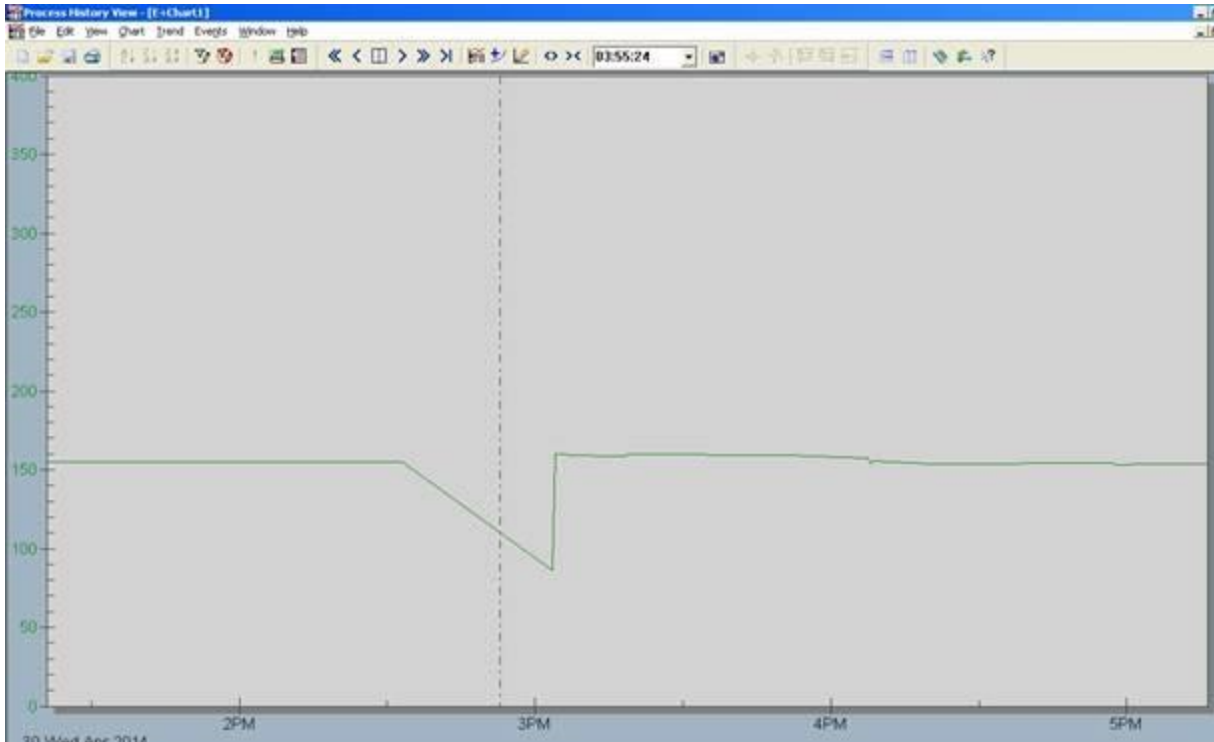


Figure 14 - Trend with Display Compression set to Automatic, at lower resolution.

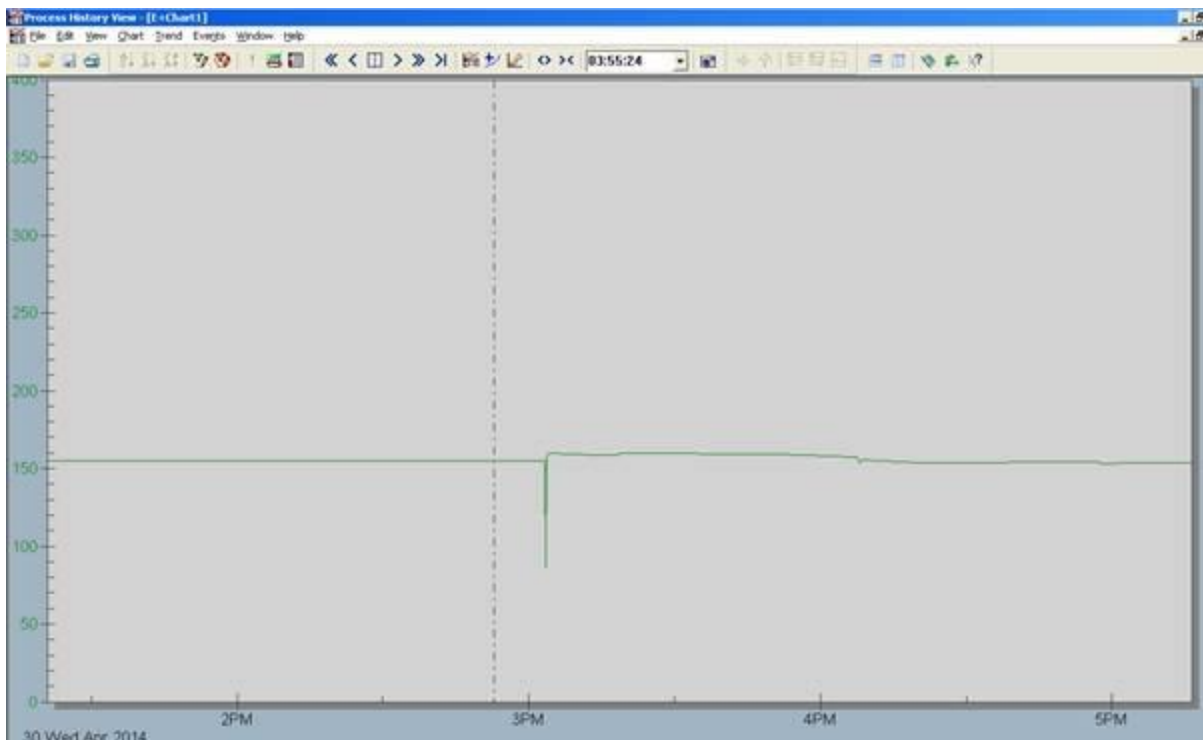


Figure 15 - Trend with Display Compression set to None, at higher resolution

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:

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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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