Tech Note 869
Configuring Historian Server for Local Data Summarization

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Introduction

Wonderware Historian Server provides Summary replication to store and retrieve summarized data so that you can access and analyze the data quickly, without having to perform ad-hoc calculations on the fly. Summary replication involves analyzing and storing statistical information about tag values based on specified time intervals, called calculation cycles. The summary results can be stored on a Tier-1 (local) Historian, or sent to a Tier-2 (remote) Historian to be stored with the timestamp of the cycle.

There are two types of summary replication: **Analog** summary replication and **State** summary replication. Analog summary replication produces summary statistics for analog tags. The statistics relate only to the recorded interval. State summary replication summarizes the various states of a tag value. State summary replication can be applied to analog (integer only), discrete, and string tags.

Using local replication, Analog and State summary data can be stored for quick retrieval by configuring replication tags that correlate with the source tag (Figure 3 below). This Tech Note shows you how to configure the Historian Server to replicate analog summary data locally using a local Replication Server.

Application Versions

- Historian Server 10 or later

- Microsoft SQL Server 2005 SP3 (32-bit)

  -or-

- Microsoft SQL Server 2008 R2 (32-bit)

Note: This Tech Note assumes that you are familiar with Wonderware Historian Server and Microsoft SQL Server Management Studio. If you have any questions regarding the Microsoft SQL Server, contact Microsoft Technical support at www.microsoft.com for further assistance.

Procedures

1. Open the ArchestrA System Management Console (SMC)

2. Expand **Historian\Historian Group\<Computer name>\Configuration Editor\System Configuration\Replication\Replication Servers\Local Replication\Analog Summary Replication** (Figure 1 below).
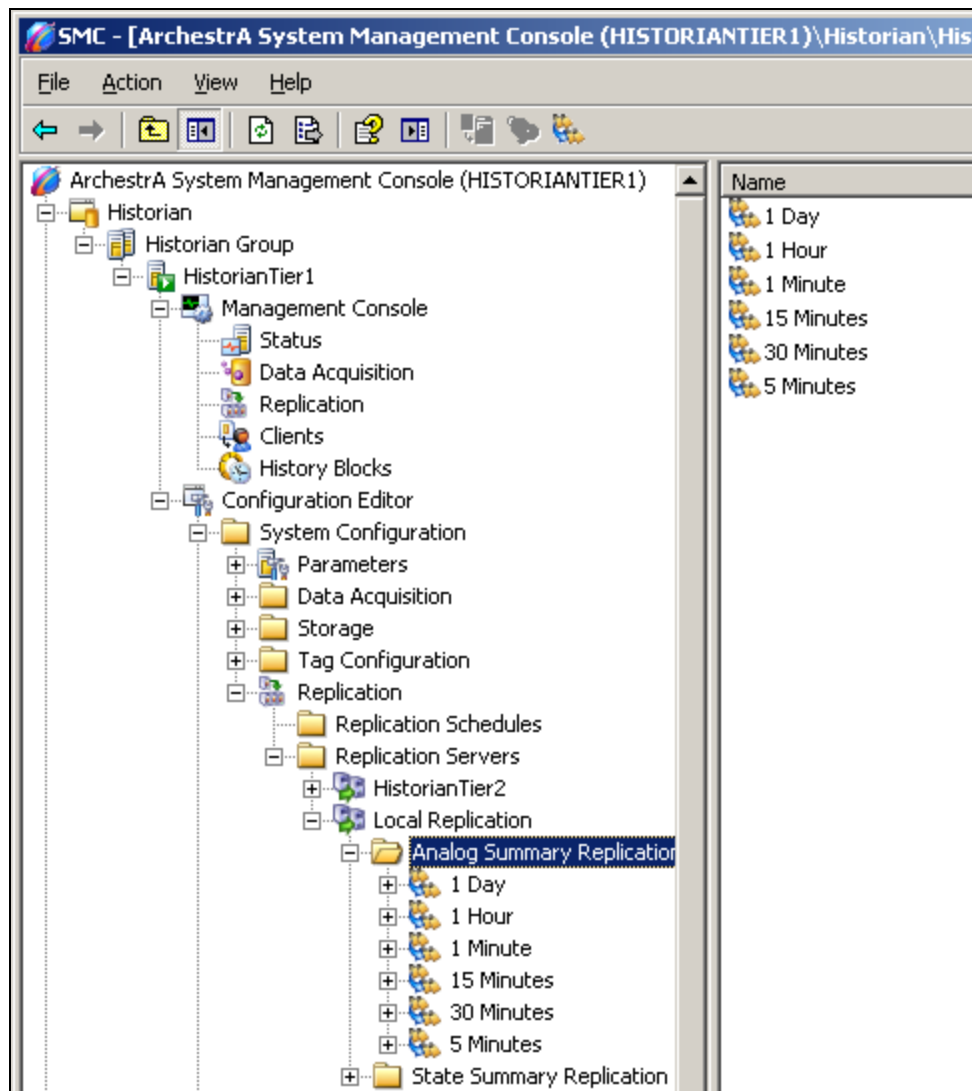
FIGURE 1: ANALOG SUMMARY REPLICATION IN THE SMC

3. Right click the desired calculation cycle. In this example we use **15 Minutes**.

4. Click **Add Multiple Tags**. The **Add Multiple Tags – Step 1 of 2 – Select tags to replicate** wizard appears (Figure 2 below).

FIGURE 2: ADDING MULTIPLE TAGS

5. Click **Find Now** to show all analog tags in the **Found Tags** panel.

6. Select teh tags you want to replicate, then click the **>** button in order to add the tags to the target tag list.

   In this example, we use **ProdLevel**, **ReactLevel**, and **ReactTemp**.

7. Click **OK**. The **Add Mutiple Tags – Step 2 of 2 – Create replication** wizard appears (Figure 3 below). Figure 3 shows the destination tag names to which the source tags will be replicated.

   Destination tags are provided with a suffix corresponding to the calculation cycle such as **15M**. You can override the default values shown in Figure 3.
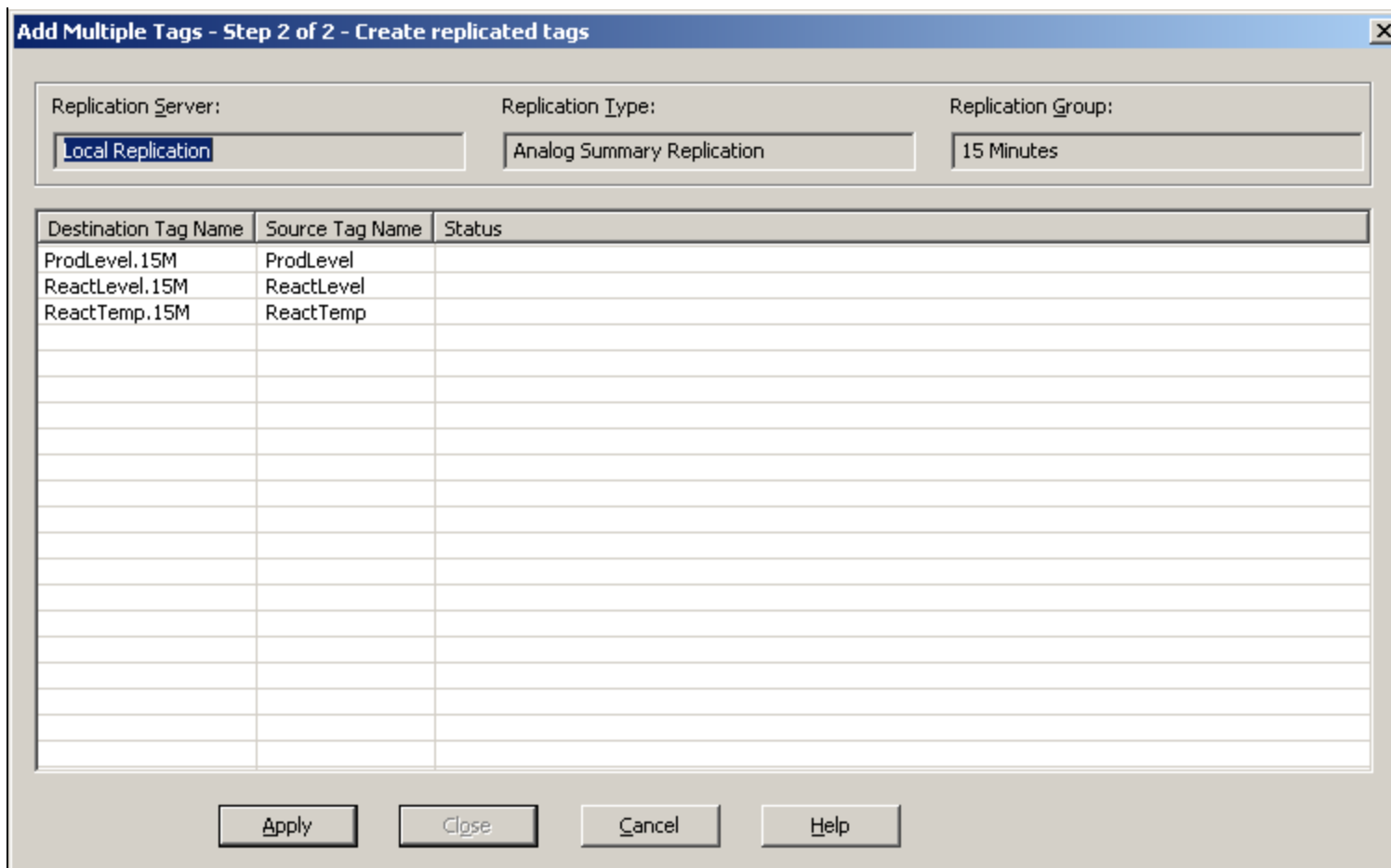
FIGURE 3: CREATE REPLICATED TAGS

8. Click **Apply**. The **Status** column shows **Passed** for every tag (Figure 4 below).
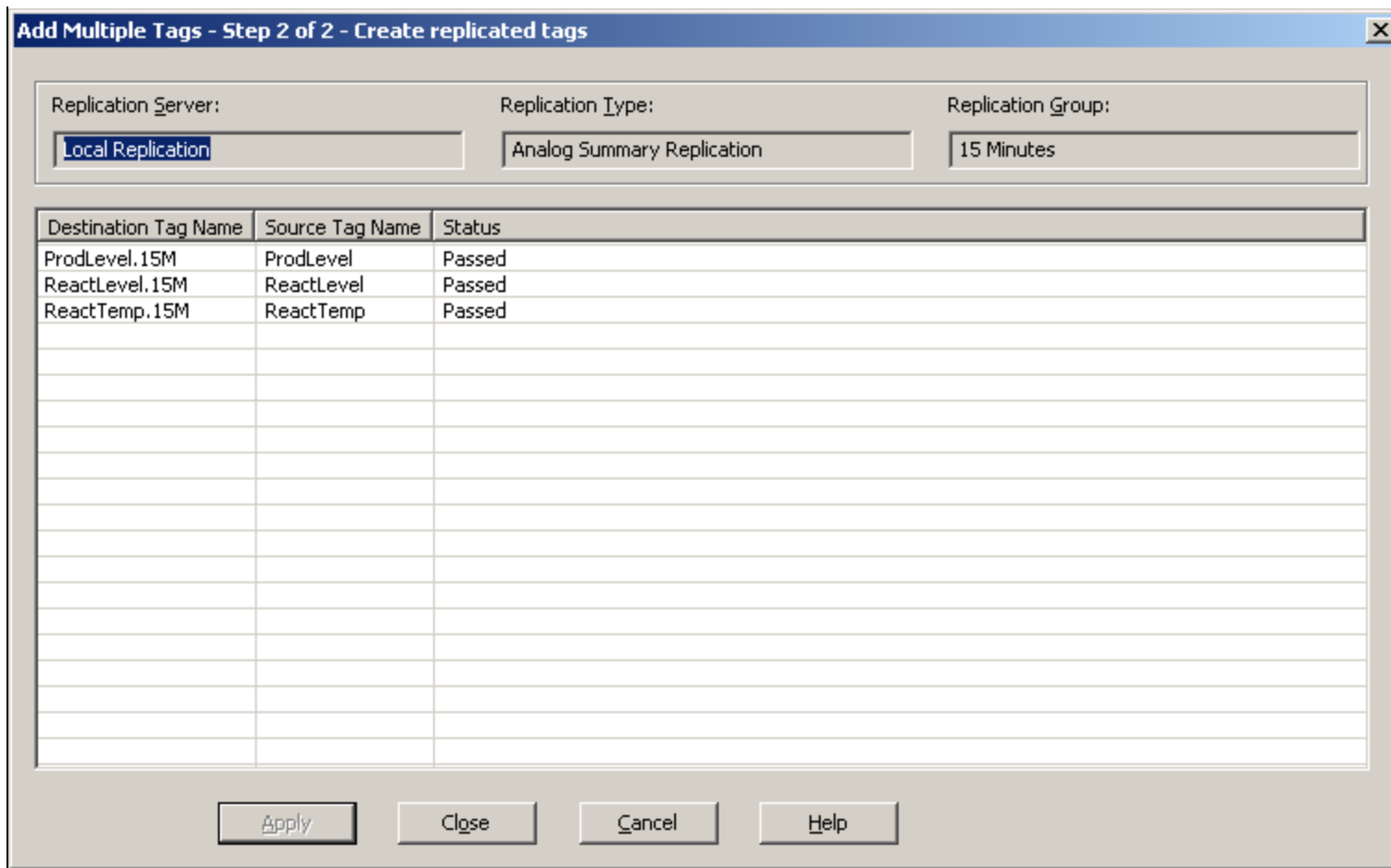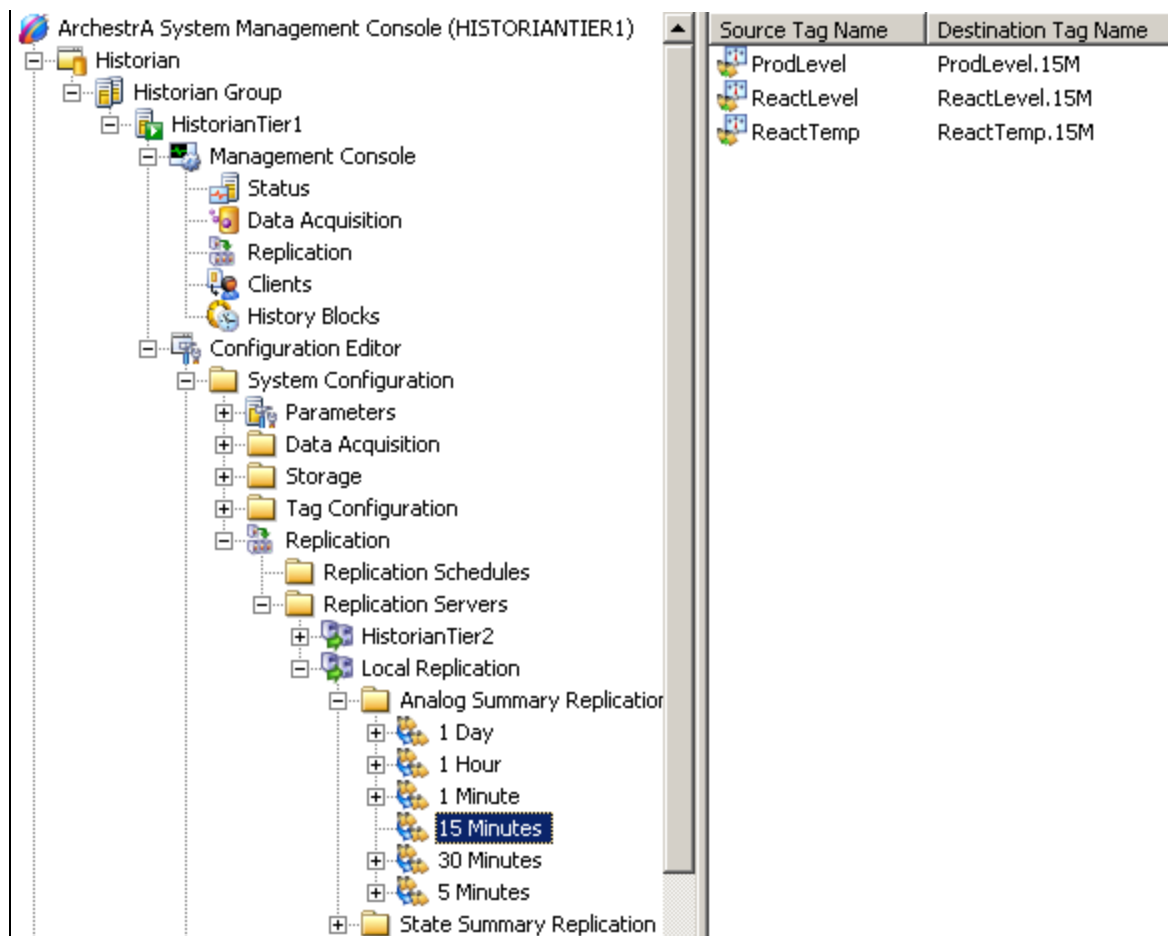
9. Click **Close**.

FIGURE 4: STATUS IS "PASSED"

The **Analog Summary Replication/15 Minutes** item now includes the newly-added tags (Figure 5 below).

FIGURE 5: TAGS APPEAR IN THE RIGHT-HAND PANEL

10. On the left pane of the SMC, right-click **Configuration Editor** and click **Commit Pending Changes** to apply the changes to the Runtime database.
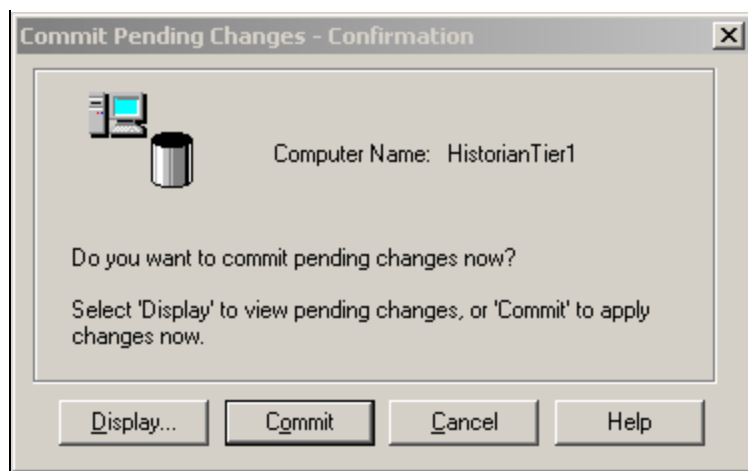
FIGURE 6: COMMIT PENDING CHANGES
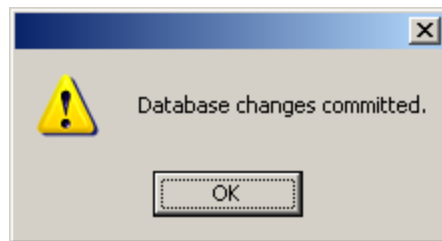
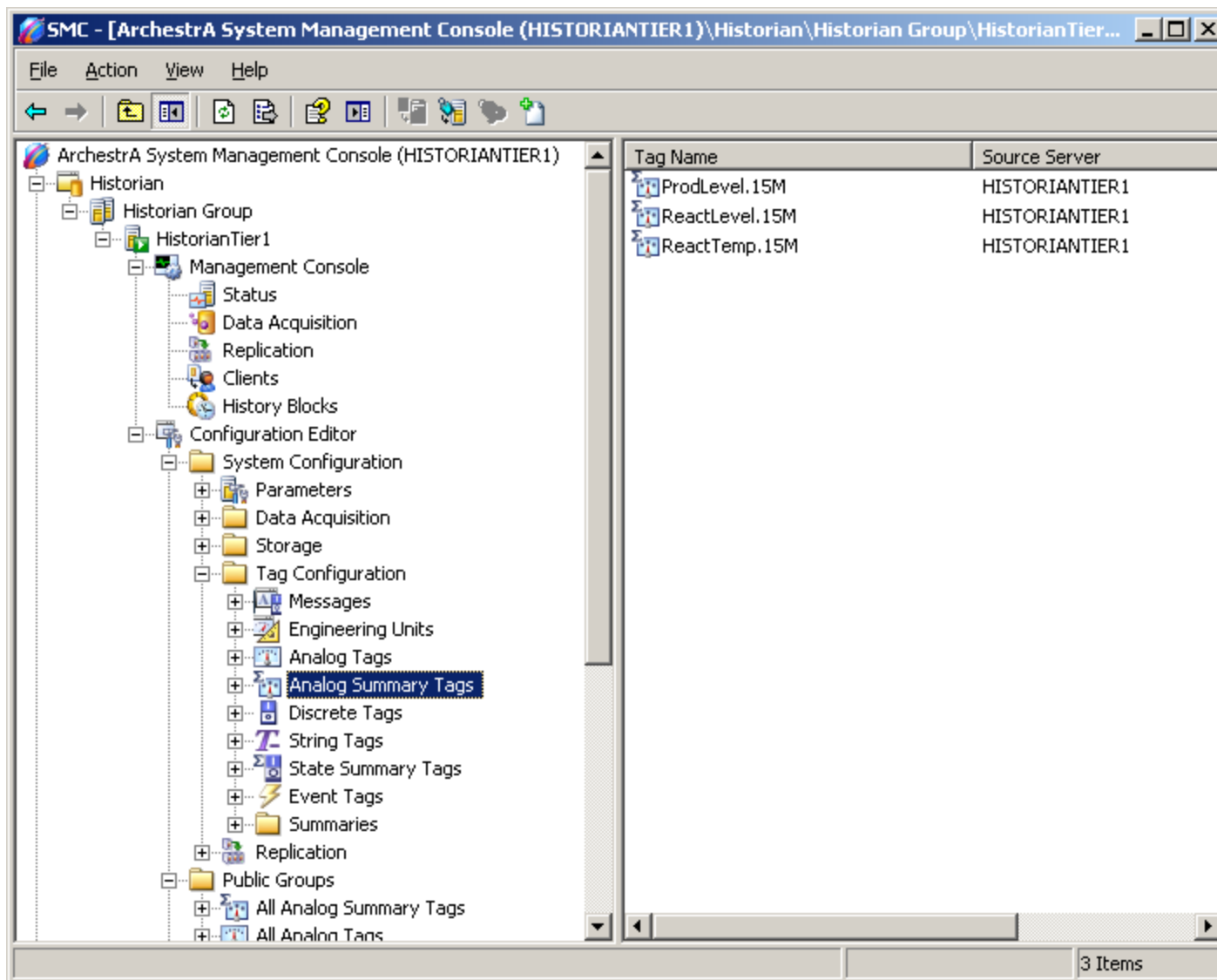11. Click **Commit**, then **OK**.

FIGURE 7: CHANGES COMMITTED

Monitoring Local Replication

1. On the left pane of the SMC, expand **Configuration Editor > Tag Configuration > Analog Summary Tags**. The newly-added tags are displayed in the right pane.

FIGURE 8: ANALOG SUMMARY TAGS DISPLAYED

2. On the left pane of the SMC, expand the **Management Console** item and click **Replication**. The **Local Replication** status appears in the right panel.

FIGURE 9: LOCAL REPLICATION

The panel includes the following columns:

- **Replication Server**: The name of the remote replication server, or "Local Replication" when replicating locally.

- **Status**: The status of replication to the replication server.

- **Total Tags**: The total number of tags being replicated to the replication server.

- **Values/Sec**: The average number of data values replicated per second.

- **Sync Queue Values/Sec**: The average number of synchronization queue values replicated per second.

- **Total Values**: The total number of values being replicated.
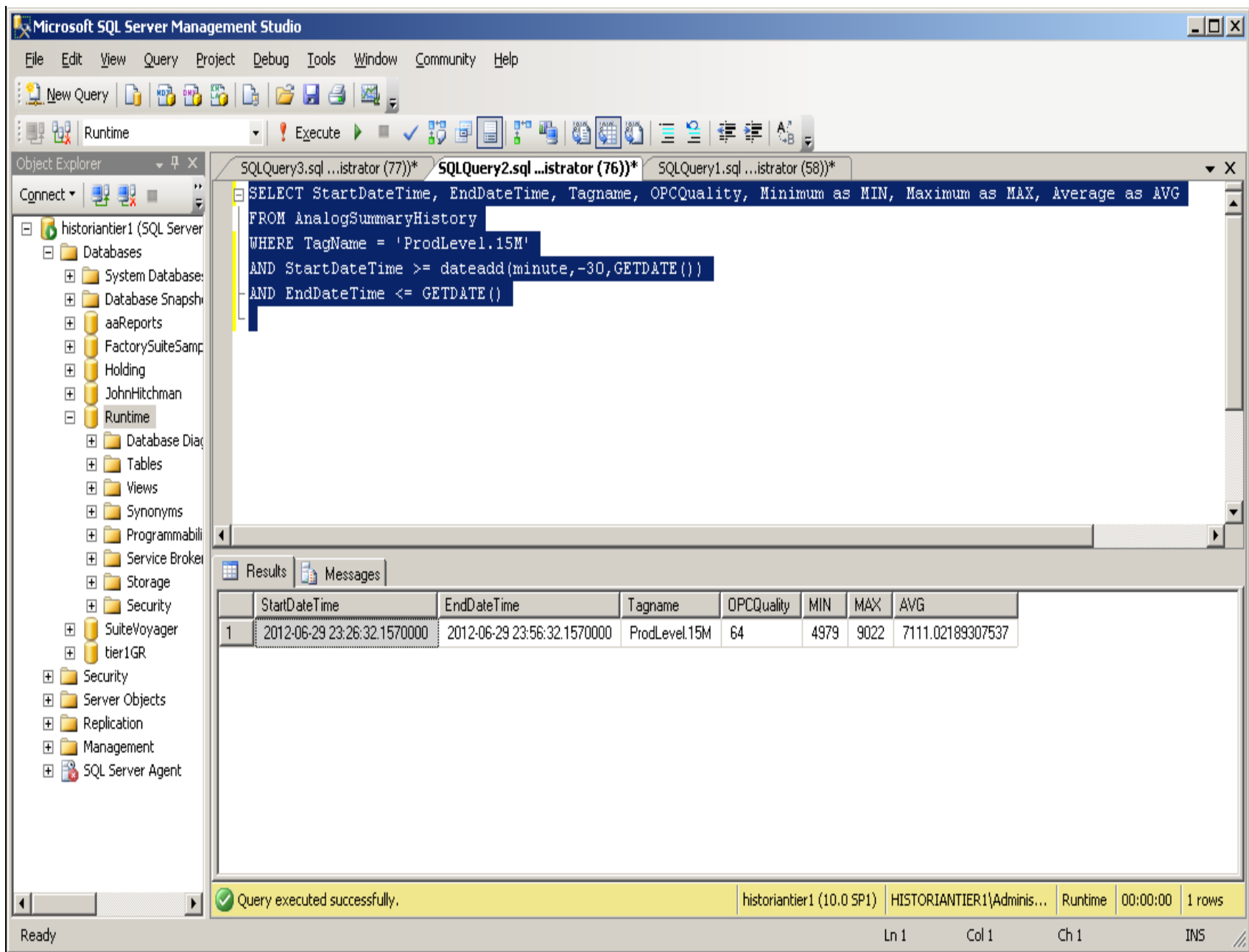
Querying AnalogSummaryHistory

Analog summary replication produces summary statistics for analog tags. The statistics relate only to the recorded interval. You can retrieve the following statistics:

- Time-weighted average

- Standard deviation

- Integral

- First value in a period with timestamp

- Last value in a period with timestamp

- Minimum value in a period with timestamp

- Maximum value in a period with timestamp

- Start time of summary period

- End time of summary period

- OPC Quality

- Percentage of values with Good quality

- Value

When you retrieve the data, you specify which calculation you want to return. The AnalogSummaryHistory view allows you to return multiple statistics for a single tag within a single query. The following query returns the minimum, maximum, and average values for the SysTimeSec tag for the last minute.

```sql
SELECT StartDateTime, EndDateTime, Tagname, OPCQuality, Minimum as MIN, Maximum as MAX, Average as AVG
FROM AnalogSummaryHistory
WHERE TagName = 'ProdLevel.15M'
AND StartDateTime >= dateadd(minute,-30,GETDATE())
AND EndDateTime <= GETDATE()
```

FIGURE 10: ANALOG SUMMARY HISTORY VIEW RETURNS MULTIPLE STATISTICS

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For technical support questions, send an e-mail to **wwsupport@invensys.com**.

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