DIAView

Historical variables

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Outline

- History Overview

- Database Configuration

- Variable record Configuration

- History group record Configuration

- Script

Purpose

After this chapter, you will learn ...

… Historical database configuration

… Variable record configuration and script

… Historical group record configuration and script

➢ Various data will be generated when the project is running.

➢ These data are very valuable for users to understand the production status and historical status.

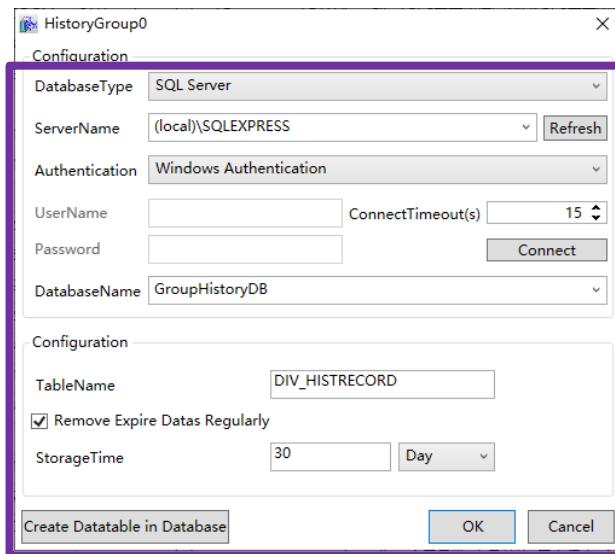 The historical record function provides the recording and query of these data.

- Support <u>variable records</u> and <u>historical group records</u>;

- Various storage modes: <u>timing record</u>, <u>change record</u>, <u>general storage, difference storage</u>;

- Built-in timer to achieve flexible and convenient storage and query interval;

- Support <u>My SQL, SQL Server, SQL Compact, Oracle</u> and other different databases;

- Support the display of diverse historical records such as <u>reports</u> and <u>historical curves</u>;
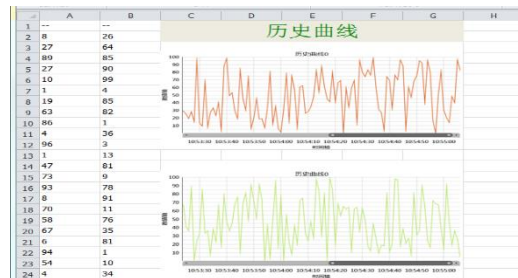
Database Configuration

> The data of the historical record is stored in the specified Database. Before the historical record starts, the variable record and the historical group record need to be configured with the Database.

- **DatabaseType**: Data source type, variable records support SQL Server, and history record group support SQL Server Compact \ SQL Server \ Oracle \ My SQL
- **ServerName**: The name or IP address of the database server to be connected, click the drop-down button will automatically search the server in the network
- **Authentication**: There are two authentication methods: Windows Authentication, SQL Authentication
- **Connect**: Connection test to test whether it can connect to the database server
- **DatabaseName**: Database name to be used
- **TableName**:Name of the data table to be used
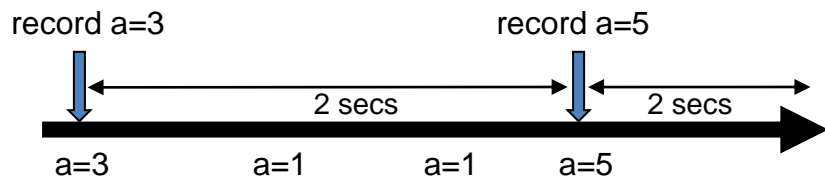- **Create Datable in Database**: After clicking this button, DIAView constructs a table in Database according to the configuration of Database

Record Variable configuration

➤ There are two modes to record variables:
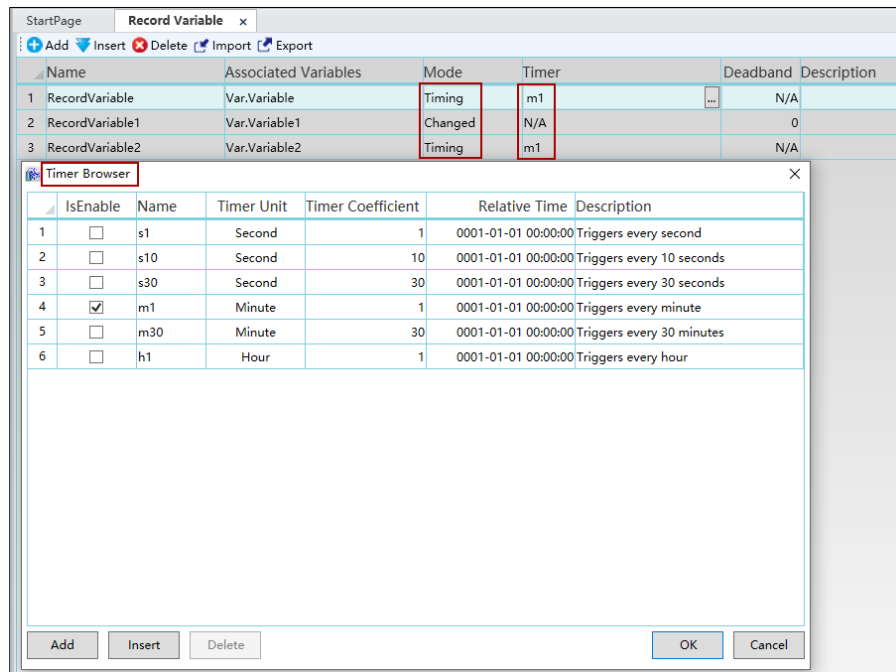
① **Timing**:

Example: Time unit is 2 sec.
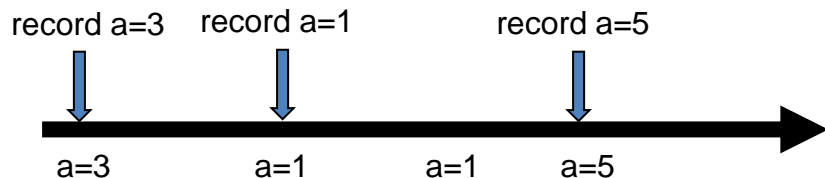
record a=3   record a=5

← 2 secs → | ← 2 secs →

a=3   a=1   a=1   a=5

① **Changed**:

Example:

record a=3   record a=1   record a=5

a=3   a=1   a=1   a=5

StartPage | **Record Variable** ✕

⊕ Add ▼ Insert ✖ Delete ⬀ Import ⬀ Export

	Name	Associated Variables	Mode	Timer		Deadband	Description
1	RecordVariable	Var.Variable	Timing	m1	...	N/A	
2	RecordVariable1	Var.Variable1	Changed	N/A		0	
3	RecordVariable2	Var.Variable2	Timing	m1		N/A	
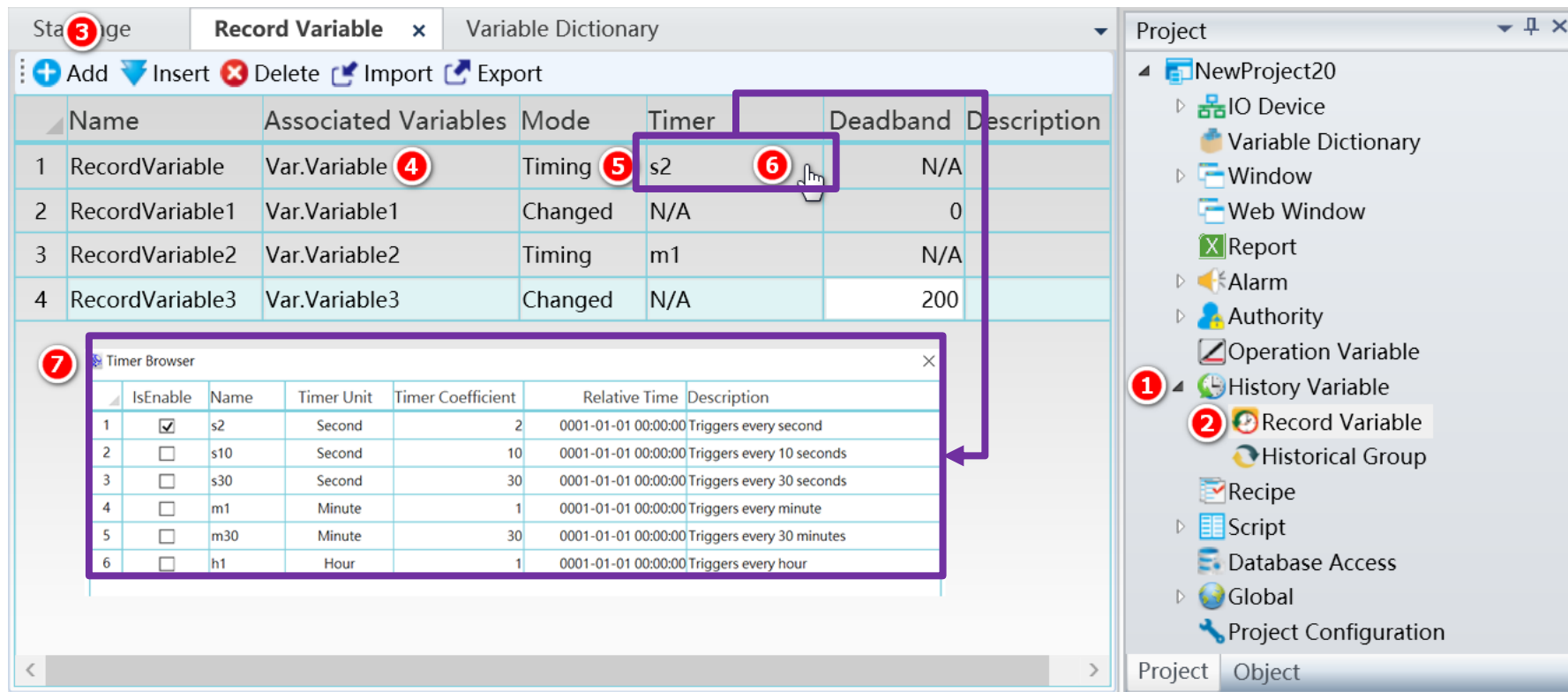
Timer Browser ✕

	IsEnable	Name	Timer Unit	Timer Coefficient	Relative Time	Description
1	☐	s1	Second	1	0001-01-01 00:00:00	Triggers every second
2	☐	s10	Second	10	0001-01-01 00:00:00	Triggers every 10 seconds
3	☐	s30	Second	30	0001-01-01 00:00:00	Triggers every 30 seconds
4	☑	m1	Minute	1	0001-01-01 00:00:00	Triggers every minute
5	☐	m30	Minute	30	0001-01-01 00:00:00	Triggers every 30 minutes
6	☐	h1	Hour	1	0001-01-01 00:00:00	Triggers every hour

Add | Insert | Delete | OK | Cancel

Record Variable configuration

① **Timing mode example**: How to set up a RecoredVariable record every 2 sec.

Record Variable configuration

② **Changed mode example**: How to set up a RecoredVariable record in changed mode?

	Name	Associated Variables	Mode	Timer	Deadband	Des
1	RecordVariable	Var.Variable	Timing	s1	N/A	
2	RecordVariable1	Var.Variable1	Changed	N/A	1	
3	RecordVariable2	Var.Variable2	Timing	m1	N/A	
4	RecordVariable3	Var.Variable3	Changed	N/A	3	

Project
- HistoricalVariables
  - IO Device
  - Variable Dictionary
  - Window
  - Web Window
  - Report
  - Alarm
  - Authority
  - Operation Variable
  - History Variable
    - Record Variable
    - Historical Group
  - Recipe
  - Script
  - Database Access
  - Global
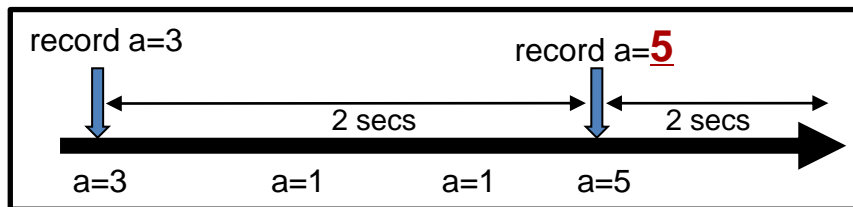 - Project Configuration

Project Object

History group configuration

➢ The historical group record records historical variables in groups, and each group can be associated with up to 256 variables.
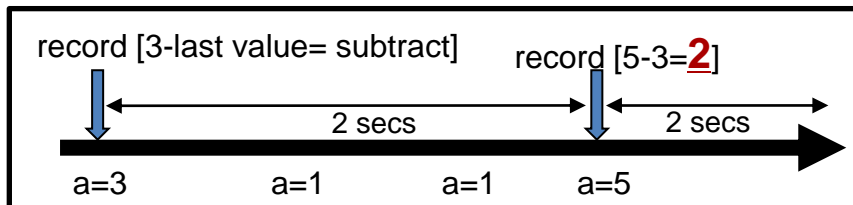
- Storage method:

① **General storage**: record real-time data generated by variables;
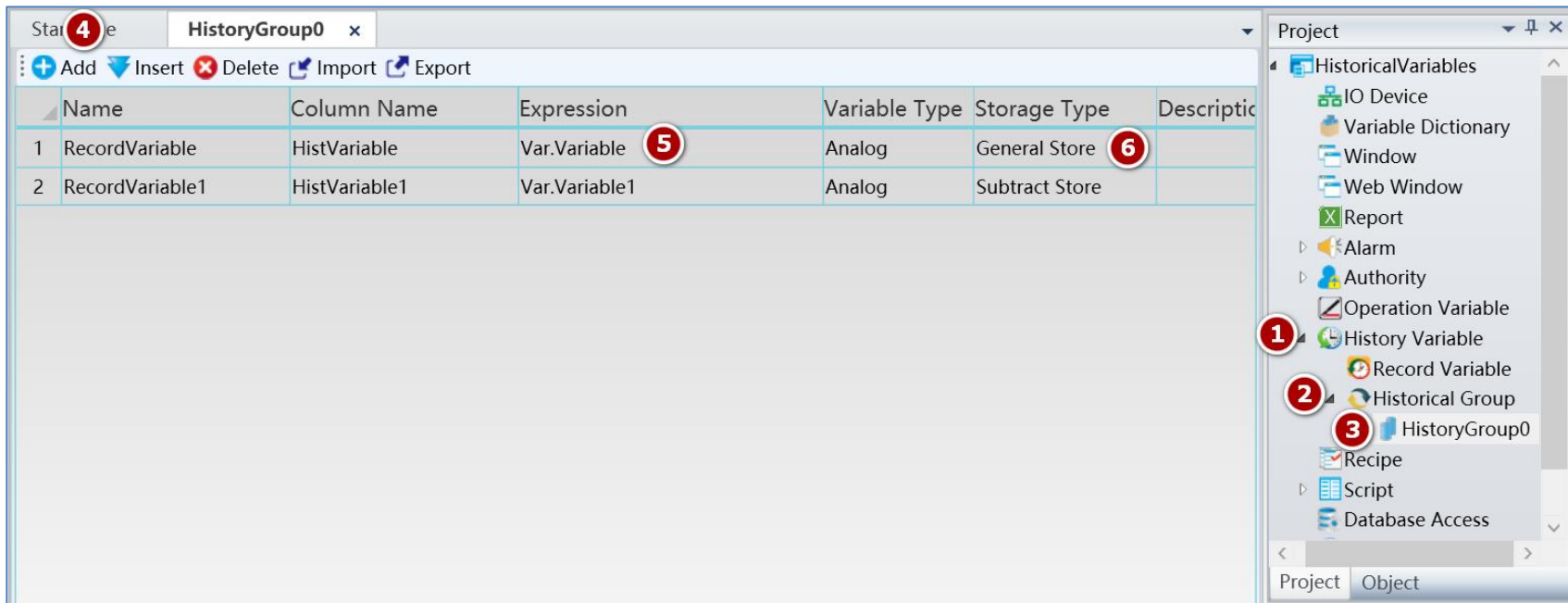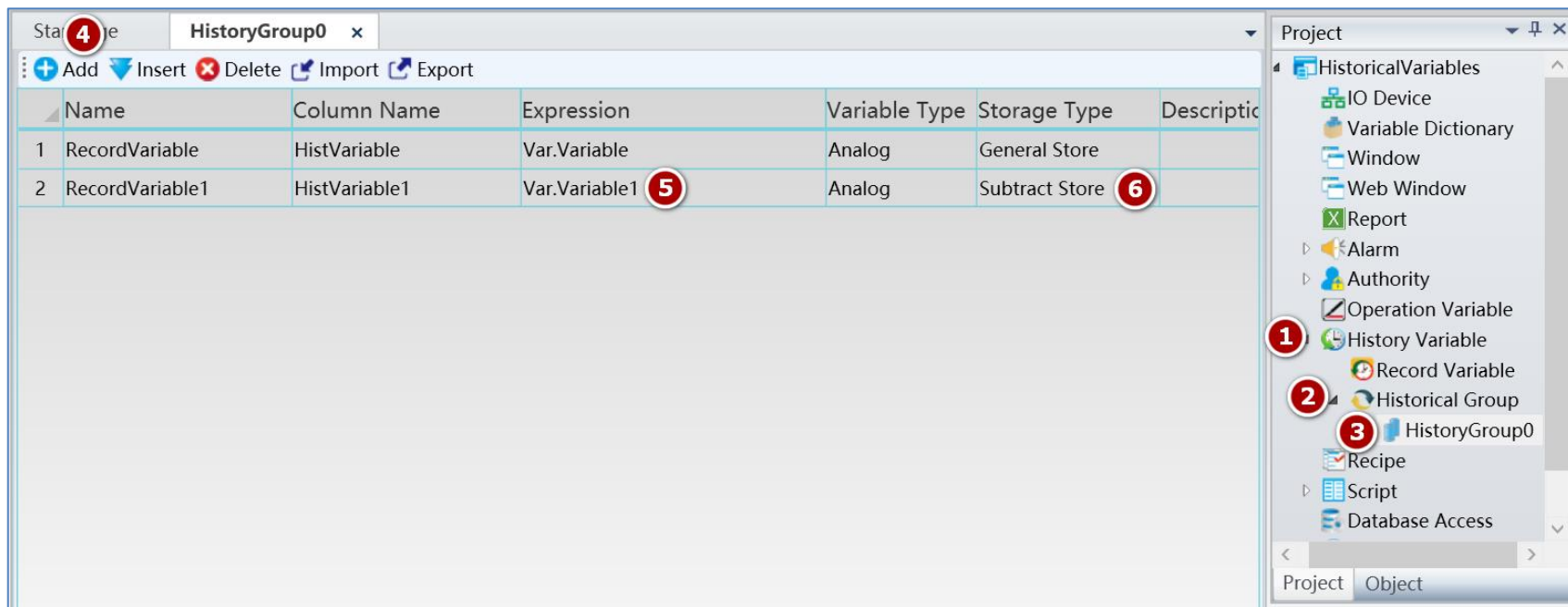
– Time trigger

– Time unit = 2 sec

```
record a=3                          record a=5
   ↓                                   ↓
   |←————————— 2 secs ———————————→|←—— 2 secs ——→
   ═══════════════════════════════════════════════►
   a=3          a=1          a=1          a=5
```

① **Subtract storage**: record the difference between the data generated by the variable and the last data

– Time trigger

– Time unit = 2 sec

```
record [3-last value= subtract]    record [5-3=2]
   ↓                                   ↓
   |←————————— 2 secs ———————————→|←—— 2 secs ——→
   ═══════════════════════════════════════════════►
   a=3          a=1          a=1          a=5
```

Record Variable configuration

① **General storage**.

Record Variable configuration

② **Subtract storage :**

Record Variable configuration

① **Time Trigger:**
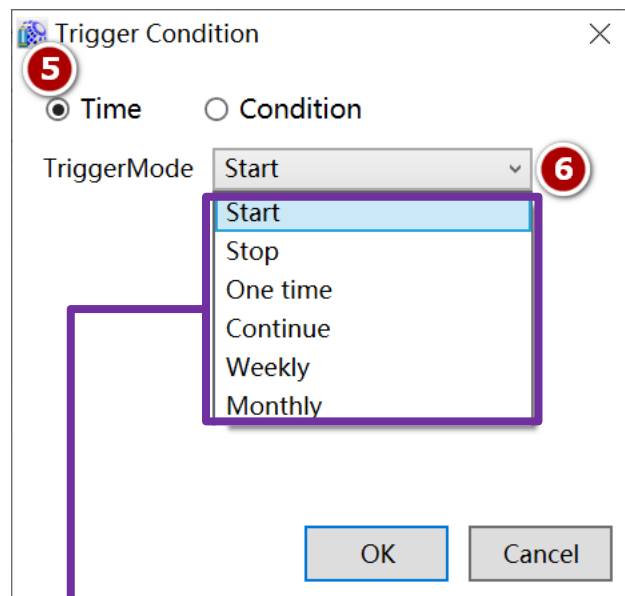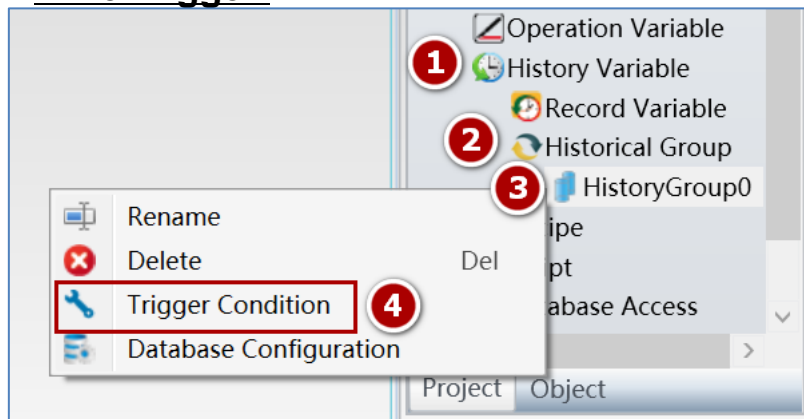
Start	Record a piece of data at startup
Stop	Record a piece of data when stopped
One time	Record a piece of data at a fixed time
Continue	Record data continuously
Weekly	Record data continuously every week
Monthly	Record data continuously every month

> There are two method to trigger:

② **Condition Trigger:**
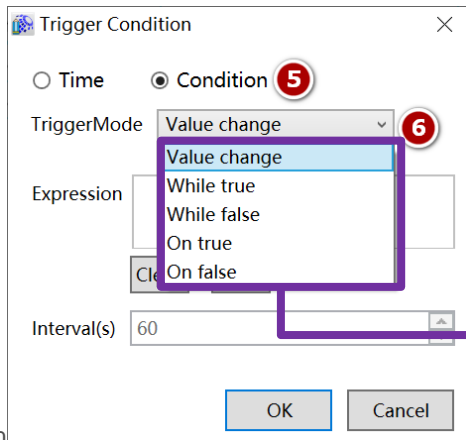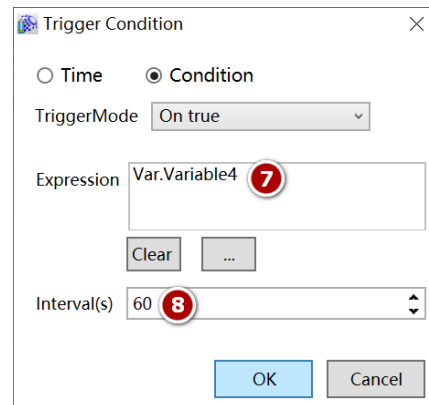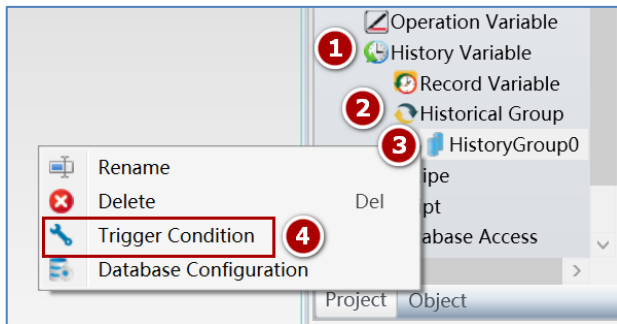
| Value change	Triggered when the expression value changes
While true	Triggered when the expression value changes to true
While false	Triggered when the expression value changes to false
On true	Triggered when the expression value remains true
On false	Triggered when the expression value remains false
Value change	Triggered when the expression value changes

Variable record query script

> Example1:
> The variable record is read through the script and displayed in the report.

- QueryHistoryDataByCommon(sheetIndex, conditions, types): variable record query
  - sheetIndex: worksheet index
  - conditions: Variable record collection, separated by commas
  - types: TriggeringTime, Value, can also be replaced with 0 and 1 respectively
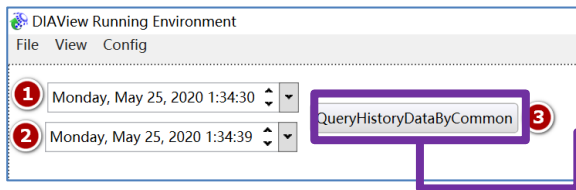

```
DateTimePicker0.Value = Sys.StartTime
DateTimePicker1.Value = Sys.Now
Call Report0.SetWorkSheetStartTime(0,DateTime
Picker0.ValueTime)
Call Report0.SetWorkSheetEndTime(0,DateTime
Picker1.ValueTime)
Call Report0.SetVarRecordRulerName(0,"m1")
Call Report0.QueryHistoryDataByCommon(0,"Var
Record.RecordVariable,VarRecord.RecordVariabl
e,VarRecord.RecordVariable2","0,1,1")
```
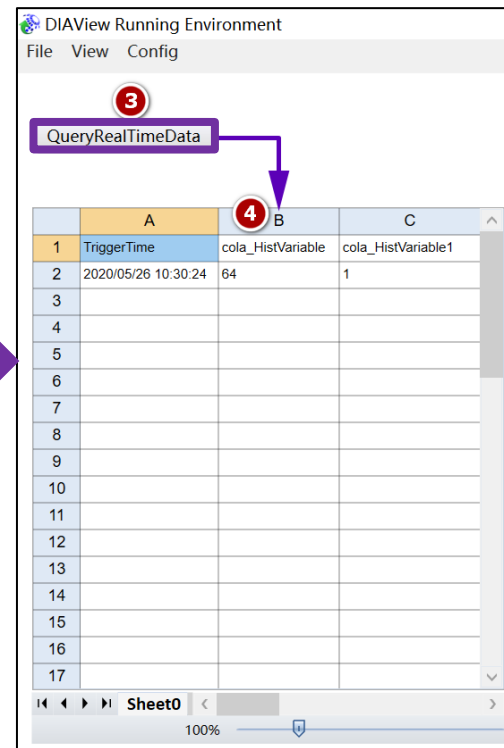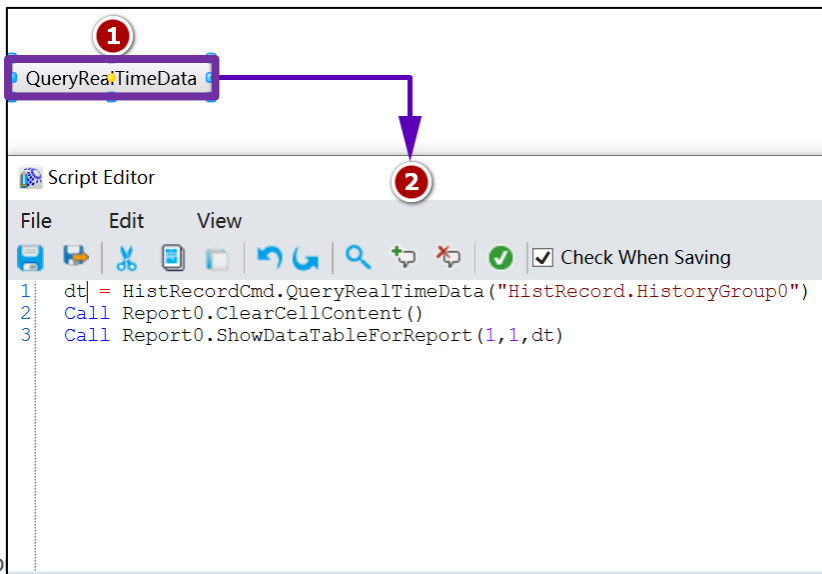
Query history group record script

> Example 2:

Read the real-time data of the historical record group through the script and display it with the report.

- QueryRealTimeData: query real-time data of historical record group;


```
1  dt = HistRecordCmd.QueryRealTimeData("HistRecord.HistoryGroup0")
2  Call Report0.ClearCellContent()
3  Call Report0.ShowDataTableForReport(1,1,dt)
```

Query history group record script

> Example 3:

Read the historical record group data through the script and display it with the report.

- QueryWithStorageItemName: Query historical record group data, the example is to query the data of the last hour;
- Use the DateAdd function to set the query time range to the past hour;

Script Editor

```
Dim StartTime
StartTime = DateAdd("h",-1,Now())
dt = HistRecordCmd.QueryWithStorageItemName("HistoryGroup0","RecordVariable,RecordVariable1",StartTime,Sys.Now,-1)
Call Report1.ClearCellContent()
Call Report1.ShowDataTableForReport(1,1,dt)
```
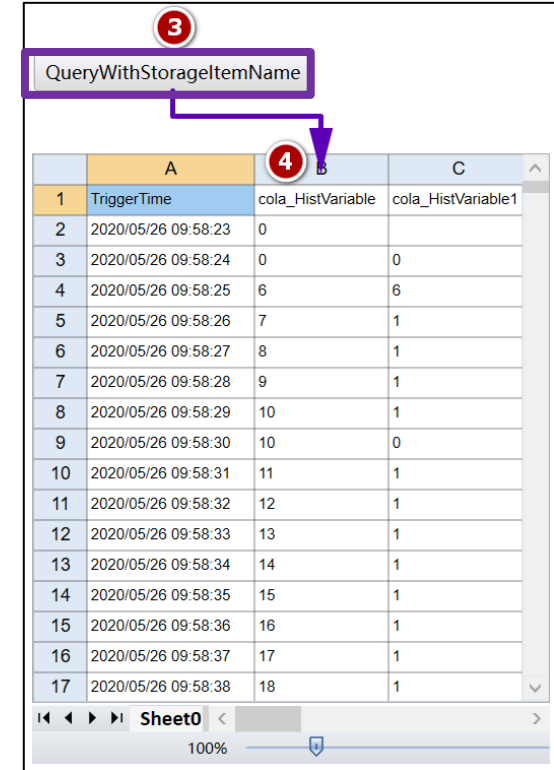
	A	B	C
1	TriggerTime	cola_HistVariable	cola_HistVariable1
2	2020/05/26 09:58:23	0	
3	2020/05/26 09:58:24	0	0
4	2020/05/26 09:58:25	6	6
5	2020/05/26 09:58:26	7	1
6	2020/05/26 09:58:27	8	1
7	2020/05/26 09:58:28	9	1
8	2020/05/26 09:58:29	10	1
9	2020/05/26 09:58:30	10	0
10	2020/05/26 09:58:31	11	1
11	2020/05/26 09:58:32	12	1
12	2020/05/26 09:58:33	13	1
13	2020/05/26 09:58:34	14	1
14	2020/05/26 09:58:35	15	1
15	2020/05/26 09:58:36	16	1
16	2020/05/26 09:58:37	17	1
17	2020/05/26 09:58:38	18	1

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