# <u>Smart Historian</u>

Collect, Visualize and Analyse

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	Introduction

#### 1 Introduction

Smart historian is high end industrial data management software.

#### **1.1 Features of Smart Historian Server**

- Running on WinCC, Cimplicity and Wonderware Scada
- Support Redundant Server configuration
- Cyclic, Daily and Event based report
- Supports Win10, Win7 OS
- unlimited report
- Collect real-time data from OPC DA server (PLC, Scada)
- Store the data in user defined tabular format.
- Generate customize database table format with interactive UI
- Visualise data for management view.
- Consumes Less Database size.
- Minimum PC configuration required
- MySql support
- Web view on Chrome browser
- Trigger report from any PC from network

# 2 Smart Historian Architecture

Smart Historian can be used on same PC along with Scada or with ant dedicated historian PC on Network.



# 2.1 High level Overview



# 2.2 Device connectivity

Visual Connect supports OPC DA protocol, So it able to connect most of the scada like, WinCC, Cimplicity , Wonderware. Also with industrial software like matricon and Kepware .

# 2.3 Installation of MySql and Smart historian

Step1: Install MySQL server

Download link for MySQL <u>https://dev.mysql.com/downloads/mysql/</u> Install server and workbench both, also install ODBC connector for 32-bit version from <u>https://dev.mysql.com/downloads/connector/odbc/5.3.html</u>

Step2: Install Smart historian: Follow the instruction



# 2.4 Configuration of Smart historian

Below is the Dashboard for smart historian Server. Showing CPU uses and Connection status and RAM memory utilisation, active connection

<b>π</b> Smart Historian				8
DASHBOARD	🗆 ADD TO STARTUP			
CONFIGURATION	OPC SERVER 1 : OPC Not Configure	ed	LICENSE STATUS :	
	OPC SERVER 2 : OPC Not Configure	ed	LICENSE INACTIVE	
CREATE REPORT	MASTER SERVER :		DATABASE NOT CONFIGURED	
MODIFY REPORT				
LICENSE		CONFIGURATION		
LOGS	104.53	18.72	0	
	BAM	CPU	UB	

2.4.1 Dashboard

<b>T</b> Smart Historian		8
DASHBOARD		
CONFIGURATION		
CREATE REPORT	Machine ID BFEB FBFF 0008 06E9	
MODIFY REPORT	Activation Code	
LICENSE	Activate Trial Activate	
LOGS	License Not Active	
		Designed And Developed By

2.4.2 Licensing

Click on *Database configuration* to link connection with MySQL.

<b>T</b> Smart Historian			×
DASHBOARD			
CONFIGURATION	OPC DA CONFIGURATION		
CREATE REPORT	HOST 1 : OPC SERVER :	HOST 2 : OPC SERVER : V	·
MODIFY REPORT	. CONNECT	. CONNECT	
LICENSE	DATABASE CONFIGURATION		
LOGS			
	CLICK TO CONFIGURE		

2.4.3 Configure database

# It will open MySQL wizard, follow the instruction

<b>π</b> Smart Historian		8
DASHBOARD		
CONFIGURATION	💿 Wizard Title	
CREATE REPORT	Welcome to the DB Creation Wizard	
MODIFY REPORT		CONNECT
LICENSE	MySQL.	
LOGS	Next > Cancel	
	CLICK TO CONFIGURE	

# 2.4.4.1 MySQL wizard

<b>T</b> Smart Historian		8
DASHBOARD		<b>t</b>     -
CONFIGURATION	S Wizard Title	
CREATE REPORT	DB Connection	
MODIFY REPORT	Server IP 127.0.0.1 For Local Machine Keep Default User Name root	CONNECT
LICENSE	Password	2000 - 20000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2
LOGS	Next > Cancel	۲ ۲ ۲ ۲
	CLICK TO CONFIGURE	
	10	

2.4.4.2 Login MySQL

<b>T</b> Smart Historian		8
DASHBOARD		
CONFIGURATION	S Wizard Title	
CREATE REPORT	Completing the wizard	v
MODIFY REPORT		CONNECT
LICENSE		
LOGS	Finish Cancel	
	CLICK TO CONFIGURE	

2.4.4.3 MySQL wizard complete

<b>T</b> Smart Historian			×
DASHBOARD			
CONFIGURATION	OPC DA CONFIGURATION		
CREATE REPORT	HOST 1:	HOST 2 :	~
MODIFY REPORT	. CONNECT	CONNE	CT
LICENSE	DATABASE CONFIGURATION		
LOGS			
	DATABASE CONFIGURED		

2.4.4.4 MySQL database configured

Browse the OPC-DA server from dropdown list. Select host name in case of LAN PC. *MinCC-Runtime* -

🖊 Win0	CC-Runtime -														-	o ×
		<b>T</b> Smart Historian											(	×		
	TT1	DASHBOARD Configuration	OPC DA CONFIG	URATION											ę	
		ORFATE REDORT	HOST 1 :						H	IOST 2 :						
	TT2 <sup>2</sup>	MODIFY REPORT	OPC SERVER :	CCOPC.XMLW Cimplicity.AB.D Cimplicity.DN.D Cimplicity.DN.D Cimplicity.GE.S Cimplicity.GE.S Cimplicity.GE.S	rapper H485 VirectNet305 VirectNet405 NP RTP MUORCSeasor	~			OPC SI	ERVER :			CONNECT			
		LICENSE LOGS	DATABASE CON	Cimplicity. Mitsui Cimplicity. Mitsui Cimplicity. Sieme Cimplicity. Sieme GEFanuc. PDF. GEFanuc. Profic GEFanuc. Profic GEFanuc. Profice/Vie	MICPCServer bishi.At ens.MPI ens.PPI AEOpcServer cyDrivers.AEOp cyDrivers.AEOp cyDrivers.OpcSi ewintegratedOP	cServer erver 'CDriver										
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2.4.5 Select OPC Server from list

Click connect to make connection from selected server

<b>T</b> Smart Historian			×
DASHBOARD			
CONFIGURATION	OPC DA CONFIGURATION		
CREATE REPORT	HOST 1 : OPC SERVER : OPCServer.WinCC ~	HOST 2 : OPC SERVER :	~
MODIFY REPORT	Server 1 Connected CONNECT		NECT
LICENSE	DATABASE CONFIGURATION		
LOGS			
	DATABASE CONFIGURED		

2.4.6 Server1 connected

WinCC Explorer - D:\software\Historian\Demo\Demo.MCP	Active ]	– 0 X
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	8	
III Tag Management Smart Historian		
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III Tag Logging	Column Name Tag Name Daily	
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Text Library		
- 🚬 Text Distributor		
User Administrator		
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2.4.6.1 Select attributes for report

Following attributes is available

- 1) Continuous
- 2) Daily
- 3) Trigger based



#### 2.4.6.2 Select attributes for report

#### Browse tags or write down manually (like <u>\\Demo\TT1.VALUE</u>)

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Graphics Designer     Menus and toolbars																	
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#### 2.4.6.3 Browse tags or write down manually



2.4.6.4 Browse tags

# Click check for real-time display



2.4.6.5 Check real-time values

Note:

1) Do not use space or wildcard character for naming column name.

# Click confirm

WinCC Explorer - D:\software\Histor File Edit View Tools Help	rian\Demo\Demo.MCP [ Active ]	1				- 0 ×
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- Computer	Smart Historian				<b>•</b>	
- A Graphics Designer	Smart Historian					
Menus and toolbars			<b>OnLine Moni</b>	toring		
- 🗹 Alarm Logging	DASHBOARD	Tag Name	Value	Tag Time Stamp - UTC	Data Type	
Tag Logging		► TEMPERATURE1	4.322727	4/7/2019 5:13:10 AM	System.Single	
Report Designer		TEMPERATURE2	4.322727	4/7/2019 5:13:10 AM	System.Single	
Global Script	CONFIGURATION	FLOW METER 1	1006	4/7/2019 5:13:10 AM	System.Single	
Text Distributor		FLOW METER 2	1656	4/7/2019 5:13:10 AM	System.Single	
- 🙀 User Administrator		PRESSURE TRANSMITTER 1	5	4/7/2019 5:00:39 AM	System.Single	
	CREATE REPORT	PRESSURE TRANSMITTER 2	10	4/7/2019 5:13:10 AM	System.Single	
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2.4.6.6 Check real-time values

# Click create report to generate table

<b>T</b> Smart Historian			8
DASHBOARD	Repor	t Name UTILITY	Type: Continous V Cycle: 1 V Seconds
		Column Name	Tag Name
		TEMPERATURE1	
CUNFIGURATION		TEMPERATURE2	
		FLOW METER 1	FTI
		FLOW METER 2	F12
CREATE REPORT		PRESSURE TRANSMITTER 1	
		PRESSURE TRANSMITTER 2	P12
MODIFY REPORT LICENSE			
LOGS			
			UNLOCK CREATE REPORT



# 2.5 Redundant Configuration

Smart Historian takes data from first active OPC server. If connection is failed, it will changeover to other server.



2.5.1 Redundant architecture

# 3 Microsoft SSRS

Front end development is done using Microsoft SSRS software. It is user friendly and widely used by automation engineers. It also support google chrome browser. Report can be triggered from any PC over the network using chrome.



3.1 Microsoft SSRS view

#### 4. Licensing:

One time license without any limitations on creating number of reports.