Introducing MIStudio
Manufacturing Intelligence and Productivity Solution Software

MIStudio

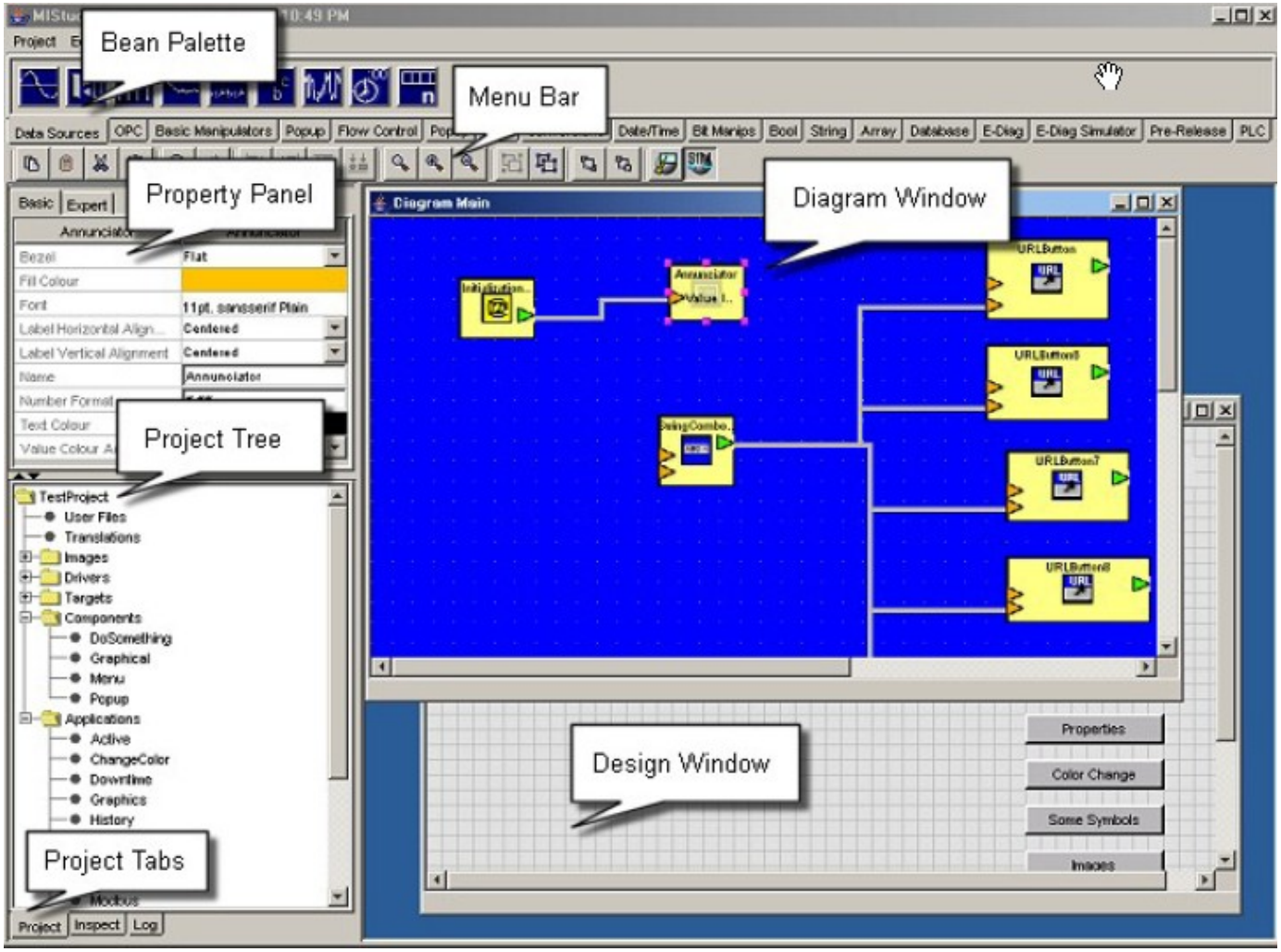
"An open standards, platform and device independent productivity solution"

MIStudio – Product Overview

- 1. Integrated Design Environment, IDE, Software Toolkit
  - Create Real-Time, Web-enabled Manufacturing Intelligence applications
- 2. Component Library - Virtual Instrumentation Beans - VIB
  - 300 + Visual and Logic Components
    - Enterprise Java Beans - EJB compatibility
  - Graphical Editor - create your own Visual components
- 3. Runtime Execution Engine - MIX Application Server
  - Execution engine embeddable on a variety of hardware platforms (Java JVM enabled)
  - Embedded Linux, PLC module, Windows PC or Enterprise Server

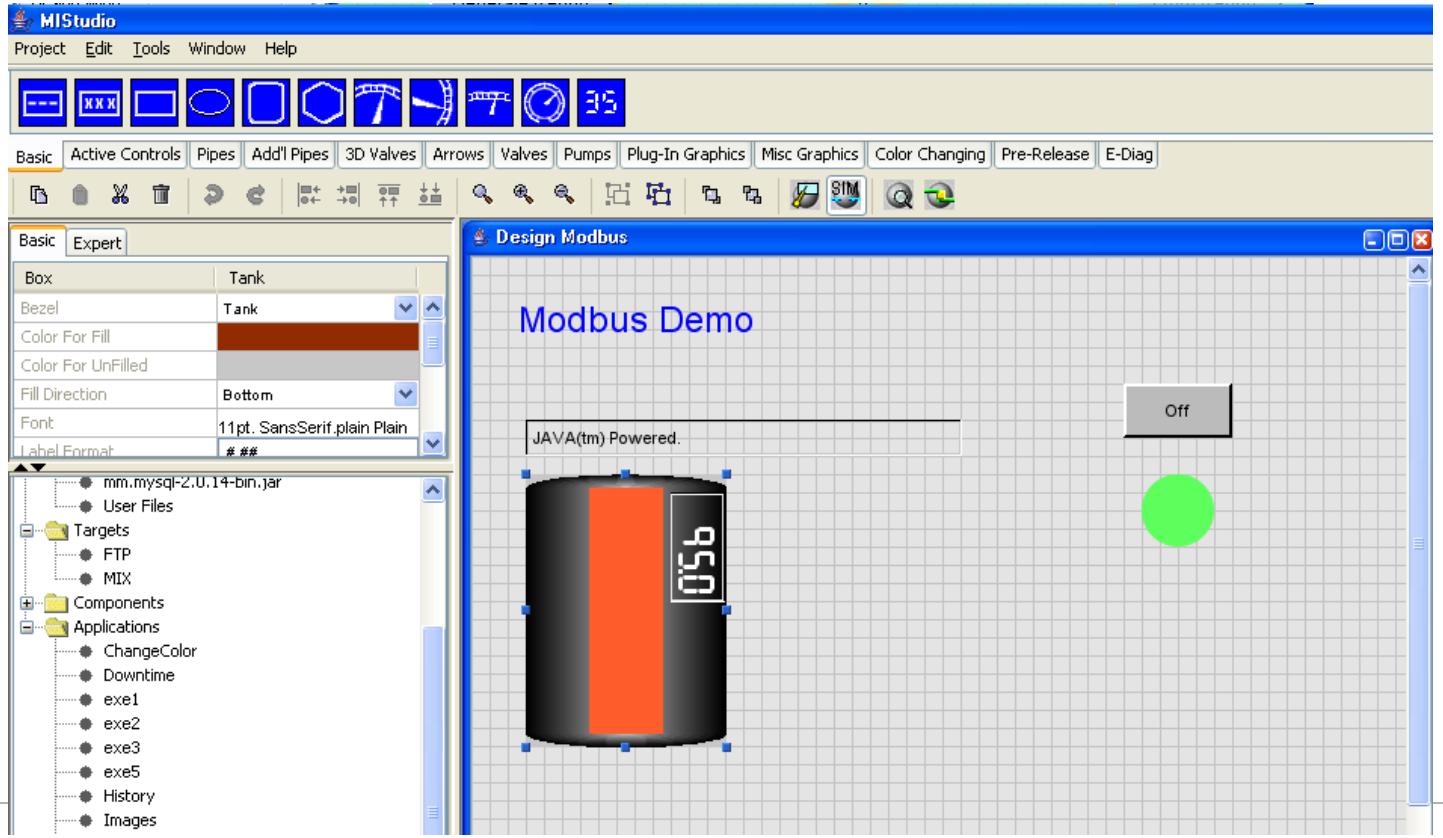
MIStudio - Integrated Development Environment

- A graphical tool used to design, create, and deploy Manufacturing Intelligence applications for MIX application server



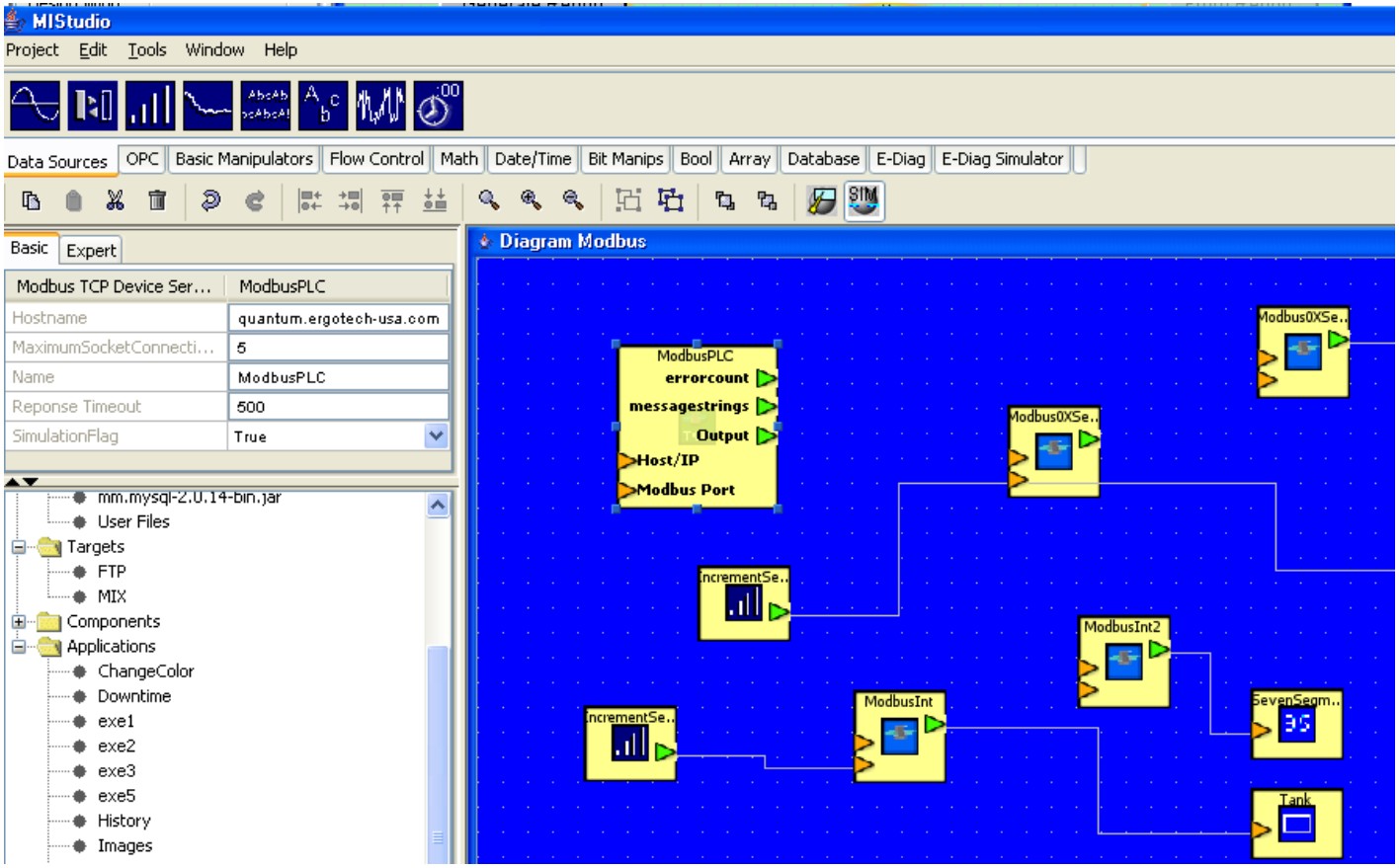
MI Studio IDE - Design (Graphic) Window

- This is where you design the graphical user interface for the application or component. It is always associated with its own Diagram (Logic) Window



MI Studio IDE - Diagram (Logic) Window

- This is where you design the 24/7 execution logic for the application or component. Java bean components are wired together to create the desired logic execution

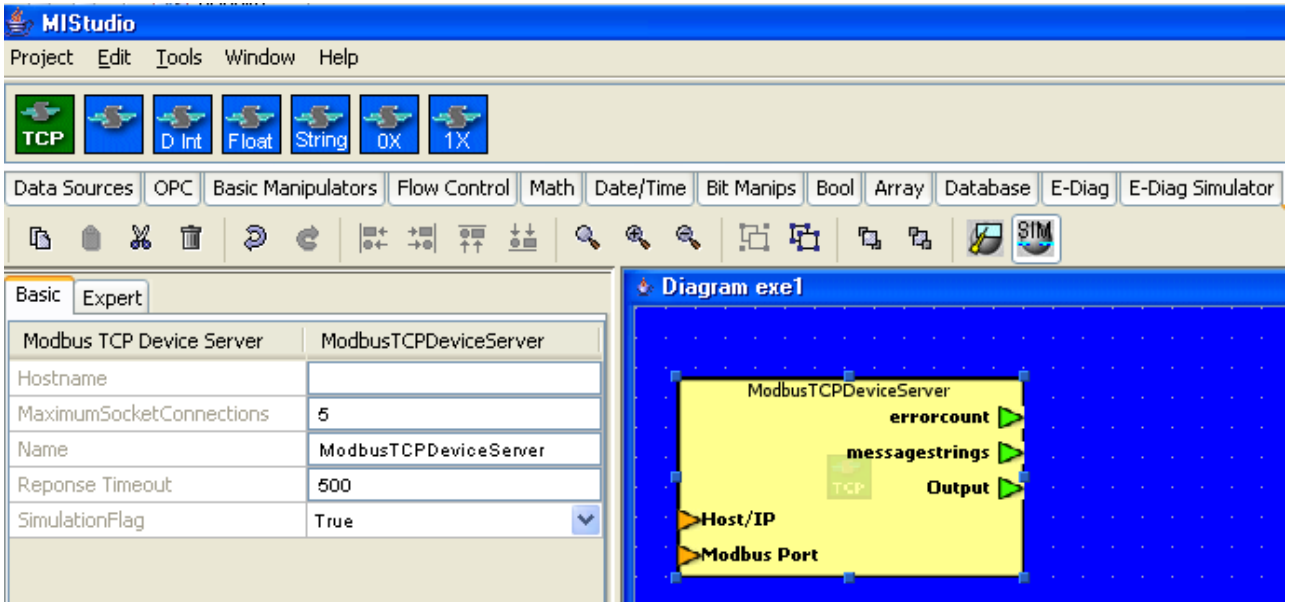


Component Library - Virtual Instrumentation Beans and Connectors

- Java bean components provide modular software blocks to be assemble according to the customers rules and application requirements
- 300+ Visual and Logic components
  - Visual and Logic components are JavaBeans
- Use of the common industry standard, open application programming interfaces, provides extensibility
- Java Standards (J2EE Servlets, J2ME)

Component Library - Graphical and Logic Beans

- Modular Software Block Example : - Modbus TCP Device Server Connector
  - Graphical Component with Property Dialog Box (Basic and Expert properties)

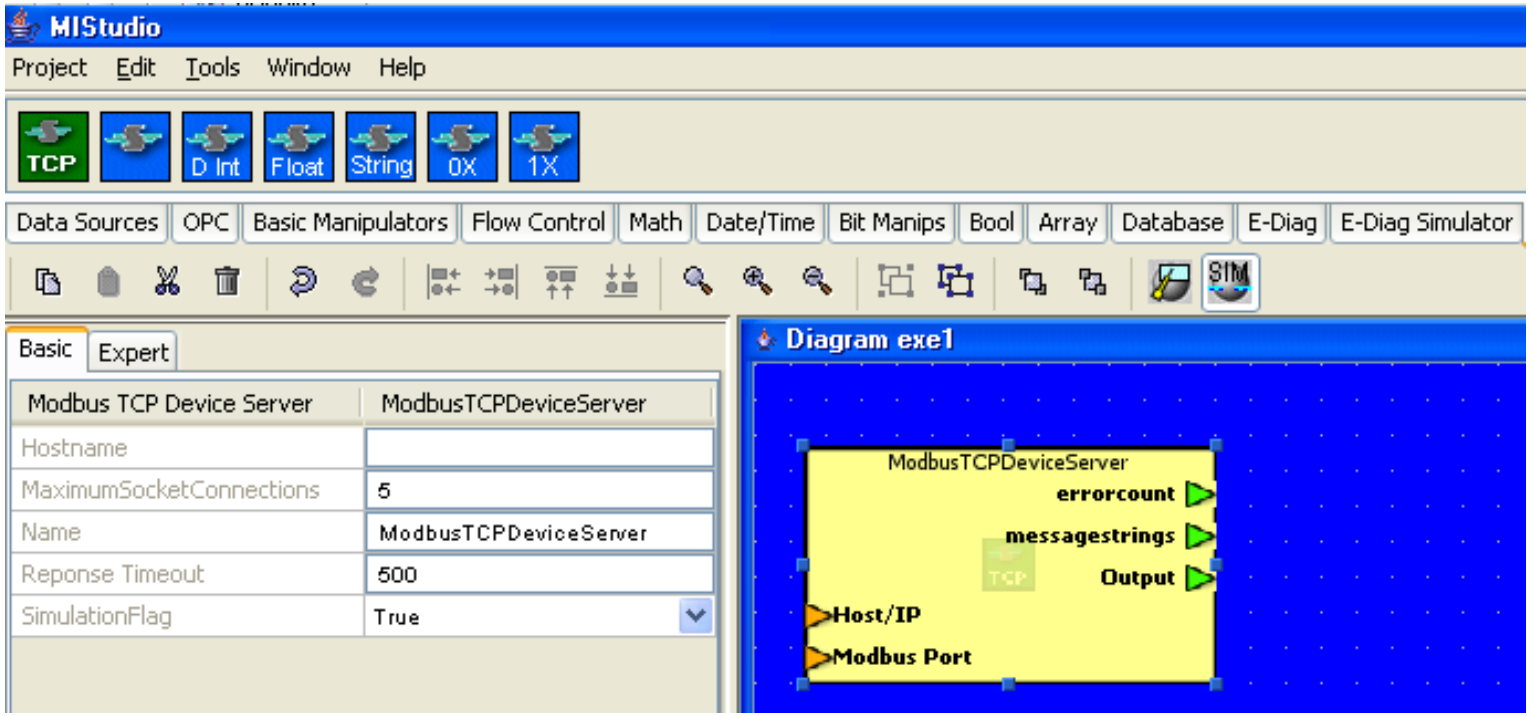


Components Library - Logic Components

- Data Acquisition Connectors
  - PLC Drivers - Ethernet and Serial Protocols
    - Modbus TCP/IP, RTU, DF1, S5-SA511, S7-PPI etc.
  - OPC Client interface
  - Serial (ASCII string)
- Data Manipulation and Conversion
  - Math, Arrays, Rate/Counting, Date/Time Stamping
- Data Management Connectors
  - SQL Database Storage and Retrieval (Read/Write)
  - Data Caching, Security
- SPC and Historical Trending
- Machine Downtime (OEE) analysis
- Alarming, Email Event Management and Embedded Reports
  - XML, PDF, CSV, Excel and HTML file generation

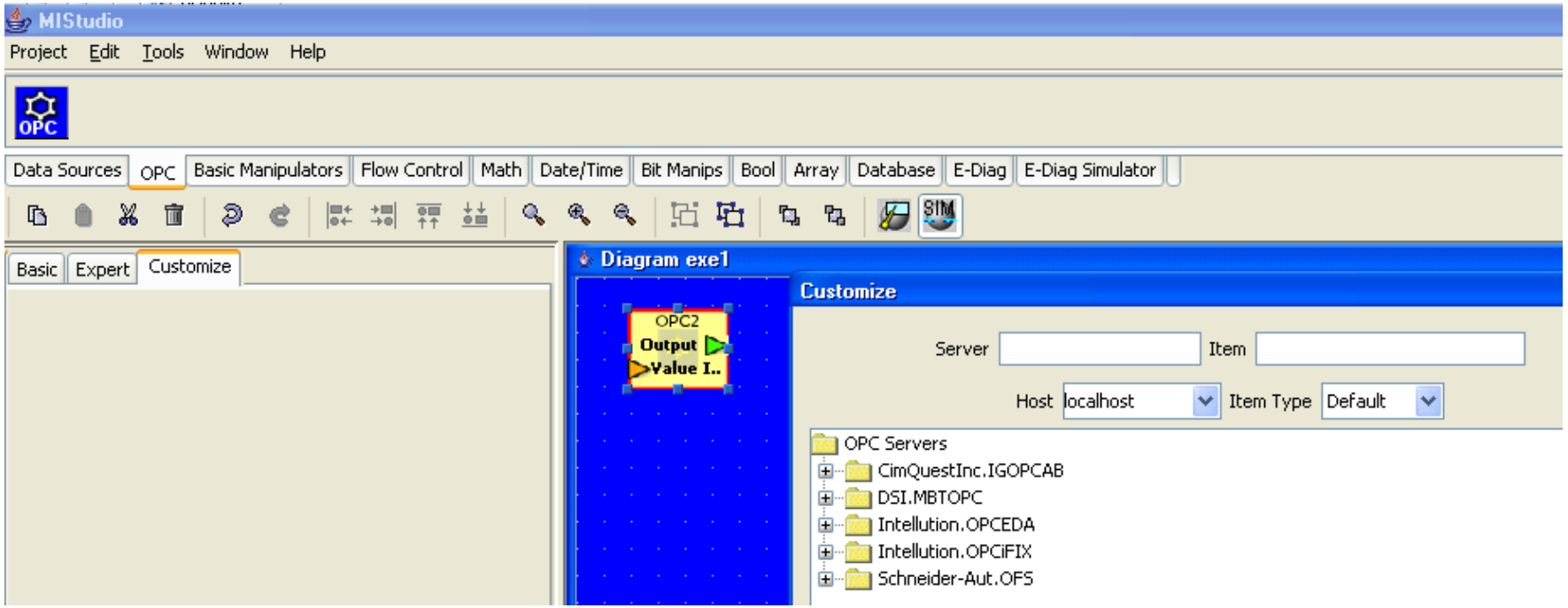
Data Acquisition Connectors

- PLC Drivers - Ethernet and Serial Protocols
  - Ethernet - Modbus TCP/IP, BACnet, EasyIP (Festo)
  - Serial - Rockwell DF1, Modbus RTU, Siemens S5 - S7 , IDEC, and FX



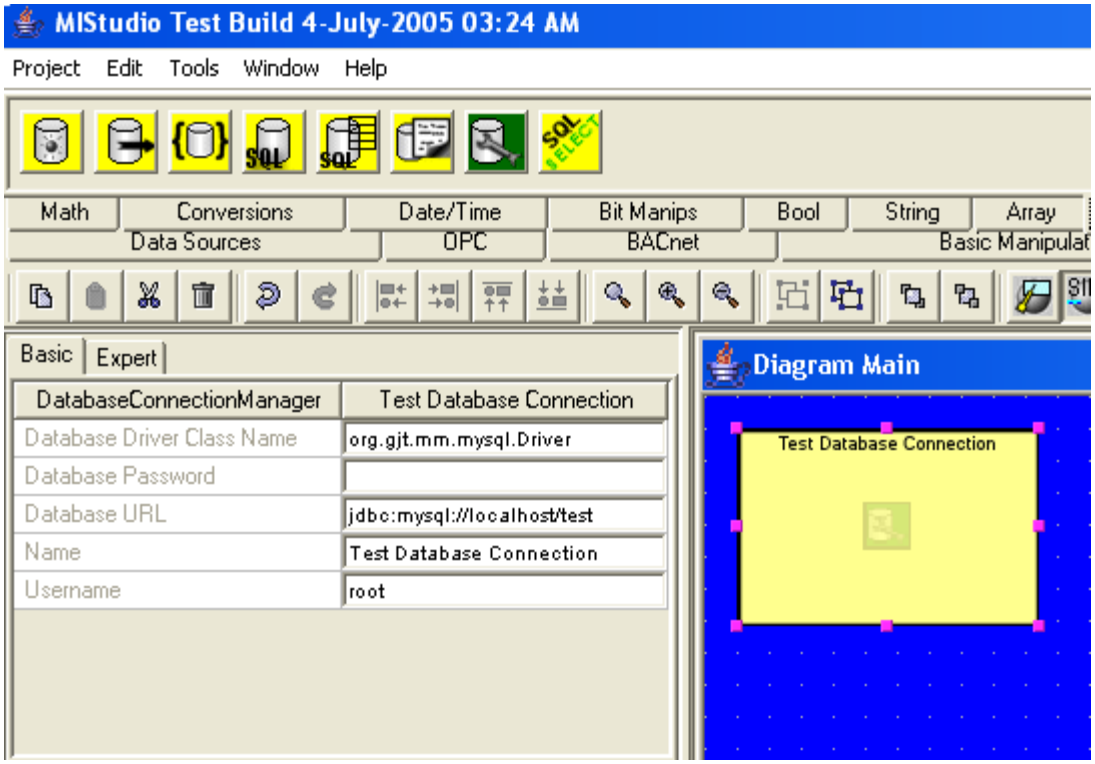
Data Acquisition Connectors

- OPC Client Interface Component
  - Access any OPC, Data Access 1.0+ server
  - Local and remote (OPC Gateway)data access



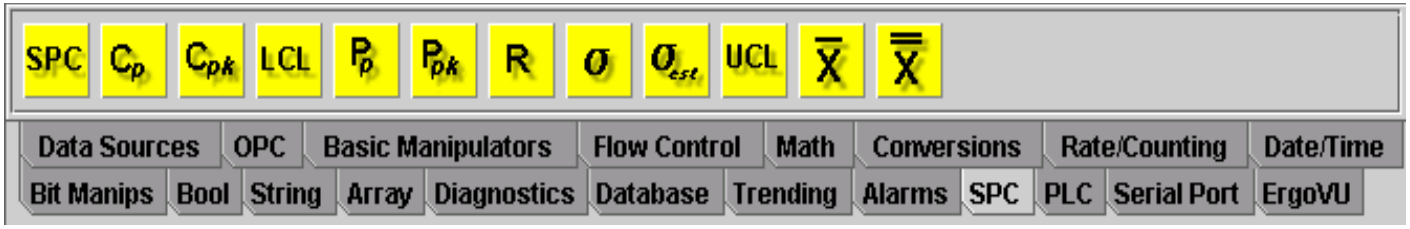
Data Management Connectors

- SQL Database Storage and Retrieval (Read/Write)

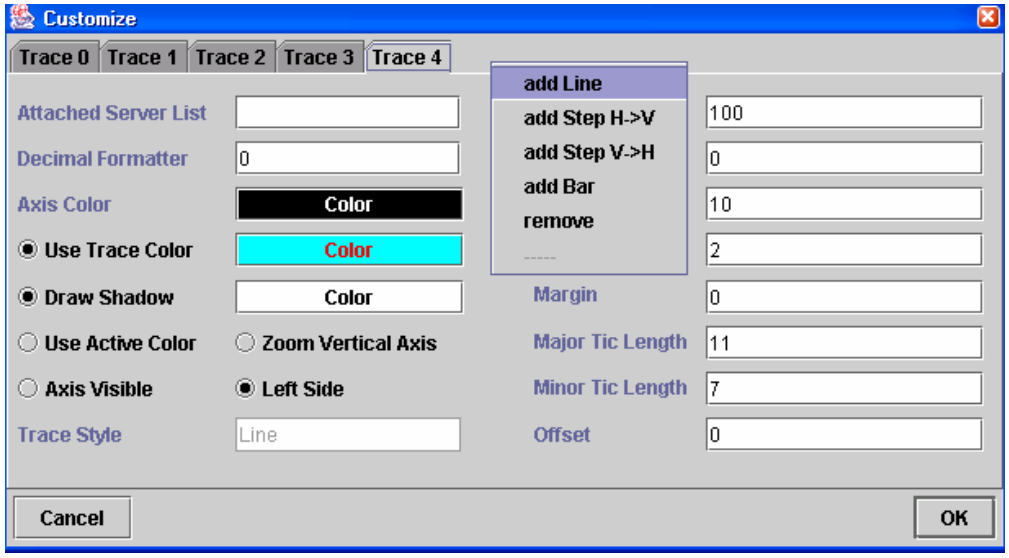


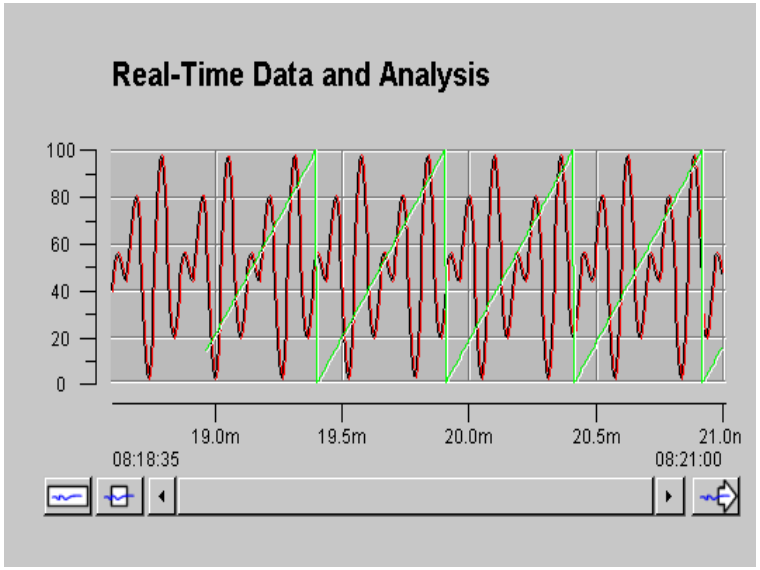
Logic Bean Components - SPC and Trending

- SPC Analysis Components



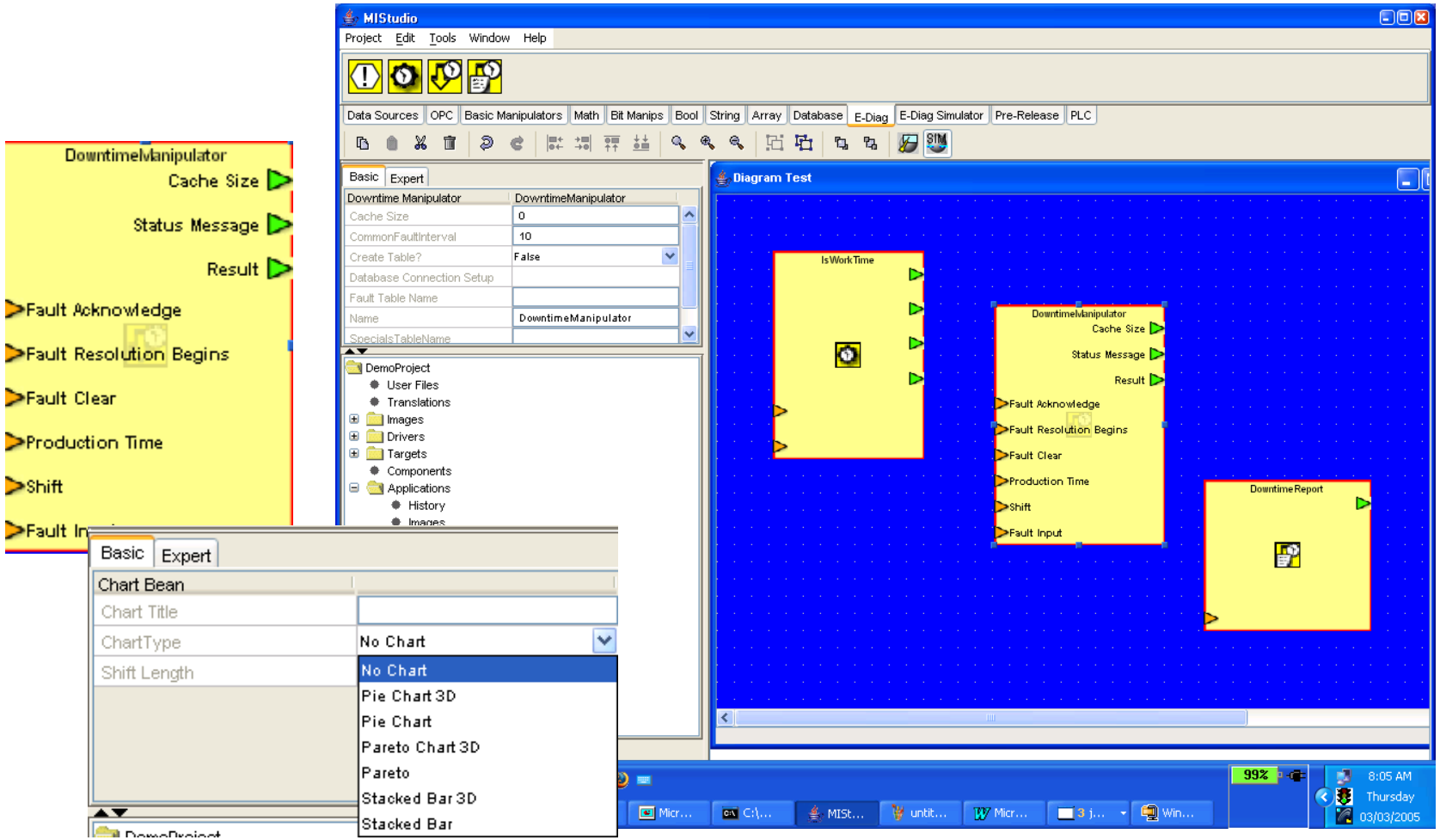
- Historical and Trend Viewing Components





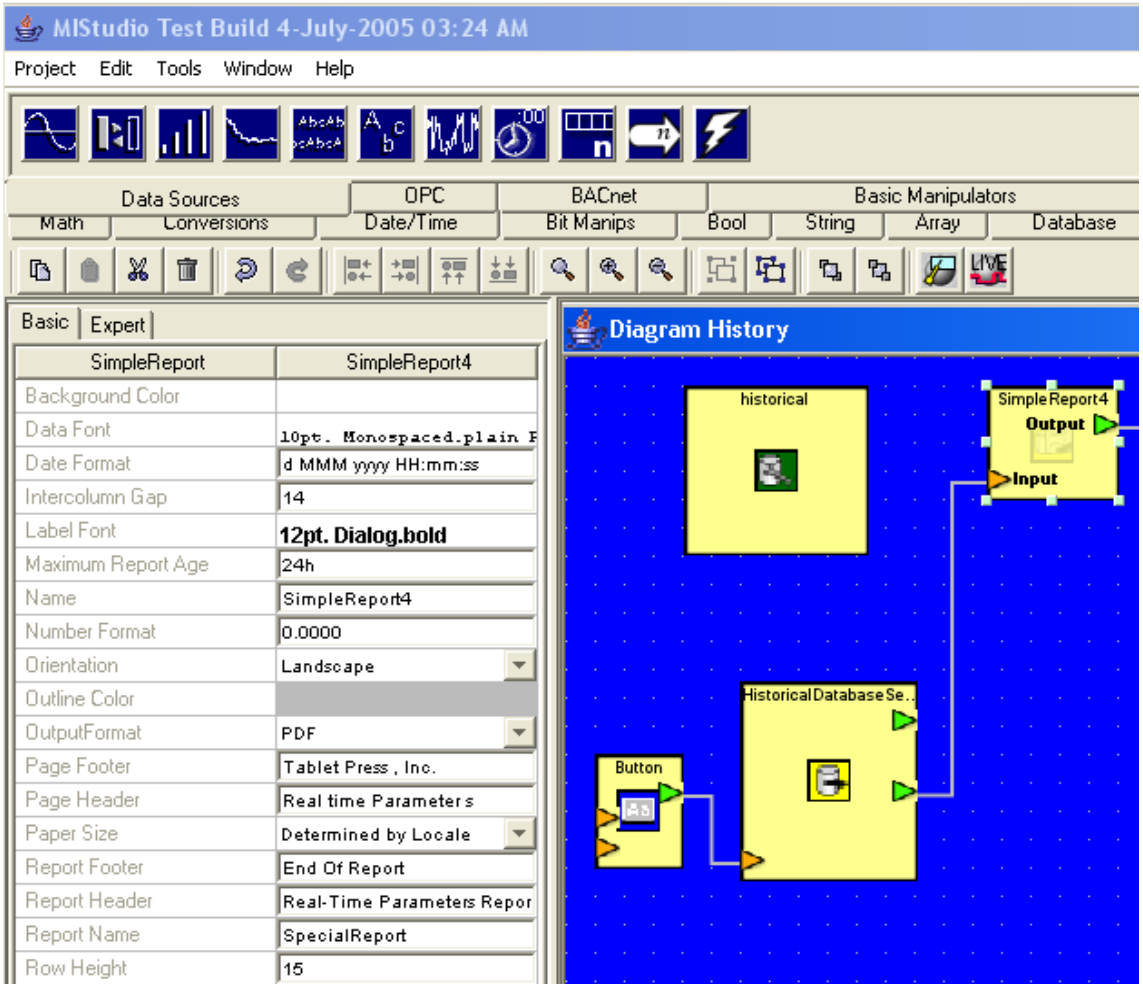
Logic Bean Components - Machine Downtime

- OEE and Machine Downtime Analysis Components

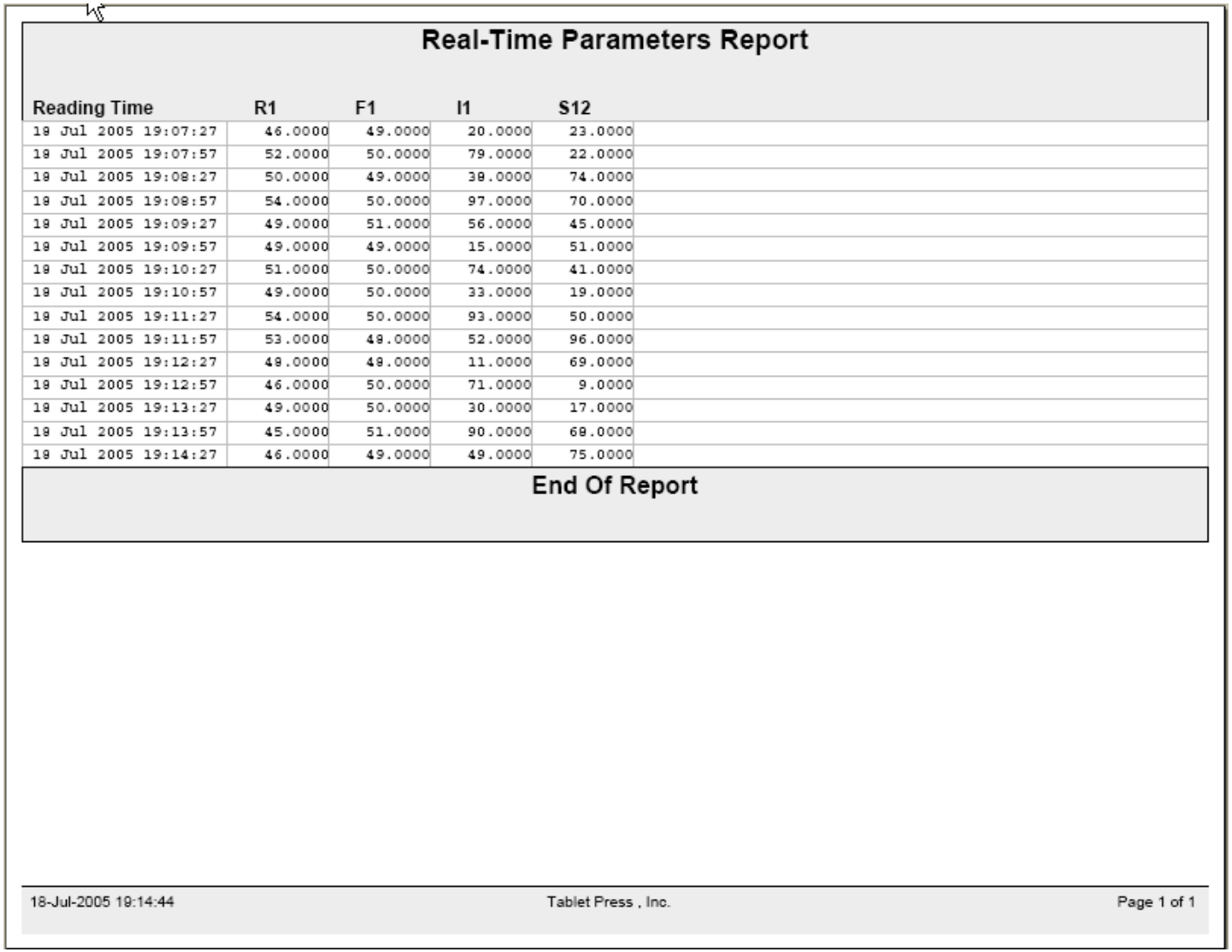


Logic Bean Components - Report Generation

- Reports Components (PDF, CSV, HTML, Excel)



Logic Bean Components - Report Generation

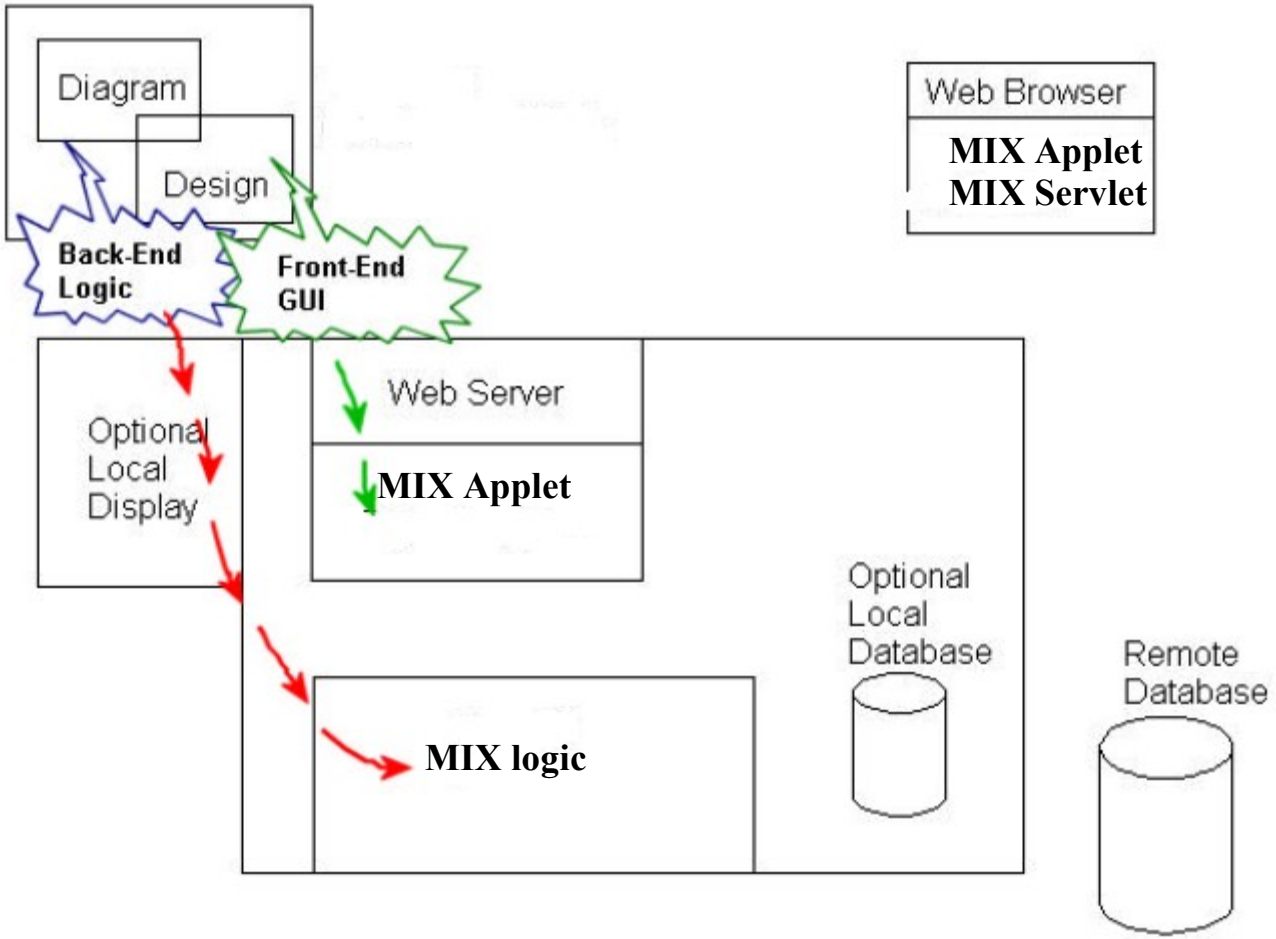


Real-Time Parameters Report

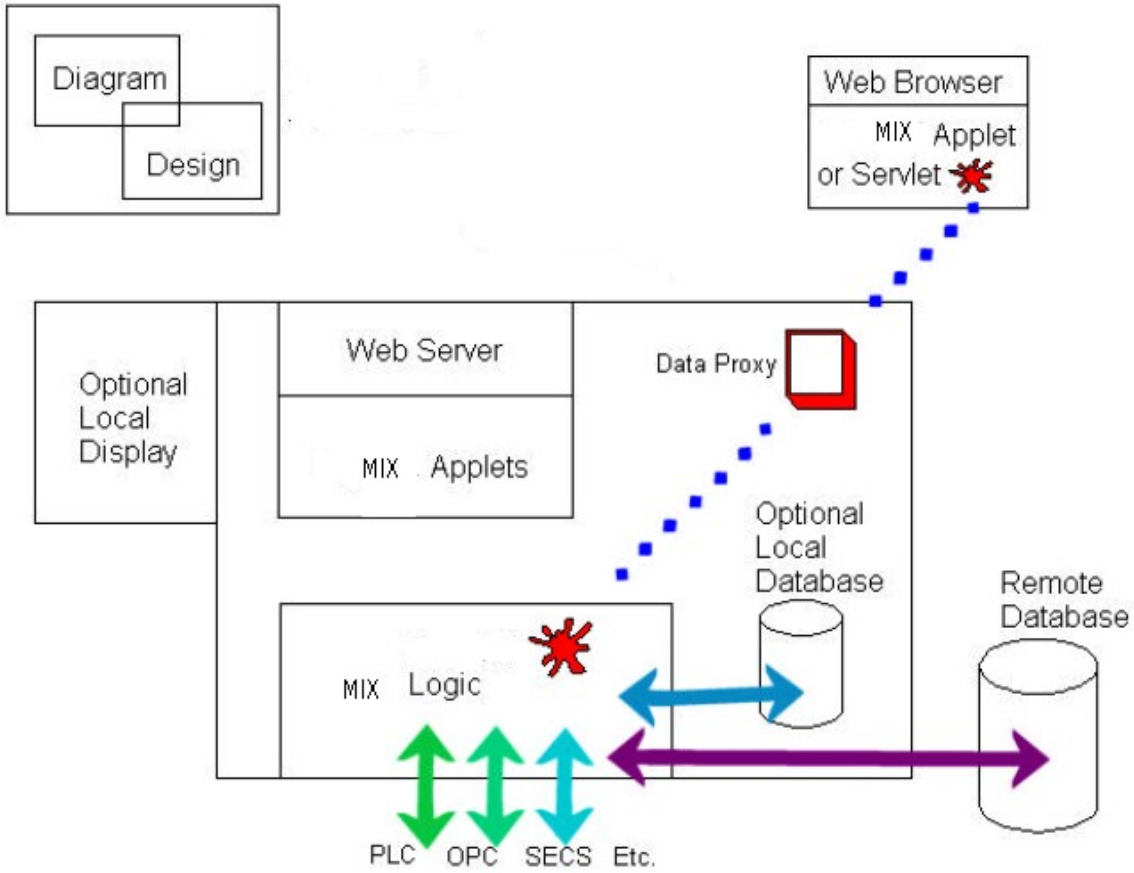
Reading Time	R1	F1	I1	S12
18 Jul 2005 19:07:27	46.0000	49.0000	20.0000	23.0000
18 Jul 2005 19:07:57	52.0000	50.0000	79.0000	22.0000
18 Jul 2005 19:08:27	50.0000	49.0000	38.0000	74.0000
18 Jul 2005 19:08:57	54.0000	50.0000	97.0000	70.0000
18 Jul 2005 19:09:27	49.0000	51.0000	56.0000	45.0000
18 Jul 2005 19:09:57	49.0000	49.0000	15.0000	51.0000
18 Jul 2005 19:10:27	51.0000	50.0000	74.0000	41.0000
18 Jul 2005 19:10:57	49.0000	50.0000	33.0000	19.0000
18 Jul 2005 19:11:27	54.0000	50.0000	93.0000	50.0000
18 Jul 2005 19:11:57	53.0000	49.0000	52.0000	96.0000
18 Jul 2005 19:12:27	49.0000	49.0000	11.0000	69.0000
18 Jul 2005 19:12:57	46.0000	50.0000	71.0000	9.0000
18 Jul 2005 19:13:27	49.0000	50.0000	30.0000	17.0000
18 Jul 2005 19:13:57	45.0000	51.0000	90.0000	69.0000
18 Jul 2005 19:14:27	46.0000	49.0000	49.0000	75.0000

End Of Report

MI Studio Execution Engine (MIX) Architecture - Deployment



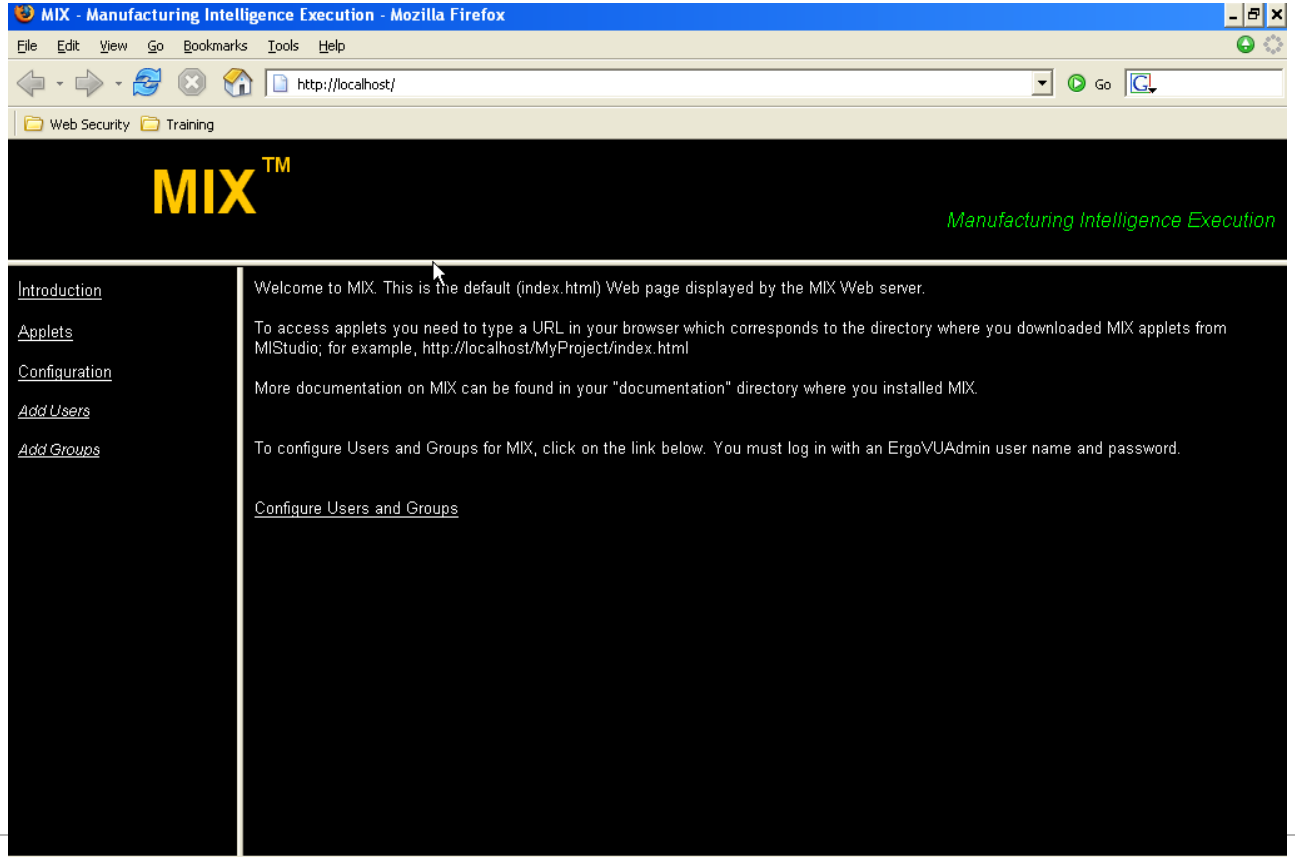
MI Studio Execution Engine (MIX) Architecture - Runtime



- Data is transferred to and from the MIX applet through "proxies" that the MIX controller sets up between your applet and the logic

MI Studio Execution Engine (MIX)

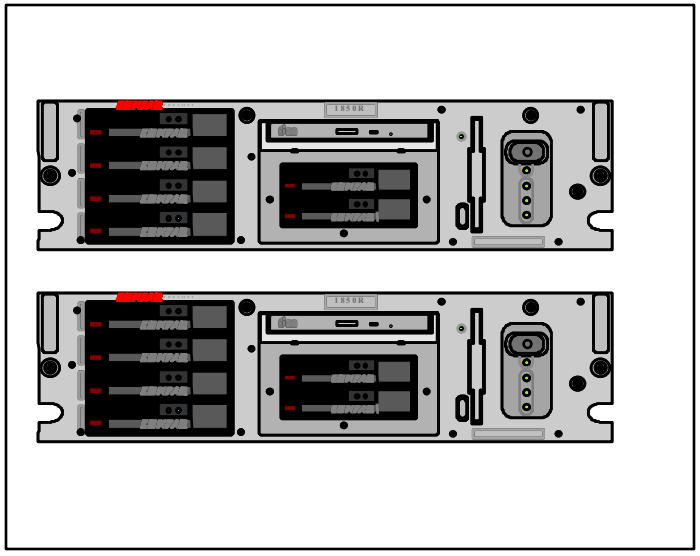
- Application Server
  - Group and User Assignment (Security and Alarming)
  - Device configuration (IP address, FTP)



MI Studio Execution Engine (MIX) - Platforms

- MIX execution engine embeddable on a variety of hardware platforms (JVM enabled)
- Scalable and portable deployment
  - CPU performance, Memory
  - RAID, redundancy

Linux Server



PLC Module (JVM)

Linux Web Appliance