

Description: A guide to setting up a GENESIS64 Application using Middle-Tier and Back-End servers.

OS Requirement: Windows Server 2003 x64/Vista x64/ Server 2008 x64/Windows 7 x64/ Server 2008 R2 x64

General Requirement: Installation of GENESIS64 v10.7x and advanced knowledge of the structure of GENESIS64 and Platform Services.

Introduction:

GENESIS64 is proud to empower its users with two key features that keep the system secure, while providing ubiquitous data access. To achieve this goal, GENESIS64 version 10.7 introduces the concept of Middle-tier and Back-end servers. These servers should typically be separated among different stations to fulfill their security roles completely, though one machine can have both roles if the security is not a concern.

The following paragraphs outline the major features and roles of the two server types.

Middle-tier servers

- The only point of communication for the operators
- Exposed to the public and can be used for Load Balancing of requests
- Protects the back-end servers from unauthorized access or license violation
- Each client has one middle-tier server that handles all its requests
- Will either have one remote Licensing server for each Middle-tier server, or have an individual Gen64 license for each
- If you have multiple Middle-tier servers for load balancing, it is expected that they each have their own security context, although they share the configuration database

Back-end servers

- Serves data to middle-tier servers
- Remote clients cannot connect to them directly
- No security between Middle-tier and Back-end servers to improve the communication efficiency
- Typically secured behind firewalls and NAT
- OPC and other servers that provide any type of data to clients may be considered back-end servers
- Does not necessarily need a license, because they are below Middle-tier servers

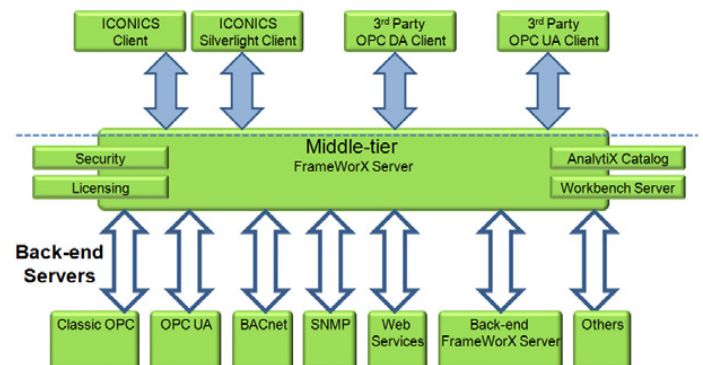


Figure 1 – GENESIS64 Architecture

This simple structure can be used for Load Balancing. Load balancing is a computer networking methodology to distribute the workload across multiple computers or a computer cluster, network links, central processing units, disk drives, or other resources, to achieve optimal resource utilization, maximize throughput, minimize response time, and avoid overload. Using multiple components with load balancing instead of a single component may increase reliability through redundancy. The load balancing service is usually provided by dedicated software or hardware, such as a multilayer switch or a Domain Name System server. Load balancing is especially important for networks where it's difficult to predict the number of requests that will be issued to a server. If one server starts to get swamped, requests are forwarded to another server with more capacity.

NOTE: For more information about GENESIS64 redundancy and Load Balancing please refer to these application notes:

- *GENESIS64 - Redundancy Quick Start*
- *GENESIS64 - Platform Services*
- *GENESIS64 - Load Balancing*

Setting up GENESIS64 application using Middle-Tier and Back-End servers:

Setting up Back-End Servers

1. Open Workbench and go into Tools → Platform Services Configuration.
2. Select BackEnd as the Server Role and click OK
3. Close Workbench and now we have properly setup our back-end server.

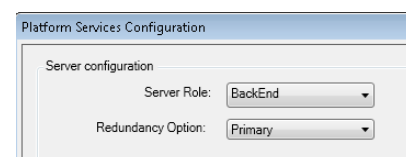


Figure 2 – Back-End server configuration

Setting up Middle-Tier Servers:

1. On another machine, open Workbench and go into Tools → Platform Services Configuration
2. Select MiddleTier as the Server Role and click OK

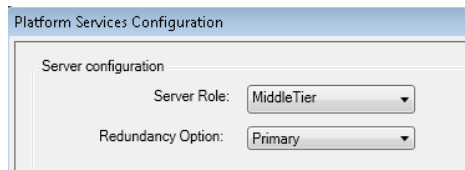


Figure 3 – Middle-Tier server configuration

3. On the Project Explorer, open the FrameWorX Server provider and select BackEnd Servers → Platform Services.
4. Enter the Server Name and Primary Endpoint URI for your BackEnd server. You can also setup a Secondary Endpoint URI if you are using redundant back-end servers.
5. Click Apply. We have configured the connection between Middle-Tier server and Back-End server. The Server name will be used on client machine for connecting to the Middle-Tier server.

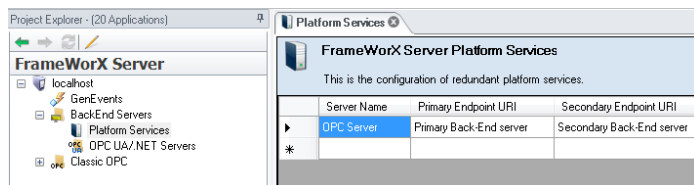


Figure 4 – Middle-Tier server configuration – FrameWorX Server Platform Services

Connecting clients to Middle-Tier:

1. On the machine with the Middle-Tier setup, open the Data Browser and select Home → FrameWorX Network. Select the middle-tier server that you configured above.
2. Click on this server and you will see all available running servers. You are connected to the middle-tier server, which is forwarding your requests to the back-end server and sending data back from the back-end server to your client.

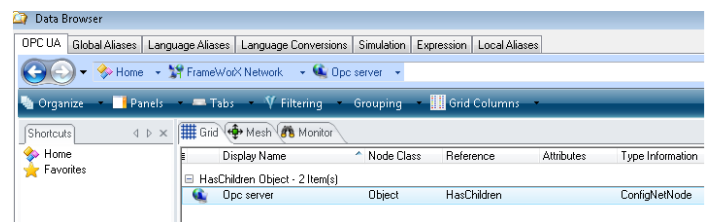


Figure 5 – Connecting client to the Middle-Tier server