Data Explorer Reference

Browse and inspect your solution data.

Reference Solution Designer Data Explorer | Concept | Reference

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Data Explorer (Reference):

DataExplorer provides unified data discovery and monitoring across multiple protocols:

- MQTT Brokers
- OPC-UA Servers
- PLCs (ControlLogix, others)
- SQL Databases

Key Concepts
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Key Concepts

Connection Target

Three connection types available:

Type	Description	Use Case
Local	Solution-defined connections	Testing existing configuration
TagProvider	Dynamic data sources	Connected tag providers
Remote	External sources	Discovery and exploration

Connection Status

- Automatic connection establishment for field devices
- Real-time updates in Data Browser tree
- Manual query execution for SQL sources

Data Browser Window

Protocol	Display Type	Update Method
MQTT	Hierarchical tree	Subscribe (real-time)
OPC-UA	Hierarchical tree	Poll (1 second)
PLCs	Hierarchical tree	Poll (1 second)
SQL	DataGrid table	On query execution

Typical Workflow

1. Data Discovery

Verify data consistency across:

- MQTT topics
- OPC-UA nodes
- PLC tags
- Database tables

2. Configuration

Create from discovered data:

- UserTypes
- Local tags
- TagProviders
- Device connections

3. Validation

Monitor and test:

- Connection stability
- Data quality
- Update rates
- Value accuracy

Tool-Specific Features

MQTT Tools

Feature	Description
Mode	Client subscriber
Updates	Real-time via subscription
Export	Topics to tags

See MQTT Tools (Reference) for details.

OPC Tools

Feature	Description
Mode	OPC-UA client
Updates	1-second polling
Export	Nodes to tags

See OPC Tools (Reference) for details.

PLC Finder

Feature	Description
Discovery	Network scan
Updates	1-second polling
Export	Controller tags

See PLC Finder (Reference) for details.

SQL Queries

Feature	Description
Mode	Query executor
Updates	Manual execution
Export	Column configurations

See SQL Queries (Reference) for details.

Export Options

To Solution Configuration

Source	Export Target	Result

MQTT	TagProvider	Dynamic connection
OPC	Device Channel	Communication setup
PLC	Device Points	Mapped addresses
SQL	Dataset	Query definitions

Quick Actions

- **Create Tags**: Single-click tag creation
- **Build Templates**: Structure to UserType
- **Add Connection**: Remote to solution
- **Configure Points**: Bulk mapping

Performance Considerations

Explorer Limitations

Aspect	Explorer	Runtime
Update Rate	1 second fixed	Configurable
Parallel Requests	Single	Multiple
Method	Polling only	Poll/Subscribe
Volume	Limited display	Unlimited

Runtime Capabilities

- Parallel request processing
- Subscribe mode (where supported)
- AccessType prioritization
- High-volume data handling

Best Practices

Discovery Phase

- Start local servers/simulators
- Verify network connectivity
- Test with small data sets
- Document findings

Configuration Phase

- Create templates before tags
- Use bulk import for large sets
- Organize with categories
- Test incrementally

Validation Phase

- Compare explorer vs runtime
- Monitor communication logs
- Verify data types
- Check update rates

Common Tasks

Task	Tool	Action
Find PLCs	PLC Finder	Network scan

Browse OPC	OPC Tools	Connect and explore
Monitor MQTT	MQTT Tools	Subscribe to topics
Test queries	SQL Queries	Execute and review
Create tags	Any tool	Right-click export
Build templates	Any tool	Structure export

Troubleshooting

Connection Issues

Problem	Cause	Solution
Can't connect	Wrong address	Verify endpoint
No data shown	Security	Check credentials
Slow updates	Network	Test connectivity
Missing nodes	Permissions	Check server config

Export Problems

Issue	Check	Action
Tags not created	Name conflicts	Use unique names
Template incomplete	Selection	Select all levels
Connection fails	Settings	Verify parameters

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