Unified Namespace How-to

Configure your solution's data foundation by configuring the Unified Namespace.

Overview

This guide walks you through configuring the Unified Namespace (UNS) - the data foundation of your FrameworX solution. You'll create tags, build templates, organize your asset tree, and connect to external data sources.

Prerequisites:

- Solution created in Solution Center
- Designer open with solution loaded
- Understanding of your data requirements

Configuration Workflow
Step 1: Create UserTypes (UDTs)
Step 2: Build Asset Tree
Step 3: Create Tags
Step 4: Configure Tag Properties
Step 5: Configure Enumerations
Step 6: Import Tags
Step 7: Add UNS Services (Optional)
Testing Your Configuration
Common Issues
Best Practices Checklist
Unified Namespace Links

Configuration Workflow

1. **Define UserTypes (UDTs)** - Create reusable data structures
2. **Build Asset Tree** - Organize hierarchical structure
3. **Create Tags** - Add variables using templates or basic types
4. **Configure Enumerations** - Define discrete state values
5. **Add UNS Services** (Optional) - Connect external data sources

Step 1: Create UserTypes (UDTs)

Creating a New UserType

1. Navigate to **Unified Namespace UserTypes**
2. Click **New**
3. In the "Create New UserType" dialog:
    - Enter **Name** (e.g., Motor_VFD)
    - Add **Description**
    - Click **OK**
4. Add members to the template:
    - Type in the first row of the table
    - Press Enter after each member
    - Configure properties (same as tag properties)

Example Motor UserType

Member	Type	Units	Min	Max	Description
Running	Digital	-	-	-	Motor running status
Speed_SP	Double	%	0	100	Speed setpoint
Speed_PV	Double	%	0	100	Actual speed
Current	Double	A	0	200	Motor current
FaultCode	Integer	-	0	999	Error code

Step 2: Build Asset Tree

Creating Asset Structure

1. Go to **Unified Namespace Asset Tree**
2. Create folders using one of these methods:
    - Click "Add Asset Folder" icon in toolbar
    - Right-click on root or existing folder New Asset Folder
    - Right-click in tree area

Note: The "RootTags" folder is pre-defined and contains all tags not assigned to other folders.

Example Structure

```
Plant
??? WaterTreatment
?  ??? Intake
?  ??? Processing
?  ??? Distribution
??? PowerHouse
    ??? Boilers
    ??? Generators
```

Step 3: Create Tags

Method A: Using Create New Tag Dialog

1. Click **New Tag** icon in top toolbar
2. In the dialog, configure:
    - **Name**: Tag identifier
    - **Type**: Select data type or UserType
    - **Properties**: Optional device, alarm, historian settings
3. Click **OK**

Method B: In Asset Tree

1. Navigate to **Unified Namespace Asset Tree**
2. Select target folder
3. Right-click **New Tag** or use toolbar icon
4. Configure tag properties in dialog

Method C: In Tags Grid

1. Navigate to **Unified Namespace Tags**
2. Create tags by:
    - Click in empty row and type name
    - Press Insert key
    - Click "New Item" in grid controls
    - Paste from Excel (must have "Name" column)

Method D: Copy and Paste

1. Select existing tags
2. Right-click Copy Selected Rows (or Ctrl+C)
3. Right-click empty row Insert Rows (or Ctrl+V)

Step 4: Configure Tag Properties

Essential Properties

Property	Description	Example
Name	Unique identifier	PUMP01_SPEED
Type	Data type or UserType	Double
StartValue	Initial value at startup	0
Min/Max	Value limits	0 to 100
Units	Engineering units	RPM
Format	Display format	N2 (2 decimals)
Retentive	Keep value through restart	ValueOnly

Tag Types Available

- **Digital** - Binary (0 or 1)
- **Integer** - Whole numbers (-2,147,483,648 to 2,147,483,647)

- **Long** - Large integers (64-bit)
- **Double** - Floating point
- **Decimal** - High precision
- **Text** - String values
- **Json** - JSON-encoded value
- **DateTime** - Date and time
- **TimeSpan** - Time interval
- **Guid** - Globally unique identifier
- **DataTable** - In-memory table
- **Image** - Image bytes
- **Timer** - Built-in timer functions
- **Reference** - Typed cross-tag pointer

Step 5: Configure Enumerations

1. Navigate to **Unified Namespace Enumerations**
2. Click **New** in grid toolbar
3. Enter enumeration name
4. Add values:
   ```
   0 = Stopped
   1 = Running
   2 = Fault
   ```
5. Apply to tags by selecting enumeration in tag properties

Step 6: Import Tags

From Excel

1. Copy Excel data including column headers
2. Ensure "Name" column exists
3. Paste directly into Tags grid

From CSV

1. Use Import button when grid is in focus
2. Select CSV file
3. Map columns to properties

Using Solution Import Tools

Navigate to **Solution Import** for:

- OPC Server browsing
- ControlLogix import
- PI System import
- SQL database import

Step 7: Add UNS Services (Optional)

Creating Connection

1. Navigate to **Unified Namespace UNS Services**
2. Click **New UNS Service** or use File New UNS Service Connection
3. Configure connection parameters
4. Test connection

Linking to Asset Tree

1. Select asset folder
2. Right-click "Link Data from UNS Service"
3. Browse and select remote data
4. Data appears dynamically in tree

Testing Your Configuration

Test Mode

1. Press **F5** or click **Run Test**
2. Monitor values in Asset Tree (Value column appears)
3. Use Property Watch for detailed monitoring

Accessing Tags

Direct Tag Access:

```
@Tag.PUMP01.Running
@Tag.Area1/Line1/Temperature
```

Asset Method (for dynamic paths):

```
Asset("/Area1/Line1/Temperature")
Asset(@Client.Context.AssetPath + "State1")
```

Common Issues

Cannot see data in Asset Tree

- Click Refresh button to reload tree

Tag not updating

- Check device mapping if using Device Module
- Verify UNS Service connection if using external data

Changes to UserType not reflected

- UserType changes don't auto-update existing instances
- Must recreate or manually update instances

Best Practices Checklist

- Create UserTypes before tags for consistency
- Organize Asset Tree to match physical/logical structure
- Use consistent naming conventions
- Set appropriate retentive settings for critical values
- Configure security at tag level when needed
- Use enumerations for state-based tags

Unified Namespace Links

Explanation - about foundational technologies

Platform Overview / Technology / Real-Time Tag Database

Platform Overview / Technology / Native Unified Namespace

Platform Overview / Technology / TagProvider Services

Explanation - to understand concepts

Modules / Data Foundation / Unified Namespace

Tutorials - to learn by doing

Tutorials / Data Foundation / Unified Namespace Tutorial

How-to Guides - to accomplish specific tasks

How-to Guides / Data Foundation / Unified Namespace How-to Guide

Reference - technical details

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