Add Controls to Displays Tutorials

Add Controls to Displays and edit properties, mapping to tags.

Related: Concept | How-to Guide | Reference

This Tutorial Teaches you to:

- Use basic controls
- Configure control properties
- Bind controls to tags
- Create control interactions

Prerequisites:

- Design Canvas Displays Tutorials
- Design Dashboard Displays Tutorials

This Tutorial Teaches you to:
1. Basic Input Components
2. Text Components
3. Gauge Components
4. Chart Components
5. Container Components
6. Images
7. Advanced Interactions
8. Dynamic Animations
9. Symbols
10. Shapes

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1. Basic Input Components

Open the display in the Draw editor.

Button:

1. Drag **Button** from the toolbox.
2. Double-click the control and go to **Settings**.
3. Properties:
    - Label Text: "Start Motor"
    - Width: Auto
4. Click **Dynamics** and check **Actions**.
5. In **Actions**, choose **ToggleValue**.
6. In **Object**, type `@Tag.Equipment/MotorRunning`.

Numeric Input:

- Drag **NumericTextBox** from the toolbox.
- Double-click the control and go to **Settings**.
- Bind **LinkedValue** to `@Tag.Setpoint`.
- MinValue: 0, MaxValue: 100.

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2. Text Components

Text Display:

- Drag **TextBlock** from the toolbox.
- Double-click the control and go to **Settings**.
- Text with composite tag template: `Temperature: {@Tag.TankFarm/Tank1/Temperature} °C` — curly-brace tag references must start with `@`.
- On the bottom-right menu set Font to 24.

ProgressBar:

- Drag **ProgressBar** from the toolbox.
- Double-click the control and go to **Settings**.
- Bind **LinkedValue** to `@Tag.Tank_Level`.
- Maximum: 100.
- Leave the bar and foreground colors as theme defaults. To override, set **Foreground** explicitly (themed by default — omit to inherit).

DigitalGauge:

- Drag **DigitalGauge** from the toolbox.
- Double-click the control and go to **Settings**.
- Bind **LinkedValue** to a numeric tag, e.g. `@Tag.Pressure`. DigitalGauge displays a numeric readout; use an indicator-style control for boolean run/stop states.

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3. Gauge Components

Radial Gauge:

1. Add **RadialGauge**.
2. Double-click the control and go to **Settings**.
3. Bind **LinkedValue** to `@Tag.Pressure`.
4. **Minimum Value**: 0.
5. **Maximum Value**: 150.
6. **Major Ticks Quantity**: 16 (one tick every 10 units across 0..150).

*RadialGauge is the unified gauge control introduced in 10.1.5. Choose a **Preset** (Full, SemiCircle, CenterValue, or BandedRange) to pick the visual style. It replaces the legacy CircularGauge, CenterValueGauge, and RangeCircularGauge for new displays — existing displays keep rendering with the legacy controls unchanged.*

Linear Gauge:

- Add **LinearGauge**.
- Double-click the control and go to **Settings**.
- **Gauge Orientation**: Vertical.
- Bind **LinkedValue** to `@Tag.Tank_Level`.

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4. Chart Components

Trend Chart:

1. Add **TrendChart**.
2. Double-click the control and go to **Settings**.
3. Configure pens (slash-separated UNS tag paths):
    - Pen1: `@Tag.TankFarm/Tank1/Temp` — series color Blue.
    - Pen2: `@Tag.TankFarm/Tank1/Pressure` — series color Red.
4. Auto: true.

Pie Chart:

- Add **PieChart**.
- Double-click the control and go to **Settings**.
- **ChartType**: Percent.
- LinkedValue entries (tag path; series color set separately):
    - `@Tag.TankFarm/Tank1/Pressure` — series color Blue.
    - `@Tag.TankFarm/Tank2/Pressure` — series color Red.
- Name entries:
    - Pressure Tank 1
    - Pressure Tank 2

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5. Container Components

Tab Control:

1. Create three additional displays named:
    a. TankPage1
    b. TankPage2
    c. TankPage3
2. Go back to your MainPage and add a **TabControl**.
3. Double-click the control and go to **Settings**.
4. Under **Items Source Link**, set **Designer** and add three **ChildDisplay** entries; type the display names you just created into **Linked Display**.

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6. Images

Image Display:

1. Find the **Import File** control.
2. Choose an image from your computer.
3. The image is registered in the solution and can be reused after the first import.

Web Browser:

- Add a **WebBrowser** control.
- Double-click the control and go to **Settings**.
- URL: https://www.tatsoft.com

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7. Advanced Interactions

ComboBox with Database:

Prerequisite: this example reads from a Dataset Query named `ActiveOrders`. Define the query under **Datasets Queries** before running — see the Datasets Module Tutorial for end-to-end query setup.

- Add a **ComboBox** control.
- In **ComboBox Properties Uid**, type **combo1**.
- Go to the page **Code Behind**.
- Inside the **DisplayOpening** method, add:

```
TComboBox ComboBox1 = this.CurrentDisplay.GetControl("combo1") as TComboBox;

DataTable dt = await @Dataset.Query.ActiveOrders.SelectCommandAsync();

if (dt != null && dt.Rows.Count > 0)
{
    foreach (DataRow row in dt.Rows)
    {
        ComboBox1.Items.Add(row["ColumnName"].ToString());
    }
}
```

- Replace **ColumnName** with the actual column name returned by your query.

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8. Dynamic Animations

Add dynamics to any control:

1. Double-click the control.
2. Select **Dynamics**.
3. Add:
    - **Visibility**: show/hide by condition.
    - **MoveDrag**: move based on a value.
    - **Scale**: resize dynamically.
    - **FillColor**: change fill by state.
    - **Rotate**: rotate by angle.

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9. Symbols

Create reusable control sets:

1. Select controls to group:
    a. Choose any of the controls created in previous steps, or create two new controls.
    b. Use **Ctrl+click** to select multiple controls.
2. Group the controls:
    a. Click the **Group** button in the top horizontal toolbar, or
    b. **Right-click Group**.
3. Create the symbol:
    a. **Right-click** on the grouped controls **Make New Symbol**.
    b. In the **Name** field, type **SymbolExample**.
    c. Click **Yes** to create the symbol.
4. Reuse across displays:
    a. The symbol now appears in the **Symbol Library**.
    b. Drag and drop from the library to any display.

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10. Shapes

In addition to standard controls and symbols, Canvas displays support drawing shape primitives — Rectangle, Ellipse, Line, Polygon, Path, and related drawing primitives — useful for process diagrams and schematic backgrounds. Shapes accept dynamics (FillColor, Visibility, Rotate, MoveDrag, Scale) the same way controls do.

For the full shape catalog and per-shape properties, see the Display Controls Reference.

In this section...
