Skill Generate UNS Visual

AI skill: produce a human-readable diagram of the UNS. Prefer the Designer **Knowledge Graph** button. Fall back to `generate_uns_visual` when AI orchestration is needed.

Version 10.1.5+

When to invoke

- “Show me what the UNS looks like”
- “Draw the AssetTree as a diagram I paste into our wiki”
- “After importing the IOF ontology, give me a visual I share with the ontology team”

Primary path: the button

If the user is in Designer and wants the default full-solution view, point them at **Unified Namespace UserTypes Knowledge Graph**. One click, no AI, works offline. The button produces an interactive HTML file and opens it in the default browser. About 95% of visual-report uses go through this path.

Secondary path: the MCP tool

Use `generate_uns_visual` when the user wants a narrowed scope, a specific format, or the report as part of a larger AI workflow:

```
generate_uns_visual(scope="full", format="html")
generate_uns_visual(scope="subtree", root_path="/Plant1/Line3")
generate_uns_visual(scope="userTypes", include_inheritance=true, include_references=true)
generate_uns_visual(scope="assetTree")
```

Output

- MCP tool default: `mermaid-md`. Markdown with embedded Mermaid blocks, in the Exchange folder under `Visualizations/`. Good for diffs and source control.
- `html`: single self-contained interactive file (cytoscape.js). Available in 10.1.5. This is what the Designer button produces.
- `svg` / `png`: requires `mmdc` on the host. Falls back to `mermaid-md` with a warning if unavailable.
- Same solution plus same parameters produces byte-identical output. Source-control friendly for the `mermaid-md` and `html` formats.

Gotchas to surface

- Mermaid clutters past around 80 nodes or 200 edges. Suggest `format="html"` (interactive, no limit) or narrow via `subtree` / `userTypes` scoping.
- Operators see `DisplayText` by default, script/MCP users see `Name`. The diagram shows both (Name is the node ID, DisplayText is the rendered label).
- Reference targets render as dotted edges in AssetTree scope, as `UDT` range labels in UserTypes scope.

See also

- Generate a visual report of your UNS. Human walkthrough (button-led).
- Skill Import Industrial Ontology, Skill Export UNS as RDF