How to Add Units to Data Points

If you want to display units defined in IEC 61850-7-3 standard in IEC 61850 tools (such as IED Scout, SCL Editor, Omicron, Helinks SCL, etc.), you only need to make a small adjustment to the rtu.cid file generated by the configuration tool software.

When we set up data points for device instances in the configuration tool and check DOI/DAI, we will see the content of a data point instance similar to the following in the generated rtu.cid file:

```
<DOI name="AnIn1">
  <SDI name="mag">
      <DAI name="f" desc="Temperature"/>
  </SDI>
  <DAI name="dU">
      <Val>Temperature</Val>
  </DAI>
</DOI>
```

We just need to add the "units" related definitions (unit and multiplier) to add recognizable unit symbols for this data point that can be recognized by IEC 61850 tools:

```
<DOI name="AnIn1">
  <SDI name="mag">
      <DAI name="f" desc="Temperature"/>
  </SDI>
  <DAI name="dU">
      <Val>Temperature</Val>
  </DAI>
  <SDI name="units">
    <DAI name="SIUnit">
        <Val>℃</Val>
    </DAI>
    <DAI name="multiplier">
        <Val>0</Val>
    </DAI>
  </SDI>
</DOI>
```

> **Tip**
> The Val for "unit" and "multiplier" must be selected from the `"SIUnit"` and `"multiplier"` EnumType definitions at the end of the rtu.cid file, otherwise it cannot be used.

Finally:

Place the modified rtu.cid file into the genconfig folder, run `\genconfig.exe .\rtu.cid model.cfg`, then put the newly generated `model.cfg` file into the protocol converter's USB drive to overwrite the previous one.

> **Warning**

> Be sure to backup the modified rtu.cid file and the newly generated model.cfg file. Do not place them in the output folder, otherwise they will be overwritten by newly generated files from the configuration tool. This also means that once you modify the rtu.cid file, the files generated by the configuration tool will no longer match your actual requirements. Therefore, it is recommended to complete all requirements with the configuration project first, and then manually fine-tune the rtu.cid file to add "unit" related information to data points.