

Tech Note 206

Using SuperTags in InTouch 7.x

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Supertags are a powerful feature introduced with Factory Suite 2000. This *Tech Note* provides a brief description and examples on how to use SuperTags in InTouch 7.x.

Note For more information on SuperTags, see the *InTouch User's Guide*, Chapter 4.

What is a SuperTag?

A SuperTag allows you to group tags to resemble the physical world in a control system. For example, a reactor has many *process variables* (such as level and temperature) and *elements* (such as control valves and pumps). These variables and elements can be defined as tags in an InTouch application.

A logical way to create these tags is to group them around a construct, or template, called "Reactor." If the plant has a number of reactors of the same type, multiple SuperTags of the type Reactor can be created (such as "Reactor1," "Reactor2," ...).

Figure 1 shows an example of the Reactor Demo Application that comes with InTouch. Instead of the regular tags, a SuperTag called "Reactor1" has been created using Reactor as its type.

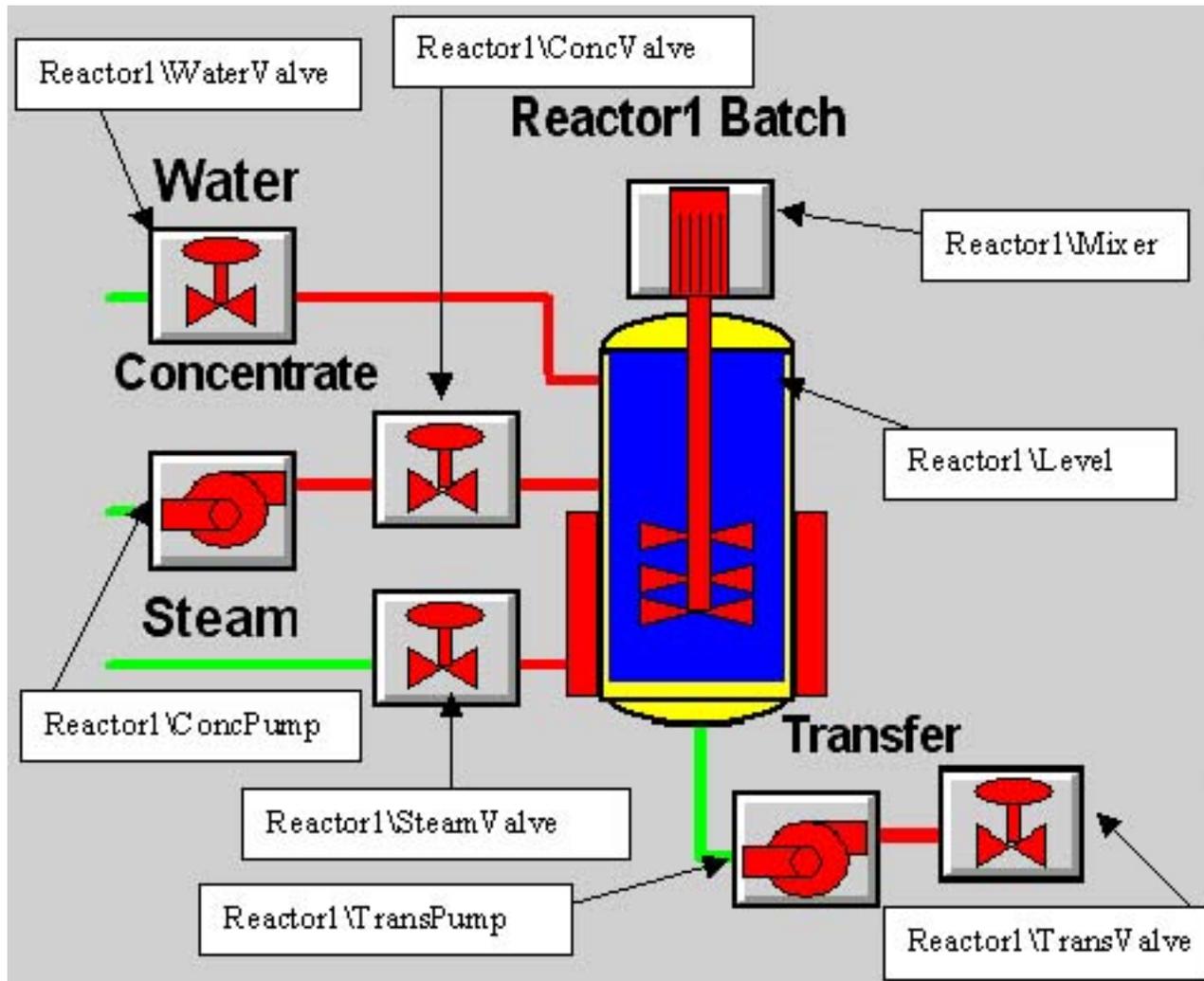


Figure 1. Reactor Demo with Reactor1 SuperTag

Figure 2 shows the template structure for the Reactor SuperTag.

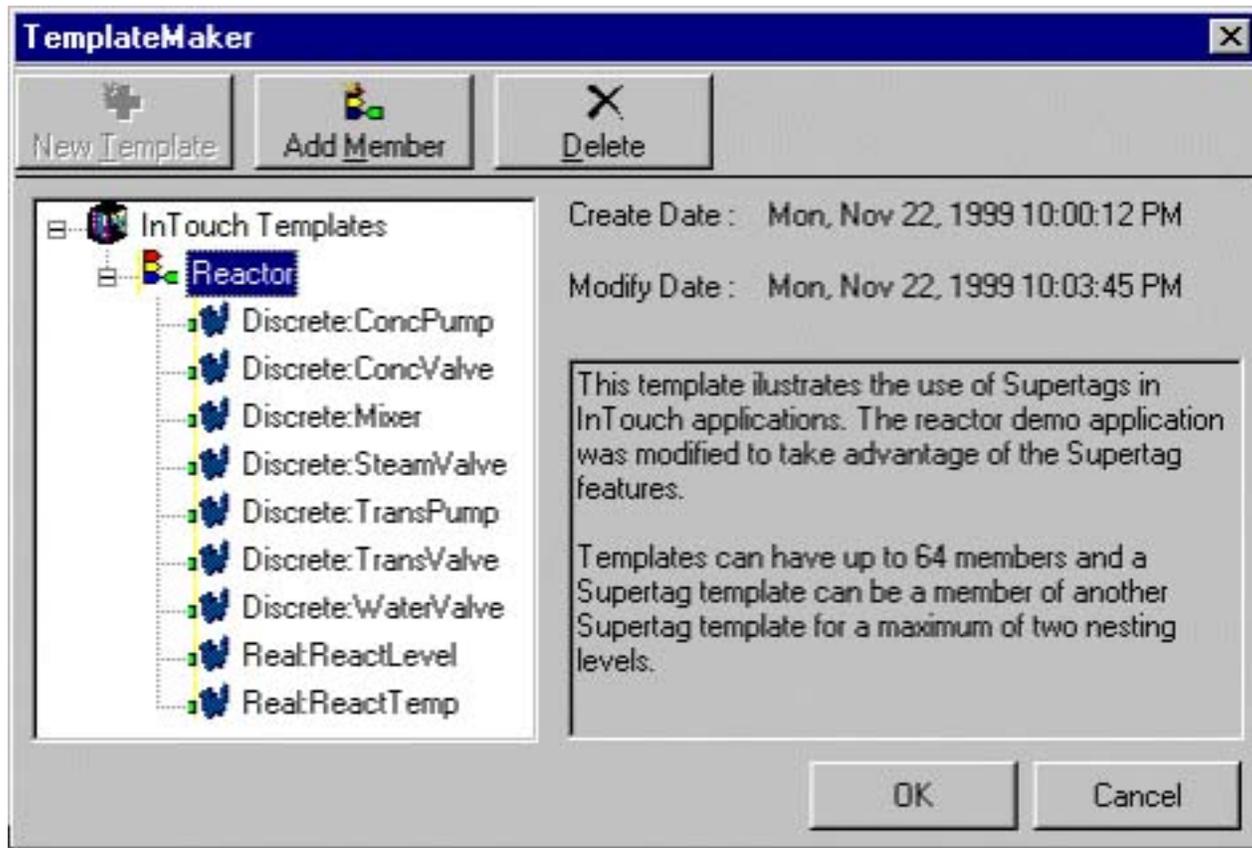


Figure 2. Template Maker with Reactor Template

With a predefined template, you can configure multiple tags of the same type in your application.

A SuperTag can contain memory tags, I/O tags, or even other SuperTags (see the example in the [SuperTag Syntax](#) section).

Considerations When Using SuperTags

- SuperTags require careful planning before they are implemented.

Make sure you know what members are required for a template before you create it. If you modify an existing template, the instances of that member will not be affected. However, new instances of the modified template will use the new structure, unless they are replicated from an existing SuperTag member that was created with the old template.

- Member tagnames of an instance of a SuperTag template can't be deleted.

For example, if Reactor1 is a tag of the Reactor template type, Reactor1\Mixer cannot be deleted, even if Mixer is removed from the Reactor template. The only way to remove a member tagname is to DBDump the tagname dictionary for the application, remove it from there, and then rebuild the application as described in [Tech Note 112](#), titled "Recovering a Corrupted InTouch Application."

- SuperTags do not reduce the tag count; they just provide a logical way to group related tags ("child" members) together under a single type (a "parent" SuperTag template).
- Templates are not specific to a particular application; they are stored in a file called SuperTag.dat in the InTouch installation directory.

Methods for Creating SuperTags

There are two ways to create SuperTags:

- The best way is to define a template in advance and then create instances of that template in the tagname dictionary. In our example, the Reactor template was created and then the members Reactor1, Reactor2, and so on, were added to the tagname dictionary.
- SuperTags can also be created by a direct reference in a script or link. For example, you may define the fill color link for a reactor and use the expression "MyReactor \WaterValve1." If the template "MyReactor" is not present, you will be prompted to create a SuperTag-type tag called "MyReactor" and "WaterValve1" will be its first member.

When SuperTags are created using the second method above, the Template Maker will not be updated with the new SuperTag type. Similarly, if a new member is added to an instance of a SuperTag, its template will remain unchanged. This feature is useful when instances of a SuperTag require a common "base template" with minor differences for instances of that template. For example, you can create a SuperTag template "Reactor" as shown in Figure 2 and then add an extra member "WaterValve2" to Reactor1 and Reactor3 without having to add it to Reactor2.

SuperTag Syntax

The SuperTag template defines the members in a SuperTag member tagname (or in an instance of the SuperTag type). In the above example, it is possible to create tags of "Reactor" type. For example, if a tag "Reactor1" is created as a "Reactor" type, it will have members of the Reactor template such as Reactor1\ConcPump, Reactor1\ConcValve, and so on.

A SuperTag can have SuperTag members. For example, The Reactor Demo Application with a Reactor template can be part of a larger entity defined as a Plant template. "Plant" can have members such as ProdLevel (for Product Storage Tank) and OutValve (for Output Valve). An instance of Plant, such as Plant31, could have members like Plant31\Reactor1\ConcPump or Plant31\Reactor2\ReactLevel.

The 32-character limit for regular tags also applies for SuperTags; therefore, each SuperTag ParentInstance\ChildMember\Submember is limited to 32 characters.

Indirect SuperTags

Introduced in InTouch 7.1, Indirect SuperTags provide a fast way to display information about SuperTags using a single window. When a SuperTag template has been previously defined,

InTouch automatically creates a corresponding Indirect SuperTag with the same name as the template (see figure 3). Indirect SuperTag tagname types have indirect members according to the original template.

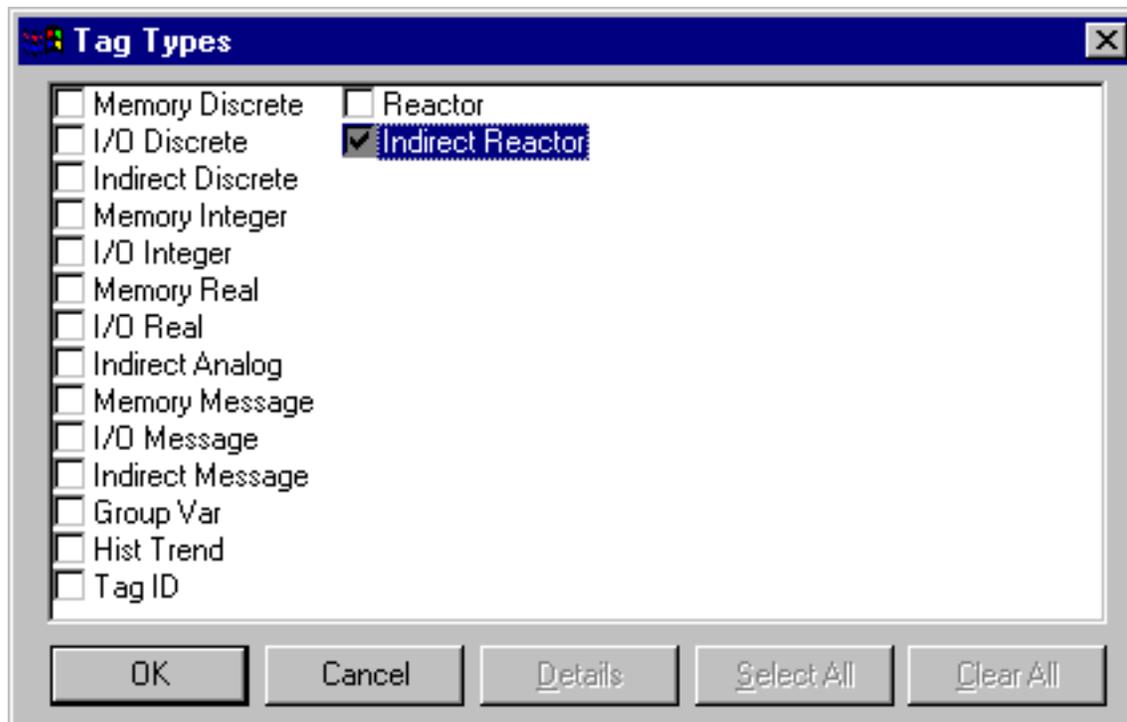


Figure 3. Indirect SuperTag for Reactor

In the above example, an Indirect Reactor tag type is available. A member tagname of Indirect Reactor type can be created and used in a window.

Indirect SuperTags behave like other indirect tags, such as indirect discrete, analog, or message tag types. Assume that Reactor 1 is filling (the water valve is open and all other valves are closed and the pumps are off) and Reactor2 is mixing (the Steam valve is open and the Mixer is on). If IndReactor is an Indirect SuperTag for the Reactor template, you can assign Reactor1 or Reactor2 to IndReactor using one of the following:

- The .name field: **IndReactor.Name=Reactor1.Name**

In this case, all indirect members for IndReactor will have the same values as the members of Reactor1 (i.e. IndReactor\WaterValve is open, all other valves are closed, and the pumps are off).

- The tag in quotes: **IndReactor.Name="Reactor2"**

In this case, all indirect members for IndReactor will have the same values as the members of Reactor2 (i.e. IndReactor\Mixer is on, IndReactor\SteamValve is open, all other valves are closed, and the pumps are off). The real advantage of Indirect SuperTags is that you can save a lot of time when creating a window to display the values for multiple instances of a SuperTag (figure 4).

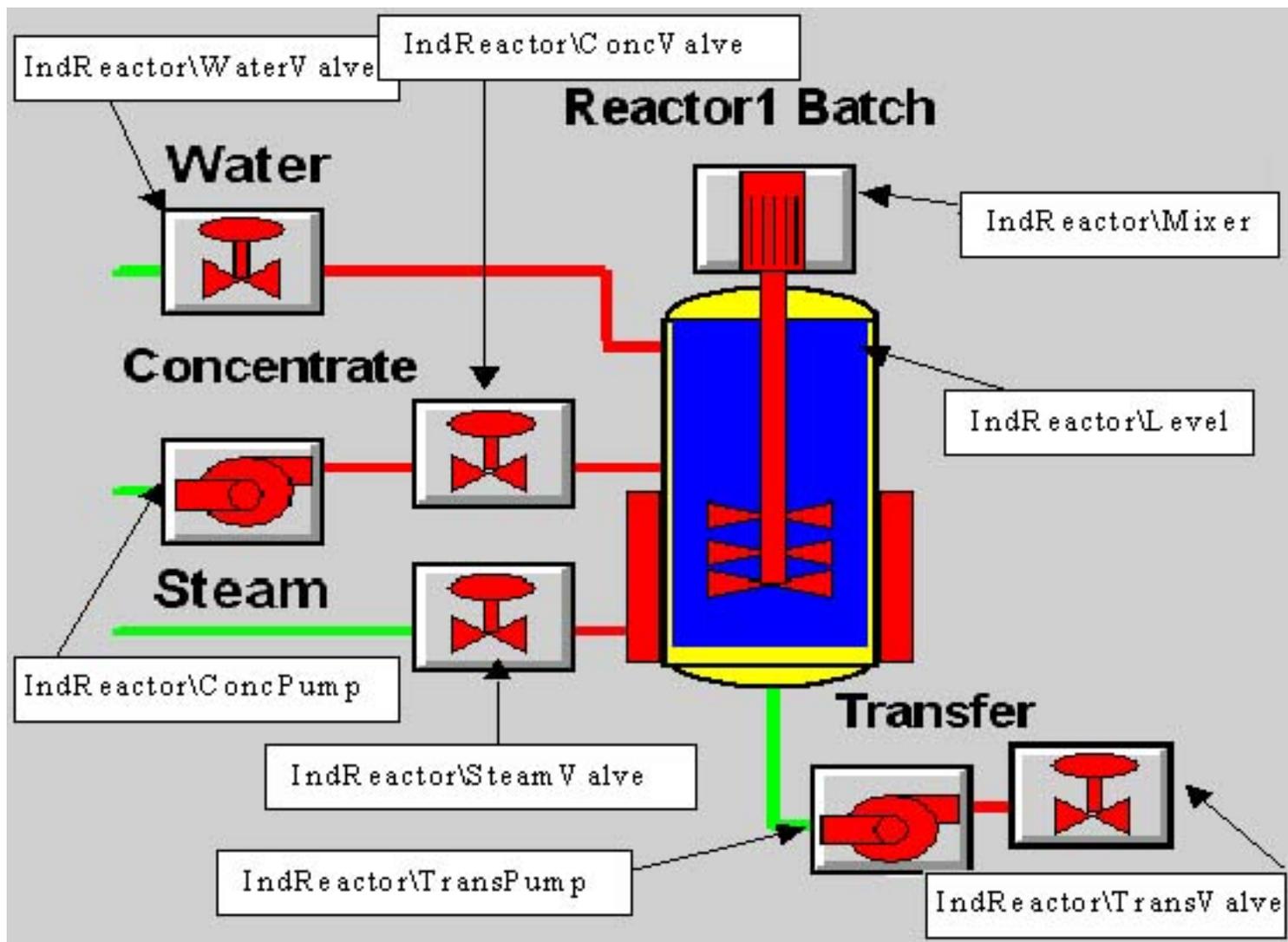


Figure 4. Reactor Demo Using Indirect an SuperTag

Download [T000924.zip](#), the modified Reactor Demo Application. It is an example of an application with 8 reactors and a single window to display them using Indirect SuperTags.

The T000924.zip file contains all of the necessary application files, along with the SuperTag.dat file. If you want to view the template definition, then move the SuperTag.dat file into your InTouch installation directory.

Fernando Gonzalez

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