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NX Post Configurator
012 – Multichain I

How to set up Chains

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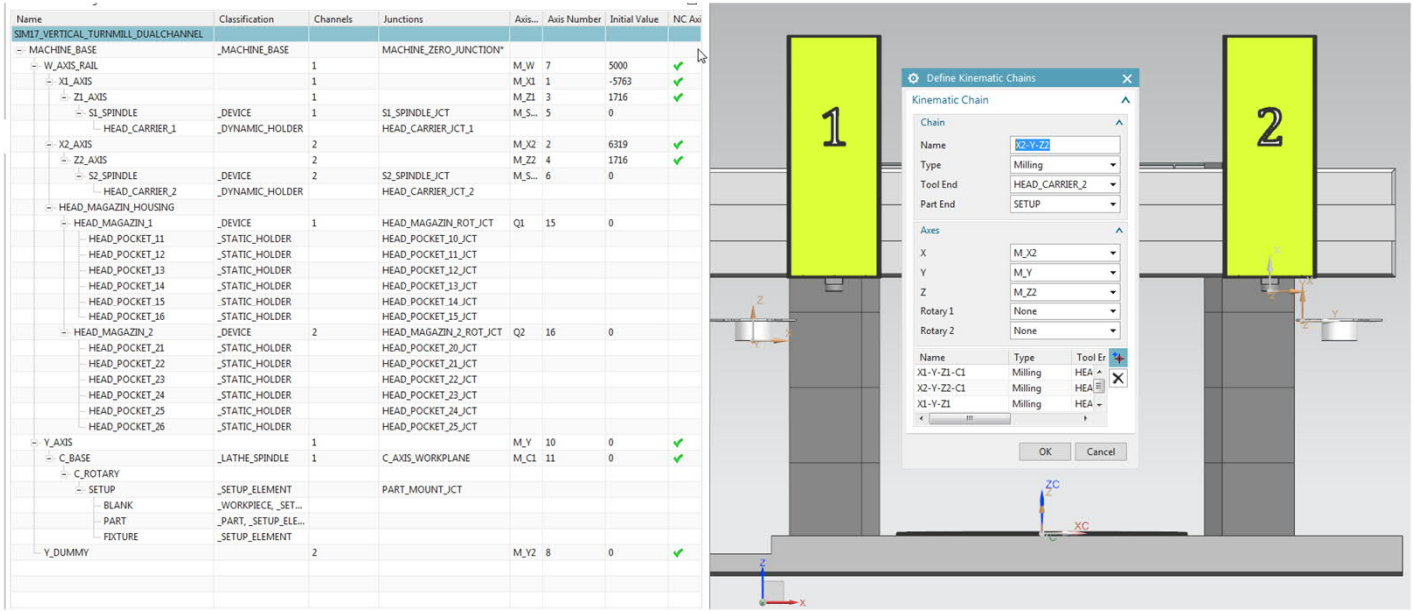
- Kinematic chains are defined in the MTB in NX
- Use of a kinematic model to create a post with Post Configurator is recommended
- Information of the kinematic model is automatically transferred into the created post

Benefits:

- one location to define the kinematics for post & simulation



Set up NX Chains 1/2

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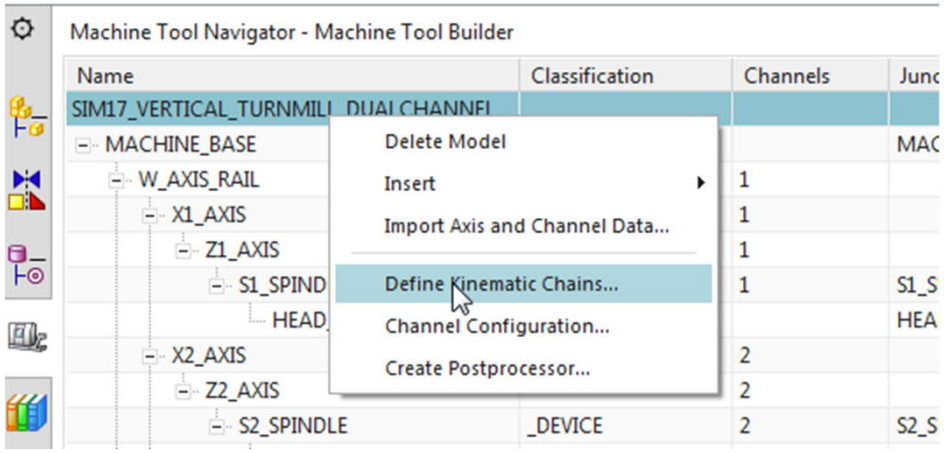
- Open the kinematic assembly from sim17 machine (installed_machines\sim17_vertical_turnmill_dualchannel\graphics\sim17_vertical_turnmill_dualchannel.prt

- If not in in MTB switch application

- Right click on the root name and choose Define kinematic chain



Set up NX Chains 2/2

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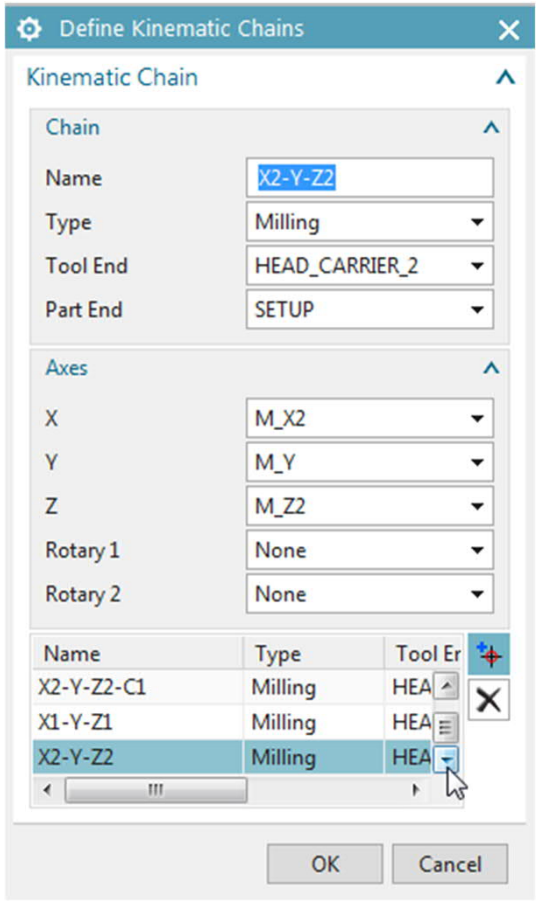
- 4 chains are defined in the sim17 sample machine
- In general you can create multiple chains here, no limitations

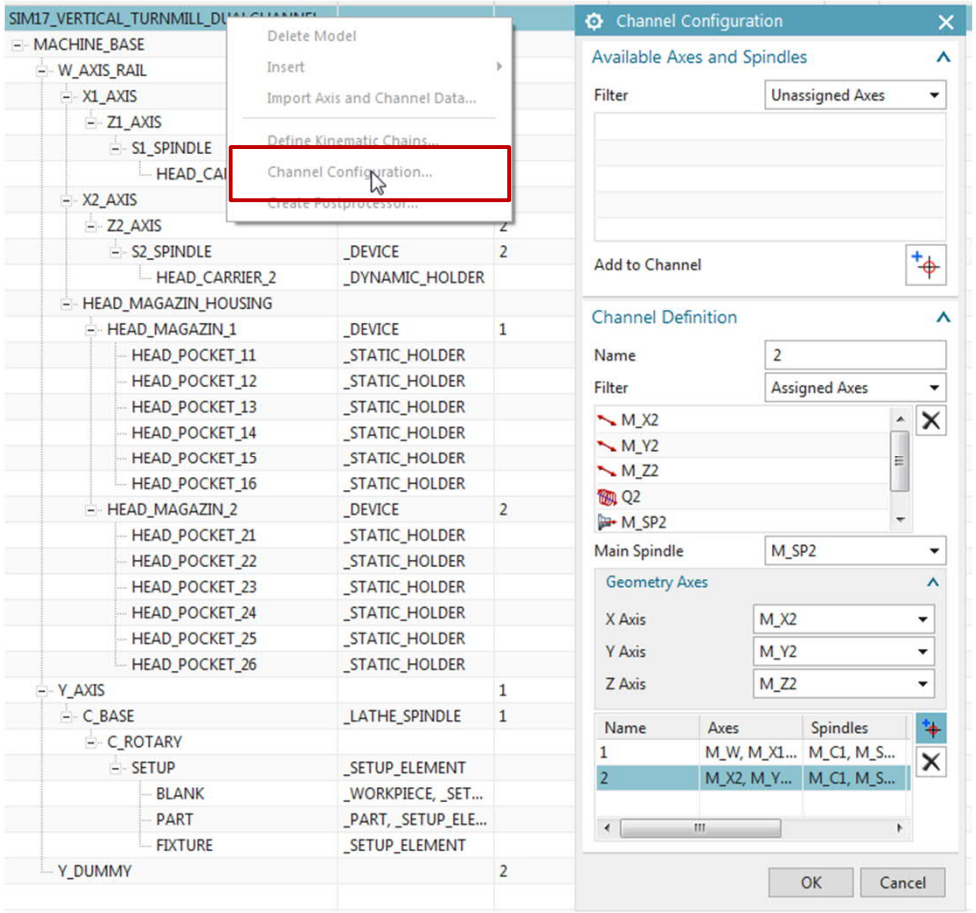
- The name of the chain is used in Post Configurator so this should be unique and understandable

- Dependent on the Tool End and Part End assign the axes to the chain



Channel Configuration

- Channel configuration is mainly needed for simulation
- All axes and spindles should be assigned to a channel
- Post Configurator not use information from here when create the post
- For postprocessing it‘s needed if use the sync manager



Create the post based on MTB

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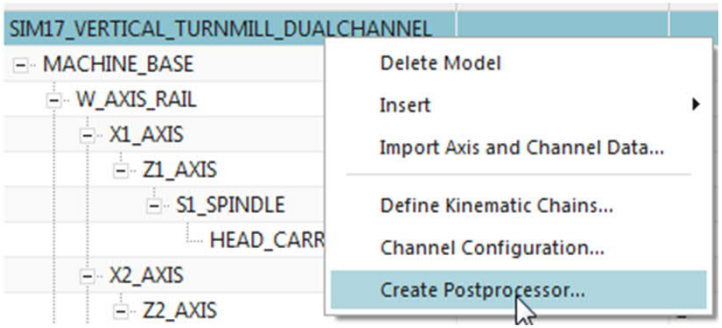

- RBM to create a new post based on MTB
- Create a new folder (e.g. in the sim17 machine folder) and a unique name for the post
- Use the OOTB Manufacturer and Machine level

Post Creation with OOTB Layern/ without

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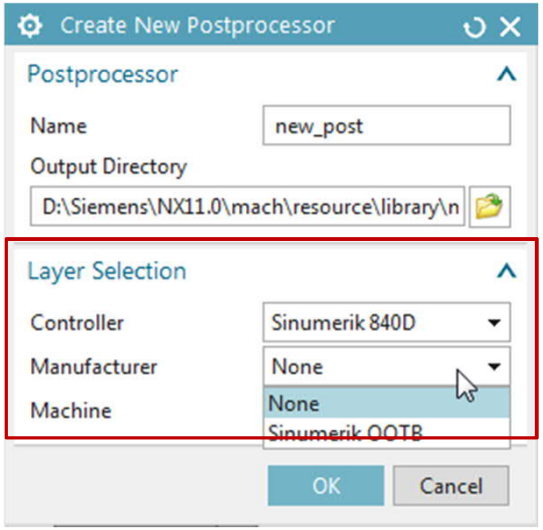
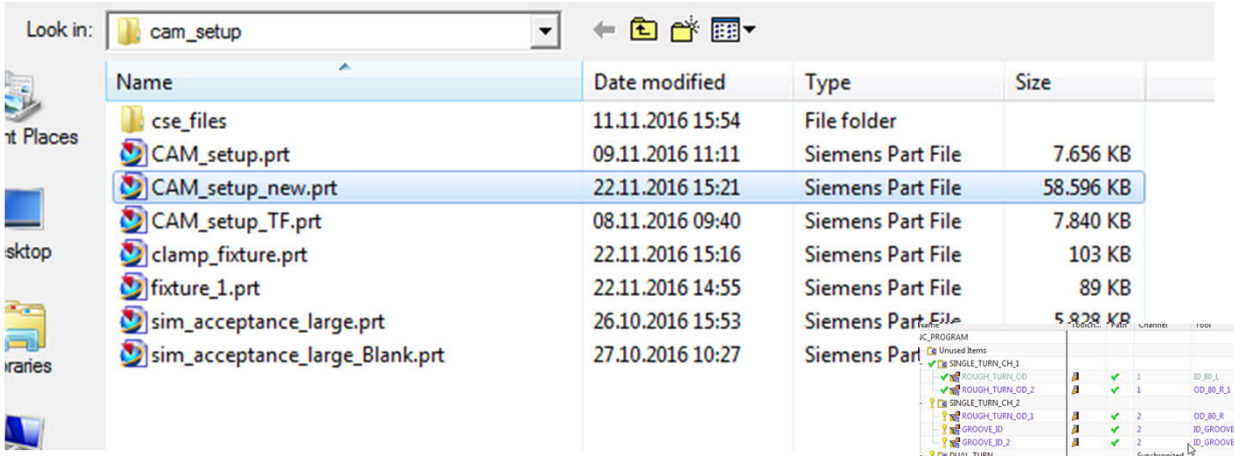
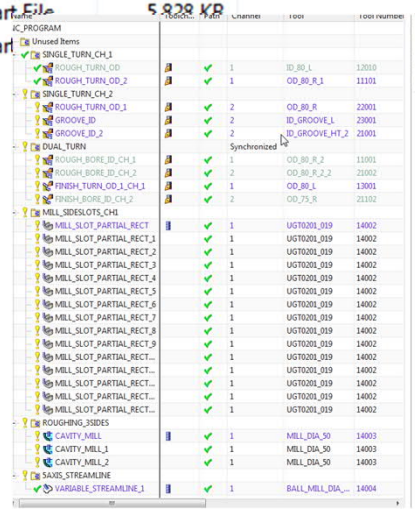
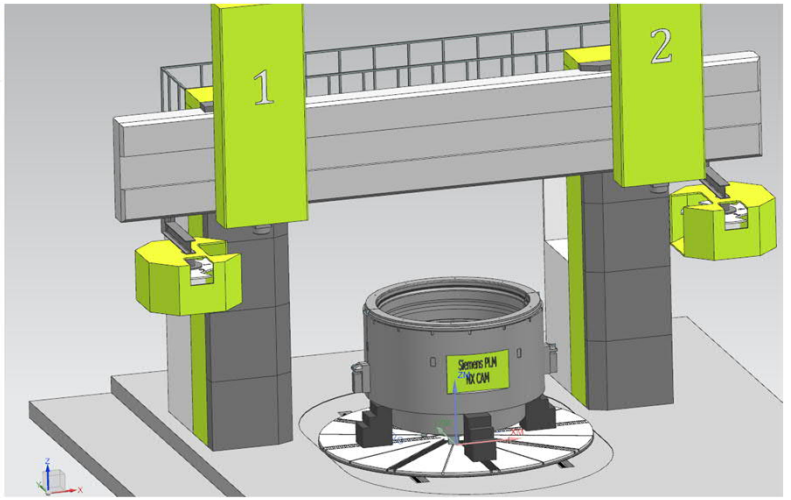
- The OOTB layer are optimized for the OOTB samples
- Recommendation is to use this for quick demos
- For complex machines or general new machines create the post without these layers or use your own
- In OOTB layer Manufacturer LIB_Entrys are used and Standard definitions like Header information for Sinumerik 840D
- In OOTB layer Machine normally only machine mode is set



Open the new sample sim17

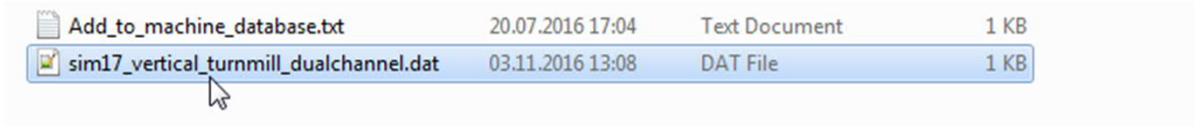






- The new sample is located in the machine folder
- Open the …\cam_setup\CAM_setup_new.prt

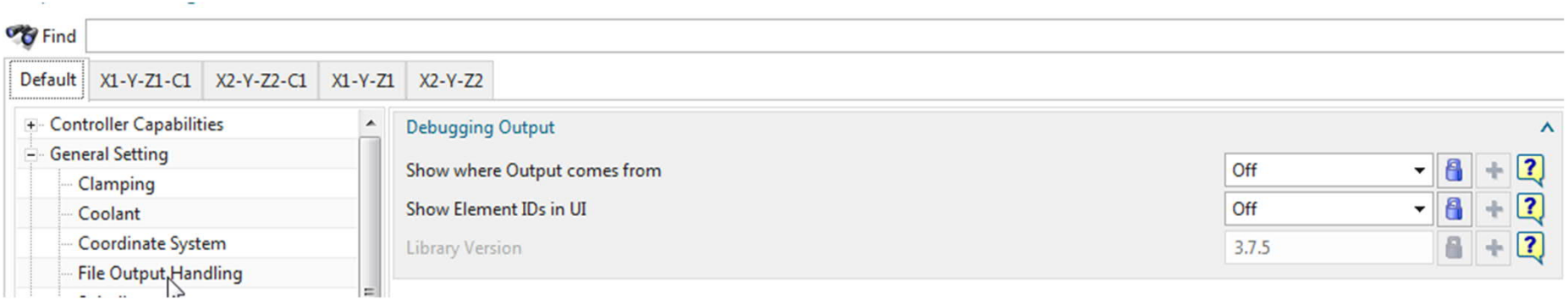
Connect the generated post with machine



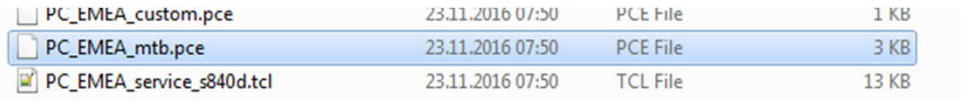

```
k\sim17_turnmill_sinumerik.tcl,${UGII_CAM_LIBRARY_INSTALLED_MACHINES_DIR}sim17_vertical_turnmill_dualchannel\postprocessor\sinumerik\sim17_turnmill_sinumerik.def
```

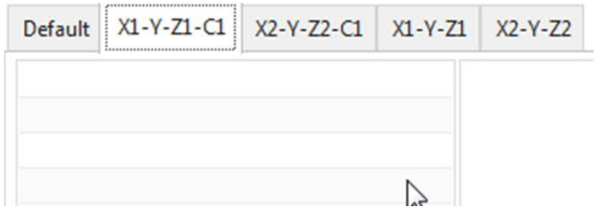
- Open sim17_vertical_turnmill_dualchannel.dat
- Replace the entry for the post with the new one

Automatically generated Chains post overview



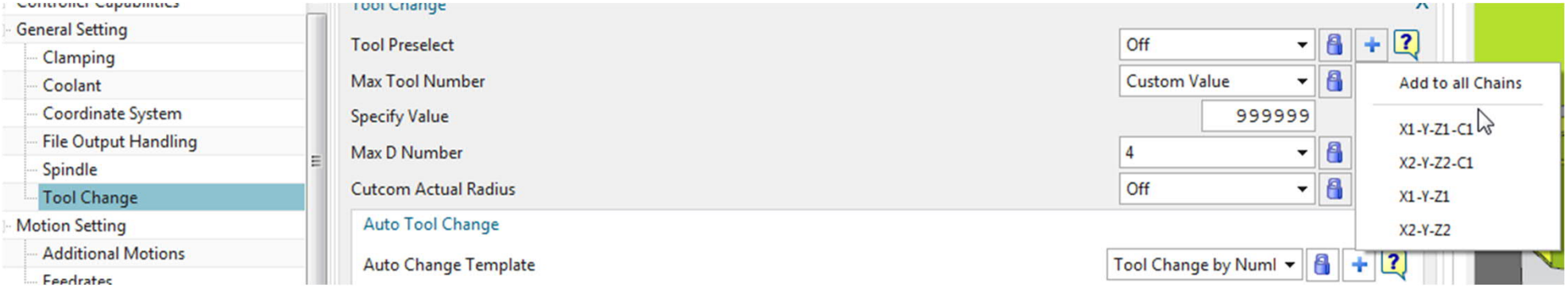
- The chains are added through the mtb Layer which was generated when create the post
- After creation the default chain contains all propertys
- All created chains are empty and propertys can now assigned to these chains



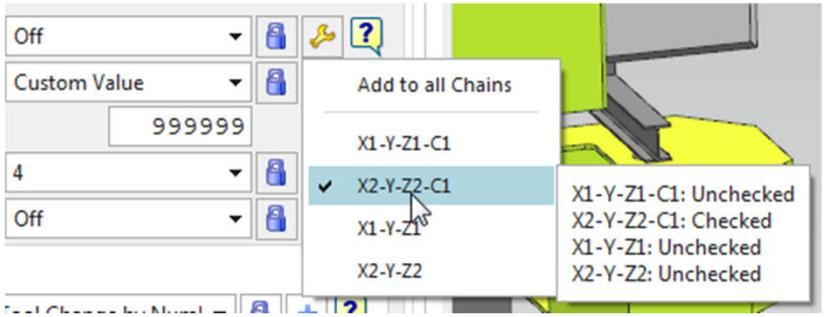


Add the propertys to chains 1/2 general

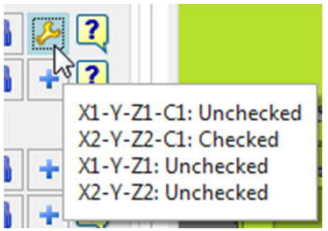
- Properties which can be chain specific can add to single chains or to all chains
- Click on the + sign between the inherited lock and help sign and context menu will open
- User make decision which chains this property contains or add it to all chains
- Propertys which can not assigned to chains are greyed

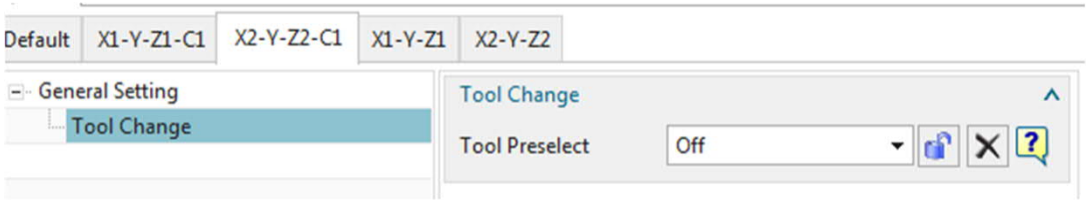


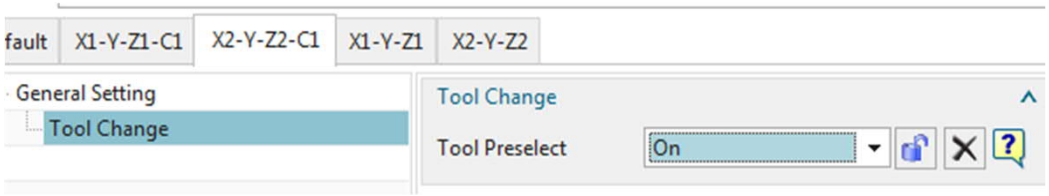
Add the propertys to chains 2/2 general



- When added to a chain the chain is marked and the + symbol is converted into a wrench
- in UI it‘s fast to see which propertys are in chains
- When mouse is over the wrench a tooltip open in which chains this property is used

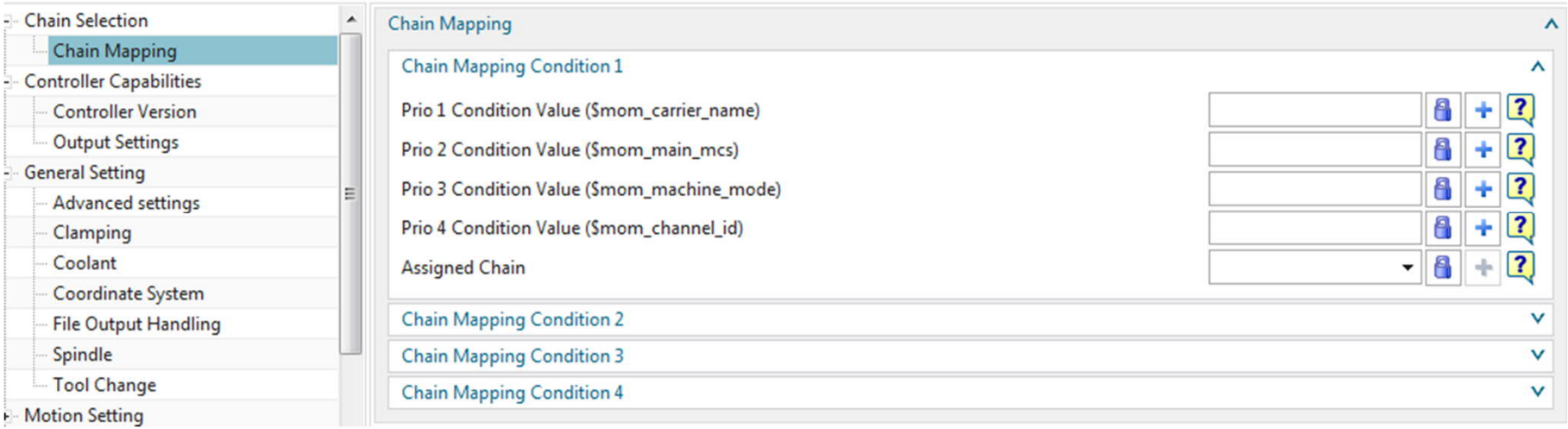






- When switching the chain in the tab the property which was added is in navigation tree with the origin group of setting
- Now value can changed for this property

Define Chain conditions for automatic switching



- New property for Chain mapping

Workflow:

- o Assign chain condition
- o Possibilities to use standard values for chain mapping e.g. mom_carrier_name for machines with head devices

Chain conditions expert settings

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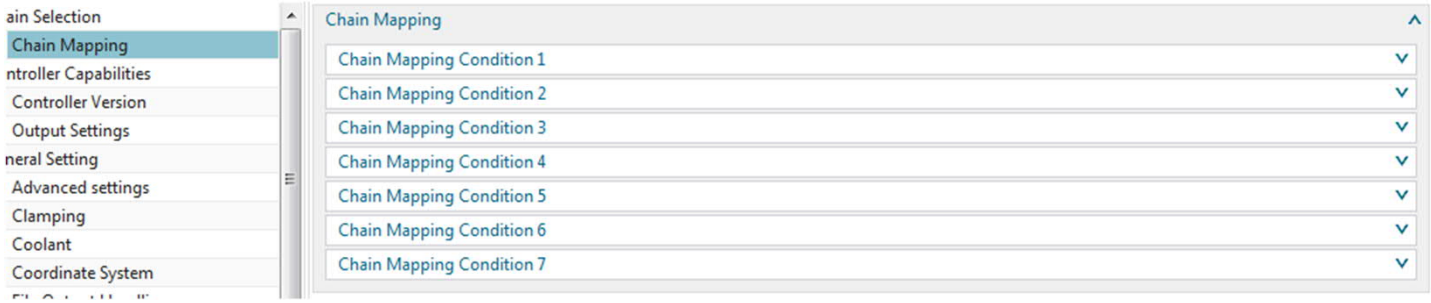
- If more conditions needed in UI, because chains added manual with Tcl you can use the followed command in service layer:

```
LIB_GE_generate_chain_selection_condition_vars 7
```



- To reorder priority set the index of the variable lib_ge_chain_selection_priority

```
set lib_ge_chain_selection_priority(3) mom_channel_id
set lib_ge_chain_selection_priority(1) mom_main_mcs
set lib_ge_chain_selection_priority(2) mom_machine_mode
set lib_ge_chain_selection_priority(0) mom_carrier_name
```

Preset chain selection condition

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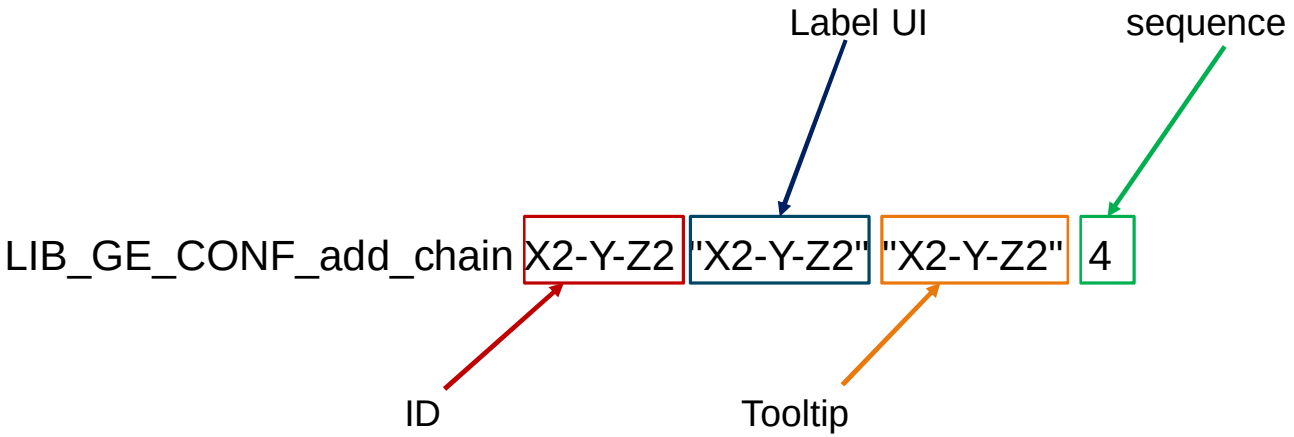
```
# This array is to preset a chain selection condition from any
TCL layer of the postprocessor

set lib_ge_chain_condition(0,mom_channel_id) Main

set lib_ge_chain_condition(0,mom_main_mcs) MCS_MAIN

set lib_ge_chain_condition(0,mom_machine_mode) MILL

set lib_ge_chain_condition(0,mom_carrier_name) ""

set lib_ge_chain_selection(0) "test-chain-1"
```

Add Chain manual

- It‘s possible to add chains by hand through tcl
- Siemens PLM recommend to create the chain in MTB and then create the post
- But if necessary the chain can setup in the layer file, because e.g. new head device for machine or a Retrofit of a machine and so post must updated



Allow Chains propertys

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```
LIB_GE_CREATE_obj custom_int {} {
    LIB_GE_property_ui_name         "Name"
    LIB_GE_property_ui_tooltip      "Tooltip"

set id "custom_prop"
    set $id 0
    set options($id)            {1|2|3}
    set options_ids($id)        {0|1|2}
    set datatype($id)           "INT"
    set access($id)             222
    set dialog($id)             {{Int Property}}
    set descr($id)              {{A numeric Property}}
    set ui_parent($id)          "custom_group"
    set ui_sequence($id)        -1
    set allow_chain($id) 0
}
```

- Defines that the property can added to other chains

- 0 – cannot add to other chains
- 1 – can add to other chains, also it‘s possible not define the value because in standard it‘s aallowed by default

Q&A

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