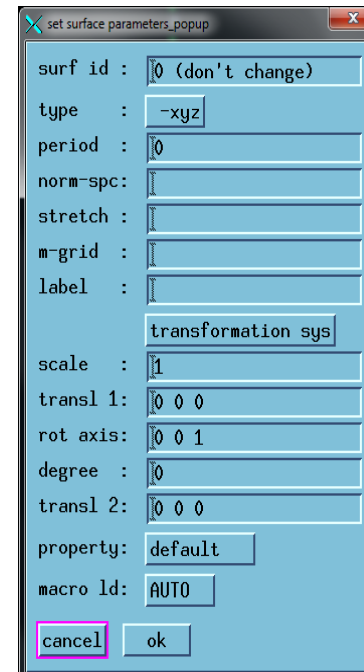
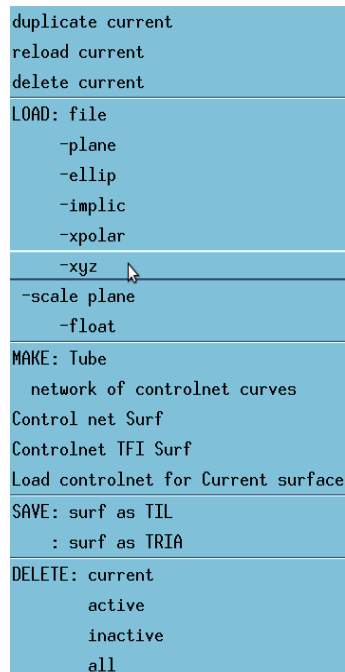


Periodic boundary conditions

- GridPro handles:
 - Cartesian periodic boundary conditions.
 - Polar periodic boundary conditions.
- Periodic boundary conditions are handled using:
 - Specific surface that define the characteristics of the periodic boundary conditions.
 - Assignments of block topology to these specific surfaces.

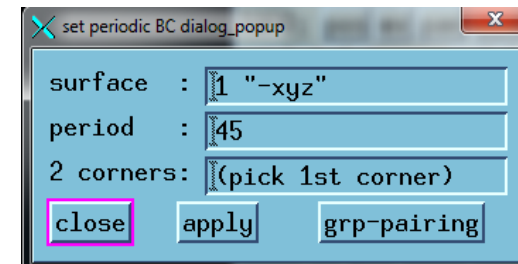
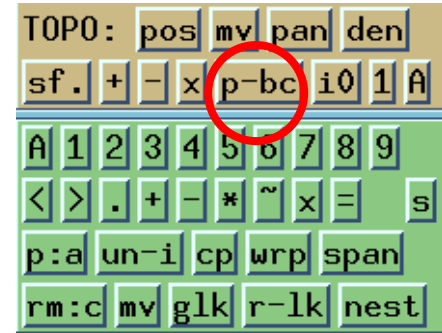
Cartesian periodic boundary conditions

- **First step:** create the “-xyz” surface in the surface sub-menu
- The “period” defines the space between the two virtual surfaces that define the Cartesian P-BC
- By default, the periodic axis of the xyz surface is the x-axis. To change this, rotate the surface. A rotation of 90° around the z-axis modifies the periodic axis of the xyz surface to the y-axis.



Contd...

- **Second step:** assign the topology to the “-xyz” surface by clicking on the “p-bc” button on the topology panel.
- This can be done manually for each couple of topology points or by “group pairing”.
- For manually pairing a couple: the user needs to click on each corner then to click the “apply” button.
- For group pairing: the user needs to define the two groups, one of them being the reference group, and to use the “group pairing” button.
- For group pairing, some manually pairing needs to be done to give hints to the algorithms so only one match is possible. Indeed, as opposite to the “link”, the user cannot visually check the result in the GUI after the group pairing has been done.



Polar periodic boundary conditions

- **First step:** Create the “-xpolar” surface in the surface sub menu
- The “period” defines the angle in degrees between the two virtual surfaces that define the polar P-BC.
- By default, the periodic axis of the “xpolar” surface is the x-axis. To change this, rotate the surface.
- **Second step:** assign the topology to the “-xpolar” surface by clicking on the “p-bc” button on the topology panel.
- This can be done manually for each couple of topology points or by “group pairing” like for the “-xyz” surface.

