

Example of SCSCP client in Python2 connecting to GAP server

In [1]:

```
from scscp import SCSCPCLI
```

- Establishing connection

In [2]:

```
c = SCSCPCLI('scscp.gap-system.org')
```

- Ask for the list of supported procedures

In [3]:

```
c.heads
```

Out[3]:

```
{'scscp_transient_1': ['SCSCPStartTracing', 'Addition', 'IO_UnpickleStringAndPickleItBack', 'NrConjugacyClasses', 'ConwayPolynomial', 'SmallGroup', 'GroupIdentification', 'AutomorphismGroup', 'IdGroup512ByCode', 'Phi', 'Factorial', 'GnuExplained', 'MathieuGroup', 'TransitiveGroup', 'PrimitiveGroup', 'Multiplication', 'NextUnknownGnu', 'Identity', 'IsPrimeInt', 'Gnu', 'Determinant', 'LatticeSubgroups', 'Length', 'MatrixMultiplication', 'SCSCPStopTracing', 'AlternatingGroup', 'SymmetricGroup', 'IdGroup', 'SylowSubgroup', 'GnuWishlist', 'Size']}
```

- A simplest test

In [4]:

```
c.heads.scscp_transient_1.Identity([1])
```

Out[4]:

```
1
```

- In the next example, we retrieve from the server the symmetric group of degree S_3

In [5]:

```
g = c.heads.scscp_transient_1.SymmetricGroup([3])
```

- This group does not map to an object defined in Python, so it is stored in its internal representation

In [6]:

```
g
```

Out[6]:

```
OMApplication(OMSymbol('group', 'permgp1', id=None, cdbase=None), [OMSymbol('right_compose', 'permutation1', id=None, cdbase=None), OMAp
plication(OMSymbol('permutation', 'permut1', id=None, cdbase=None),
  [OMInteger(2, id=None), OMInteger(3, id=None), OMInteger(1, id=None)], id=None, cdbase=None), OMAp
plication(OMSymbol('permutation', 'permut1', id=None, cdbase=None), [OMInteger(2, id=None), OMInteger(1, id=None)], id=None, cdbase=None)], id=None, cdbase=None)
```

- However, we can use it as an argument in SCSCP procedure calls, for example, to find its order and the catalogue number in the GAP Small Groups Library

In [7]:

```
c.heads.scscp_transient_1.Size([g])
```

Out[7]:

```
6
```

In [8]:

```
c.heads.scscp_transient_1.IdGroup([g])
```

Out[8]:

```
[6, 1]
```

- Close the connection

In [9]:

```
c.quit()
```