

Finite case

```

G := Group(
  [ [[0,1,0,0], [0,0,1,0], [0,0,0,1], [1,0,0,0]],
    [[0,1,0,0], [1,0,0,0], [0,0,1,0], [0,0,0,1]] ]);

gap> iso := IsomorphismPcpGroup(G);;
gap> H := Image(iso);
Pcp-group with orders [ 2, 3, 2, 2 ]
gap> mats := List(Cgs(H), x -> PreImagesRepresentative(iso,x));
[ [[1,0,0,0], [0,0,1,0], [0,1,0,0], [0,0,0,1]],
  [[1,0,0,0], [0,0,1,0], [0,0,0,1], [0,1,0,0]],
  [[0,1,0,0], [1,0,0,0], [0,0,0,1], [0,0,1,0]],
  [[0,0,0,1], [0,0,1,0], [0,1,0,0], [1,0,0,0]] ]

gap> StabilizerIntegralAction(H, mats, [1,0,0,0]);
Pcp-group with orders [ 2, 3 ]
gap> StabilizerIntegralAction(H, mats, [1,0,0,1]);
Pcp-group with orders [ 2, 2 ]

```

Unipotent case

```

gap> G := UnitriangularPcpGroup(4,0);
Pcp-group with orders [ 0, 0, 0, 0, 0, 0 ]
gap> mats := G!.mats;
[[ [1,1,0,0], [0,1,0,0], [0,0,1,0], [0,0,0,1]],
  [ [1,0,0,0], [0,1,1,0], [0,0,1,0], [0,0,0,1]],
  [ [1,0,0,0], [0,1,0,0], [0,0,1,1], [0,0,0,1]],
  [ [1,0,1,0], [0,1,0,0], [0,0,1,0], [0,0,0,1]],
  [ [1,0,0,0], [0,1,0,1], [0,0,1,0], [0,0,0,1]],
  [ [1,0,0,1], [0,1,0,0], [0,0,1,0], [0,0,0,1]] ]
gap> Cgs(G);
[ g1, g2, g3, g4, g5, g6 ]

gap> Cgs(StabilizerIntegralAction(G, mats, [1,0,0,0]));
[ g2, g3, g5 ]
gap> Cgs(StabilizerIntegralAction(G, mats, [1,1,1,1]));
[ g2*g4^-1, g3*g6^-1, g5*g6^-1 ]

```

Field case

```

gap> f := x^3 - 7*x + 1;;
gap> K := FieldByPolynomial(f);
<algebraic extension over the Rationals of degree 3>
gap> U := UnitGroup(K);
<group with 3 generators>
gap> u := GeneratorsOfGroup(U);
[ !-1, a, a^2+2*a-2 ]

gap> m2 := List(Basis(K), x-> Coefficients(Basis(K),x*u[2]));
[ [ 0, 1, 0 ], [ 0, 0, 1 ], [ -1, 7, 0 ] ]
gap> m3 := List(Basis(K), x-> Coefficients(Basis(K),x*u[3]));
[ [ -2, 2, 1 ], [ -1, 5, 2 ], [ -2, 13, 5 ] ]
gap> G := Group(m2, m3);;

```

Field case

```

gap> iso := IsomorphismPcpGroup(G);;
gap> H := Image(iso);;
gap> mats := List(Cgs(H), x -> PreImagesRepresentative(iso,x));
  [ [ [ 0, 1, 0 ], [ 0, 0, 1 ], [ -1, 7, 0 ] ],
    [ [ -2, 2, 1 ], [ -1, 5, 2 ], [ -2, 13, 5 ] ] ]

gap> StabilizerIntegralAction(H, mats, [1,0,0]);
Pcp-group with orders [ ]
gap> StabilizerIntegralAction(H, mats, [1,1,0]);
Pcp-group with orders [ ]
gap> StabilizerIntegralAction(H, mats, [1,1,1]);
Pcp-group with orders [ ]
  
```

General case

```

a := [[-1, 1, 8],[ -5, -2, 20],[ -1, 0, 5]];
b := [[-47, -24, 192],[ 0,1,0],[ -12,-6,49]];
c := [[-23, 0, 96],[ 0,1,0],[ -6, 0, 25]];
G := Group(a,b,c);
H := Image(IsomorphismPcpGroup(G));

gap> Cgs(StabilizerIntegralAction(H, [a,b,c], [1,0,0]));
[ g1^24*g2^-10572*g3^-17106 ]
gap> Cgs(StabilizerIntegralAction(H, [a,b,c], [0,1,0]));
[ g2, g3 ]
gap> Cgs(StabilizerIntegralAction(H, [a,b,c], [0,0,1]));
[ g1^24*g2^-12504*g3^-20232 ]

```