

Basic internal algorithms in the FRAME editor and the possibility to extend it

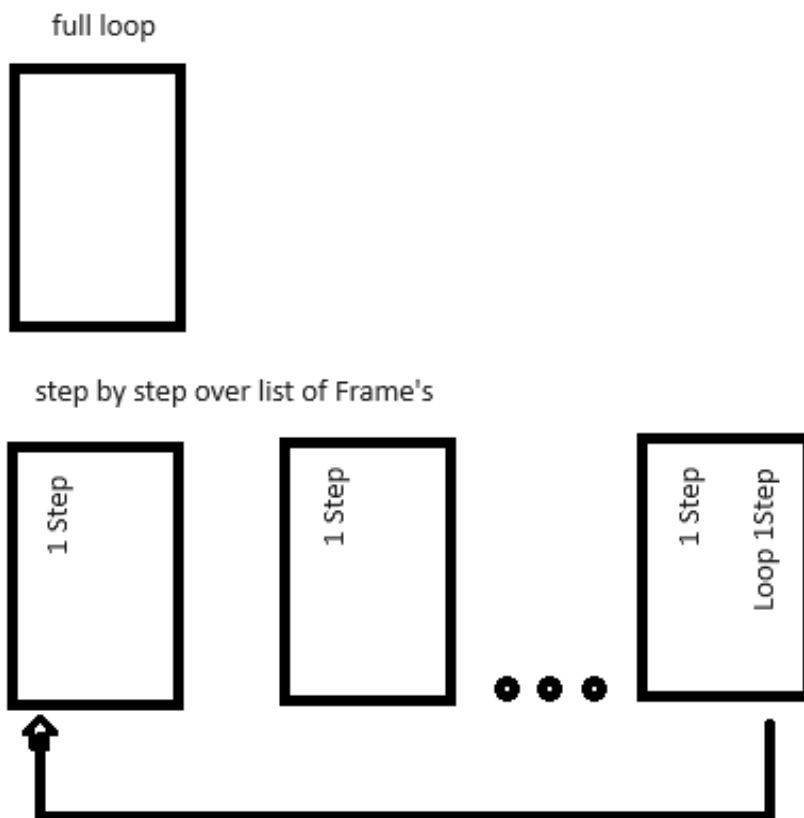
Smorynes now supports two algorithms in the FRAME editor, see documentation

1. Full loop

The required block is executed in the specified number of steps

2. Step by step over the list of Frames

The requested block is executed 1x



Full loop and step-by-step can be combined, full loop cannot be inserted into a step-by-step sequence.

How to customize the algorithm

More complex algorithms are created using external DLLs in C#. The SmorynesInterface.dll API library is used for this purpose. The created libraries need to be saved in the required folder. The required library is selected from the list of available libraries on the node

Just as a reminder, the structure of the external dll is as follows:

```
using SmorynesInterface;
namespace Sorting
{
    public class SortingControl
    {
        // is called after loading the dl
        public bool Init()
        {
            bool b = false;
            return b;
        }

        // is called after pressing the play button
        public bool Run()
        {
            bool b = false;
            return b;
        }

        // is called after the execution of the node starts
        public bool MoveStart()
        {
            bool b = false;
            return b;
        }

        // is called after the node is finished
        public bool MoveDone()
        {
            bool b = false;

            // connect to real HW to get sorting value or use random
            System.Random rnd = new System.Random();
            int value = rnd.Next(1, 4);
        }
    }
}
```

```

    b = ProcessInterface.SetSortingValue(value, true);

    return b;
}
}
}

```

That dll will ensure that the sort value is generated and the sequence continues automatically. It will connect to the Wait node in the block editor.

The choice between 'Ind' and 'Loop' defines a principally different method. In "Loop" external Dll only modify the basic movement in the grid. The movement is determined by the number of items and their distances.

By selecting 'Ind' the external Dll library takes over all control. The external library uses the SmorynesInterface.dll function. Direct access to graphical objects is not yet supported.

The previously described Dll structure will be limited to the Init function. Only this function is called when the Dll library is loaded. In general, the Dll library for 'Loop' mode is written in a passive style. The library in 'Ind' mode is active and generally waits for the Play button to be pressed before taking control.

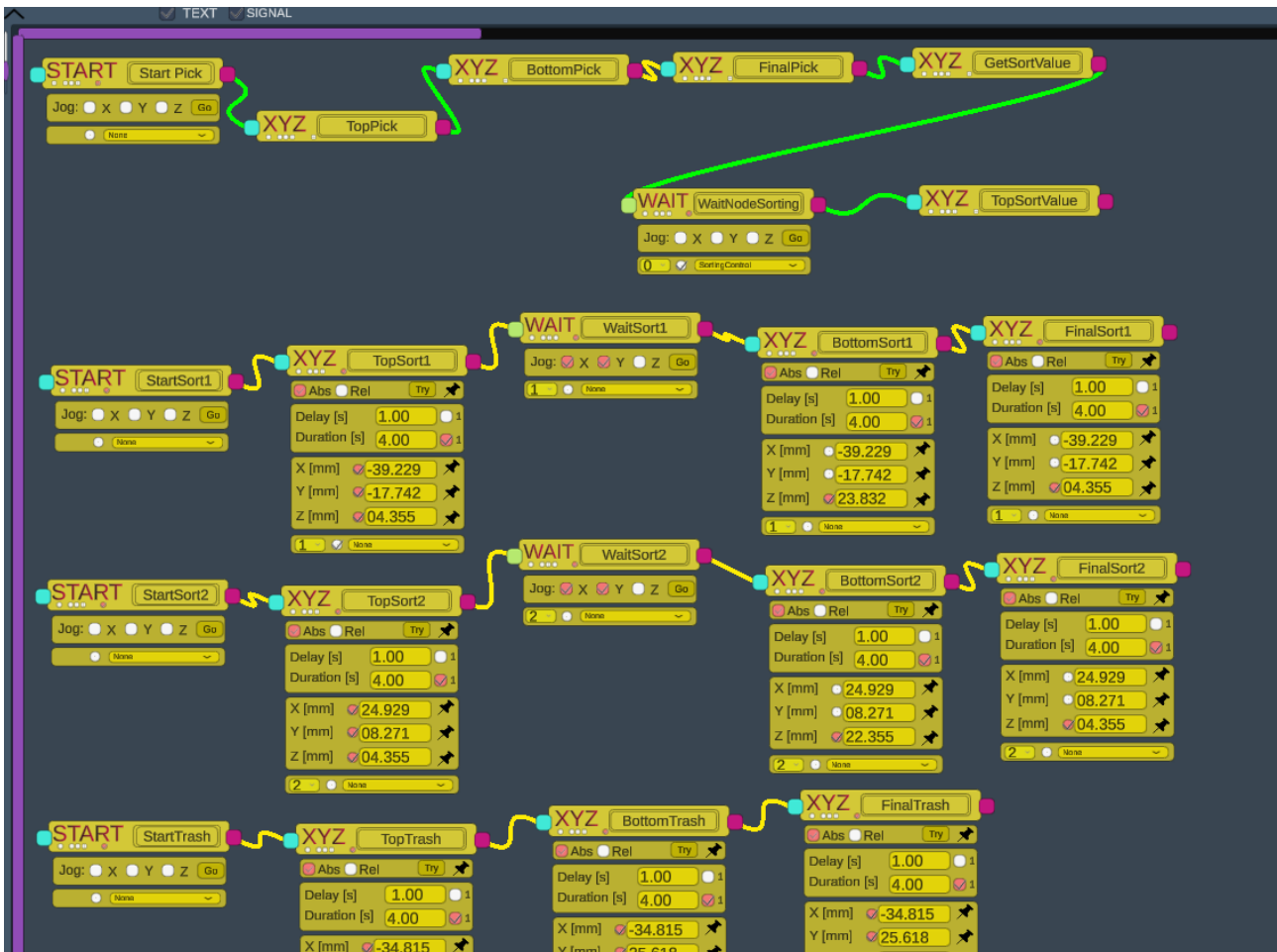
Example

The following text describes the solution for sorting elements, a very common requirement. It is sorted into quality I and II and scrap. / The number of sorting levels can be set in the .smrenc files, see documentation /.



Wireframe nodes in the block editor. The 'WaitNodeSorting' node contains the SortingControl.dll.

The nodes 'WaitSort1' and 'WaitSort2' allow precise positioning before placing the element in the box. In practice, they are controlled by optics / microscope, front camera, UpDown camera / and jog mode in XY axes.



The Frame editor contains a description of the boxes to place the element depending on the sorting result.

