

Priority Helper

Description

Priority Helper allows you to easily calculate a priority order for your jobs according to several modes.

Compatibility

Switch 2022 fall or higher.

Connections

At least one incoming connection and outgoing connection

Use case

When a lot of data is being processed and Switch is approaching its maximum computational capacity, the priority order in which Switch performs these calculations is crucial.

Priority Helper allows you to simply assign a priority "level", and within that level, calculate an order using two modes: "Due Date" or "First In, First Out".

Choose your priority level and mode and let **Priority Helper** automatically prioritize your jobs in Switch for you



How priority work in Switch

Quotation from Switch documentation :

The Switch job scheduler has the following (sometimes conflicting) objectives, in order of importance:

- *Maximize overall throughput, that is, process as many jobs as possible in a given amount of time.*
- *Allow users to specify individual job priorities: a task for a job with a higher priority should be executed first. This can be used to "rush" a particular job through a flow, or to define a high priority flow (by assigning a priority to all jobs in the flow).*
- *Process jobs in order of arrival, that is, jobs should arrive at the end of a flow in the order they were placed in the flow to begin with (FIFO = first-in/first-out).*

These objectives are not absolute: enforcing some particular order of execution to the letter would sacrifice throughput and/or overly complicate the implementation.

In other words, As soon as a core is available, Switch starts processing a pending job:

- If multiple jobs are available, it will process the one with the highest priority.
- If multiple jobs are available with the same priority, it should give priority to the jobs in "FIFO" (first in, first out) mode.

In some cases (flow chaining, checkpoint, behavior of some applications...), the timestamp used for this FIFO mode is refreshed, which leads to an inconsistent order of processes since all jobs have the same priority by default.

By assigning an individual priority to each job, you can more easily manage the priority between each job.

Flow element properties

- **Priority Level**

The priority level allows you to choose a value between -3 and +3.

A job with a higher priority level will always be higher in the process list, regardless of the mode and its settings.

- **Mode**

The mode allows you to choose between two calculation methods. It's important to NOT mix them within a flow, as they use different methods of calculation.

- "First in, first out" for simple implementation.
- "Due date" if you want to challenge the job against a date, or even update it at crucial moments of the flow (Receipt of files, Approval or customer corrections...)

- **Due date**

Determine the priority by calculating the delta between the current time and a given date.

A job that is ahead of schedule will have a lower priority than a job that is behind schedule.

- **First in first out**

The first jobs to arrive in the **Priority Helper** element will have a higher priority value than subsequent jobs.

In "first in, first out" mode the application will calculate a time difference with an arbitrary date (2022-12-01:00:00:00)

- **Unit**

The Unit property allows you to manage the granularity of the analysis of **Priority Helper**.

The larger the unit used, the more you can compare dates with important gaps.

By default, the app calculates in seconds, which allows you to compare over a 10 year gap.

It is important to note that a difference of one minute in "minute" mode will give the same priority as a difference of one second in "second" mode. It is therefore imperative to remain consistent on the choice of unit within the flows.