Database Process Search (DBPS)

The Database Process Search (DBPS) looks for process flows written in Sentaurus™ Process syntax in a directory (such as `$STCALIB/processes_*`). The processes that match the search criterion are listed in the process list file.

The search criterion – the process search pattern – consists of *conditions* connected by logical *operators* `&&`, `||`, `!`, and grouped by parentheses. The operator `&&` means *and*, `||` means *or*, and `!` means *not*. The conditions consist of a *keyword* and *arguments*, for example, `impl(element==As)` or `nimpl>0`.

In general, the keyword takes only one argument. Only the `impl()` and `diff()` keywords can have more than one argument that are connected by logical operators. Some arguments consist of an argument type and a value connected by *comparators*: `==`, `<=`, `>=`, `<`, `>`, or `!=`. Some arguments do not have comparators or argument types.

Table 1 DBPS process flow keywords and syntax allowed in DBPS criterion

Keyword	Description	Argument	Example

`impl()`	Implantation statement scan, true if (1)	`element, elem`
		`energy, en`
		`dose`
		`tilt`
		`rotation, rot`
			`impl(elem==as)`
			`impl(en>0 && en<100)`
			`impl(dose>=1e12)`
			`impl(tilt!=0)`
			`impl(rot<1)`

`diff()`	Diffusion statement scan, true if (1)	`maxT` (maximum temperature)
		`totaltime`
		`peaktime` (time at maximum temperature)
		`pn2` (partial pressure for N_2)
		`po2` (partial pressure for O_2)
		`ph2o` (partial pressure for H_2O)
			`diff(maxT==1000)`
			`diff(totaltime>5)`
			`diff(peaktime!=0)`
			`diff(pn2==1)`
			`diff(po2>0 && po2<1)`
			`diff(ph2o!=0)`

`plot()`	Plot statement scan, true if (2)	`X`, `Xtot`, `Xtotal`, `Xactive` (where `X` is one of `as`, `p`, `b`, `in`, `ge`, `sb`, `ga`, `al`, `n`)	`plot(bactive)`

Table 1 DBPS process flow keywords and syntax allowed in DBPS criterion (Continued)

Keyword	Description	Argument	Example
`nimpl`	Number of implantation statements scan, true if (3)	–	`nimpl==1`
`ndiff`	Number of diffusion statement scan, true if (3)	–	`ndiff>0`
`file()`	File name scan, true if (2)	`<string>`	`file(USJ)`
`grep()`	Process file scan, true if (2)	`<string>`	`grep(comment)`

(1) At least one statement exists in the process file, for which the arguments are evaluated as true.
(2) At least one statement exists in the process file, for which the argument is evaluated as true.
(3) Comparison is evaluated as true.