# eveCSS

**Marcus Michalsky**

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# Table of Contents

# Foreword

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# Part I. The EVE-Editor

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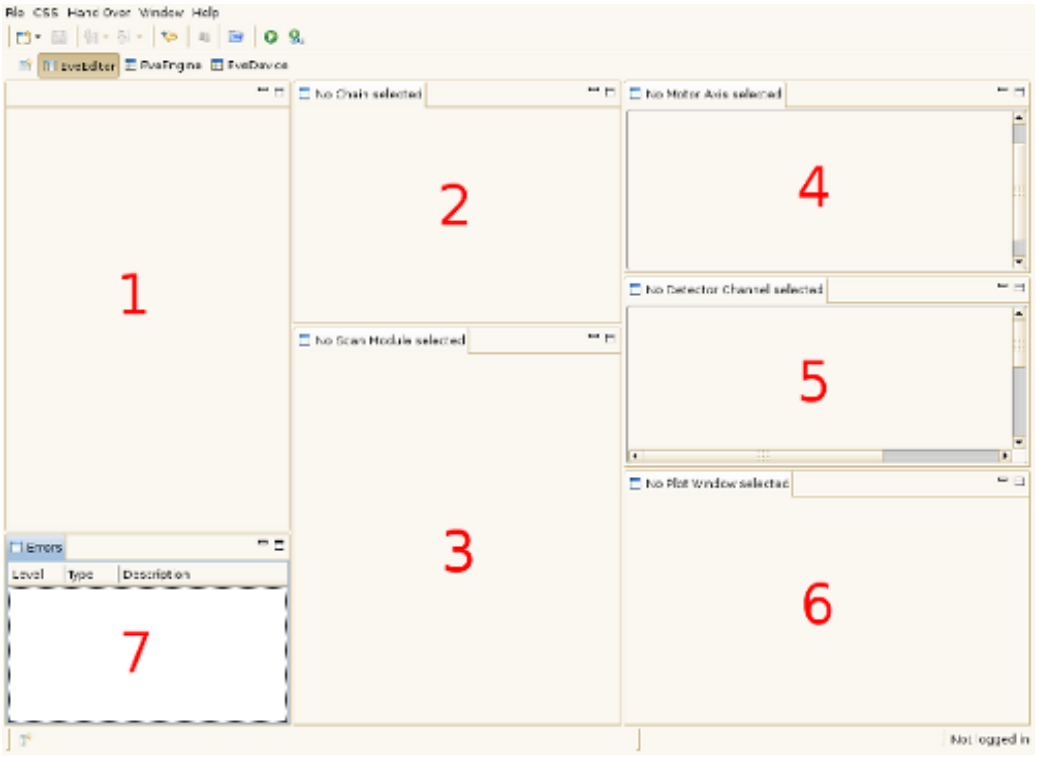
# Chapter 1. Getting Started

The image below shows an overview of the EVE Editor.




| | | |
|---|---|---|
| 1 | Editor Area | graphical representation of scans |
| 2 | Chain View | chain properties |
| 3 | Scan Module View | scan module properties |
| 4 | Motor Axis View | motor axis properties |
| 5 | Detector Channel View | detector channel properties |
| 6 | Plot Window View | plot window properties |
| 7 | Error View | message log |

The first thing you should do is create a new scan description [tasks/createscandescription.html] .

# Chapter 2. Concepts

## Events

Events are a way to affect a scan, e.g. by pausing it if a condition is met. Three types (describing their source) of events exist:

- **SCHEDULE**: a schedule event is triggered when a scan module is finished.
- **DETECTOR**: a detector event is triggered when a detector is ready.
- **MONITOR**: a monitor event sends `true` or `false` whether a condition is met.

The effect (or outcome) of an event is defined by the location the event is added to. Events could be added to a *chain*, a *scan module* or a *detector channel* in their respective views [../gettingstarted.html]. Each view has one or more tabs, one for each outcome:

| View | Pause | Redo | Break | Stop | Trigger |
|---|---|---|---|---|---|
| Chain | + | + | + | + | |
| Scan Module | + | + | + | | + |
| Detector Channel | | | | | + |

Monitor conditions are evaluated at the start of a chain/scan module.

## Outcomes

The effect an event has depends on its outcome which is one of *pause*, *redo*, *break*, *stop*, *trigger*.

### Pause Event

The scan has a state which is either *running* or *pause*. A detector or schedule event (trigger events) can manipulate that state by its action attribute as follows:

| Row | Scan State (current) | Event Action | Scan State (result) | |
|---|---|---|---|---|
| 1 | *running* | *ON* | *pause* | * |
| 2 | *running* | *OFF* | *running* | |
| 3 | *pause* | *ON* | *pause* | |
| 4 | *pause* | *OFF* | *running* | * |

*Note*: Scenarios shown in row two and three have no effect at all since the scan state does not change.

Since monitor events do not just trigger when they occur but signal whether a specified condition is met there are more possible scenarios:

| Row | Scan State (current) | Event Action | condition | Scan State (result) | |
|---|---|---|---|---|---|
| 1 | *running* | *ON* | *true* | *pause* | * |

| | | | | | |
|---|---|---|---|---|---|
| 2 | *running* | *ON* | *false* | *running* | |
| 3 | *running* | *OFF* | *true* | *running* | |
| 4 | *running* | *OFF* | *false* | *running* | |
| 5 | *running* | *ONOFF* | *true* | *pause* | * |
| 6 | *running* | *ONOFF* | *false* | *running* | |
| 7 | *pause* | *ON* | *true* | *pause* | |
| 8 | *pause* | *ON* | *false* | *pause* | |
| 9 | *pause* | *OFF* | *true* | *running* | * |
| 10 | *pause* | *OFF* | *false* | *pause* | |
| 11 | *pause* | *ONOFF* | *true* | *running* | * |
| 12 | *pause* | *ONOFF* | *false* | *pause* | |

If the specified condition is not met nothing happens at all (even rows). Rows three and seven just overwrites the state with the same value. The behavior in rows one and nine is equal to the behavior of detector and schedule events. Rows five and eleven show the behavior specific to monitor events due to the additional *ONOFF* action.

*Note*: Each event can continue the scan (stop the pause) regardless of which event paused it. Read more on combining events.

### Redo Event

If caused by trigger events (detector or schedule) the detector is read again or the scan module is executed again respectively. Monitor events behave the same way (redo if condition is `true`) except that they will pause the scan before reading/executing again until the event sends `false`.

### Break/Stop/Trigger Event

Caused by a trigger event (detector or schedule) and monitor event sending `true`.

## Combining *Chain* and *ScanModule* Events

Chains and scan modules have *independent* pause states, i.e. both scan module and chain states must be *running* in order to continue a scan.

When monitor events are combined (one in the chain, one in the scan module) a redo occurs if at least one of their last send values was `true`. Only when both last sent `false` the scan continues normally.

# Chapter 3. Reference

## Chain Properties

| Property | Description | Domain |
|---|---|---|
| *File Format* | format of the data file | save plug ins defined in the test site XML |
| *File Name* | name of the data file | string |
| *Save Scan-Description* | Indicates whether the scan description should be saved (same location as the data file) | {true, false} |
| *Confirm Save* | Indicates whether saving should be confirmed | {true, false} |
| *Add Autoincrementing Number to Filename* | if *true* a four digit number is appended to the file name (starting at *x + 1* where *x* is the largest number found with the same filename prefix) | {true, false} |
| *repeat count* | sets how often the scan should be executed (in addition to the first execution) | [0,999999] |
| *Comment* | additional comments | string |

# Part II. The EVE-Viewer

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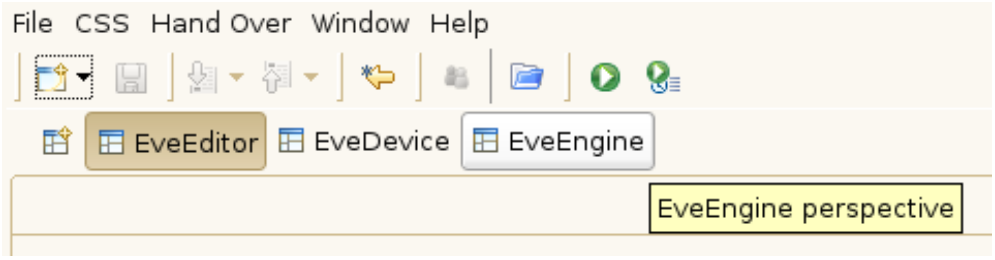
# Chapter 4. Getting Started

Depending on what you want to do [overview.html] (monitor/manipulate devices or execute scans) either activate the EveDevice [concepts/evedeviceperspective.html] or EveEngine [concepts/eveengineperspective.html] Perspective by clicking on the respective button at the top of the window (see following image for illustration).



# Chapter 5. Concepts

# Chapter 6. Reference

# Part III.

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# Chapter 7. Concepts

## PV Update Interval

The interval between process variable updates (in the GUI) is specified via the preferences. The value shown in the user interface will be updated up to x times where x is the given value.

The default is set to 1000ms. Values from 250ms to 60000ms are valid. If the interval is set too high (250ms) and there are many active connections (e.g. multiple device inspector views with a decent amount of entries) the response time of the application could increase.

To set the interval use the menu „Edit->Preferences...” and navigate to „Display->EVE Viewer”. After entering the desired value (which must be in the range mentioned above) click „OK”.

**Please Note:** The value is applied only to items added to the device inspector afterwards or after a restart !

# Chapter 8. Reference

## Device Classes (and their influence)

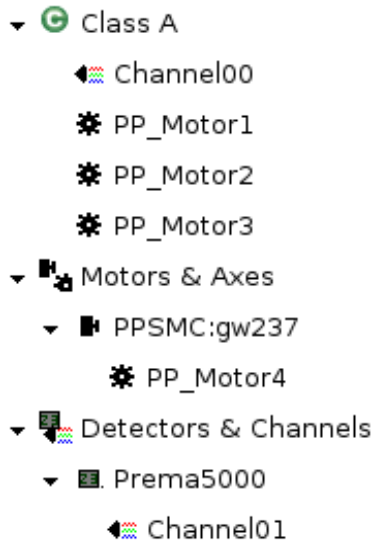
Each device (motor, motor axis, detector, detector channel and pre-/postscan device) could be assigned a class name. Depending on that class is the location in the tree hierarchy of the (Local) Devices View the device appears in. The following table shows where to expect a device with a certain class name:

| Device | Class Name | Location |
|---|---|---|
| Motor | C | child of root element „C” |
| — | child of root element „Motors & Axes” | |
| Motor Axis | C | child of root element „C” |
| — | child of its parent (Motor) | |
| Detector | C | child of root element „C” |
| — | child of root element „Detectors & Channels” | |
| Detector Channel | C | child of root element „C” |
| — | child of its parent (Detector) | |
| (Pre-/Postscan) Device | C | child of root element „C” |
| — | child of root element „Devices” | |

## Example 1

| Motor (PPSMC:gw237) | Axis 1 (PP_Motor1) | Axis 2 (PP_Motor2) | Axis 3 (PP_Motor3) | Axis 4 (PP_Motor4) |
|---|---|---|---|---|
| — | "Class A" | "Class A" | "Class A" | — |

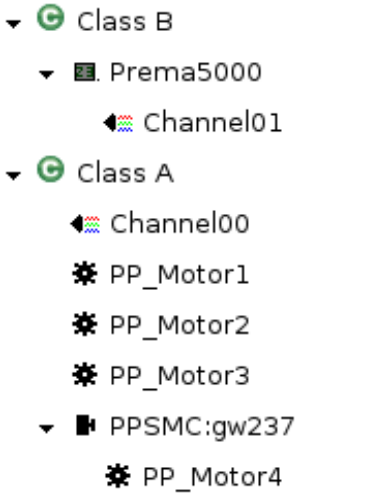
| Prema5000 | Channel00 | Channel01 |
|---|---|---|
| — | "Class A" | — |




# Example 2

| Motor (PPSMC:gw237) | Axis 1 (PP_Motor1) | Axis 2 (PP_Motor2) | Axis 3 (PP_Motor3) | Axis 4 (PP_Motor4) |
|---|---|---|---|---|
| "Class A" | "Class A" | "Class A" | "Class A" | — |

| Prema5000 | Channel00 | Channel01 |
|---|---|---|
| "Class B" | "Class A" | — |



# Appendix A. Release Notes

## EVE-Editor

## Version 1.2

- [Feature] Pause events now pause or continue the scan (or both)
- [Feature] Normalize Channel for Detector Channels (DetectorChannelView)
- [Feature] Names for Plot windows
- [Feature] Consistent presentation of device names (including lexicographical ordering)
- [Feature] Remove All Axes/Channels/Prescans/Postscans/Positionings/Plots/Events
- [Bug Fix] Selecting a Detector Channel in a Plot fails on first attempt

## Version 1.1

- [Feature] Fill options „Save all Motor Positions” and "Save all Detector Values"