

imubu

Graphical interface around a MuBu container

Description

Graphical interface around a MuBu container.

The object integrates a set of editors and viewers to visualize and graphically manipulate the data dtored in a MuBu container. Apart from the graphical interface all functionalities of the `imubu` object are identical with the `mubu` object.

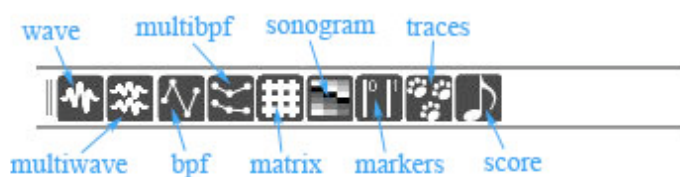
The object displays each track of the current buffer of a MuBu container in a separate view, providing a set of interfaces fitting different kinds of data. Most tracks can be viewed and edited with multiple interfaces providing different points of view on the same data.

An additional wave or multiwave view is added when the MuBu container is associated to a `buffer~` or `polybuffer~` having the same name.

Editor and Viewer Interfaces

The following view interfaces are available for different kinds of tracks:

- wave — equally sampled scalars (or single element of matrices)
- multiwave — equally sampled vectors (matrices are unrolled row by row)
- bpf — time-tagged scalars (or single element of matrices)
- multibpf — time-tagged vectors (matrices are unrolled row by row)
- traces — time-tagged vectors defining a vertical *value*, *color*, and *thickness*
- sonogram — equally sampled or time-tagged vectors (matrices are unrolled row by row)
- markers — time-tagged matrix data and/or labels
- score — time-tagged vectors defining *pitch* and *duration*
- matrix — any data (time-tags and labels are displayed in extra columns)



Wave and Multiwave Editor (`wav` and `mwav`)

The `wave` and `multiwave` editors display tracks with regulary sampled data (i.e. without time-tags) as waveforms.

While `wave` displays mono-dimensional data (scalars), `multiwave` can display multi-dimensional data (vectors and matrices) as multiple superposed or juxtaposed waveforms. In the case that a track contains matrices with multiple columns and rows, one the editor displays one waveform for each matrix element.

Tracks that allow the track elements (`matrixvarrows` enabled) for having a variable number of rows can not be displayed with these editors.

Mouse interaction (with edit tool)

- *command-click-drag* — draws wave (in `multiwave` also highlights corresponding wave)
- *click-drag* — defines selection
- *shift-click-drag* — extends selection

Arrow keys (with edit tool)

- *left/right* — extends selection
- *control-left/right* — reduce selection
- *alt-left/right* — moves selection
- *command-up/down* — increments/decrements values in selected range
- *up/down* — switches highlighting to next wave (in multiwave)

Bpf and Multibpf Editor (bpf and mbpf)

The **bpf** and **multibpf** editors display tracks with time-tagged data as break-point functions. While **bpf** displays mono-dimensional data (scalars), **multibpf** can display multi-dimensional data (vectors and matrices) as multiple superposed or juxtaposed break-point functions. In the case that a track contains matrices with multiple columns and rows, one the editor displays one break-point function for each matrix element.

Tracks that allow the track elements (matrixvarrows enabled) for having a variable number of rows can not be displayed with these editors.

Mouse interaction (with edit tool)

- *command-click* on background — adds point
- *click-drag* on background — selects points with rubber band
- *click* on point — selects point (in **multibpf** also highlights corresponding **bpf**)
- *shift-click* on point — extends selection of multiple points
- *click-drag* on selected points — moves selected points
- *backspace* or *cancel* — deletes selected points

The position of points is clipped to the position of the previous and next unselected points. The vertical value of an edited point is clipped to the range (bounds) of the view.

Arrow keys (with edit tool)

- *left/right* — switches selection to next point
- *shift-left/right* — extends selection of multiple points
- *command-left/right/up/down* — moves selected points
- *up/down* — switches highlighting to next **bpf** (in **multibpf**)

Traces Editor (trc)

The **bpf** and **multibpf** editors display tracks with time-tagged data as break-point functions. While **bpf** displays mono-dim Mouse interaction (with edit tool)

- *click-drag* on background — selects segment with rubber band
- *shift-click* on segment — extends selection of multiple segments
- *click-drag* on segment — changes *value* or moves segment horizontally (time-tags tracks only)
- *command-click* on background — adds traces (time-tags tracks only)
- *command-alt-click-drag* on segment — changes *thickness*
- *command-alt-shift-click-drag* on segment — changes *color*

Sonogram Viewer (sono)

Markers Editor (mrk)

Mouse interaction (with edit tool)

- *command-click* — adds marker
- *click-drag* on background — selects markers with rubber band
- *click* on marker — selects marker
- *shift-click* on marker — extends selection of multiple markers
- *click-drag* on selected markers — moves selected markers
- *backspace* or *cancel* — deletes selected markers
- *command-alt-click-drag* on marker — changes marker duration (if defined)
- *command-alt-shift-click-drag* on marker — changes marker offset (if defined)

Arrow keys (with edit tool)

- *left/right* — switches selection to next marker
- *shift-left/right* — extends selection of multiple markers

For editing the value and the label of a selected marker:

1. press *spacebar* to edit label,
2. press *spacebar* again to edit cue,
3. press *enter* to exit

Score Editor (sco)

Mouse interaction (with edit tool)

- *command-click* on background — adds note
- *click-drag* on background — selects notes with rubber band
- *click* on note — selects note
- *shift-click* on note — extends selection of multiple notes
- *click-drag* on selected notes — moves selected notes vertically (pitch) or horizontally (time)
- *command-alt-click-drag* on note — changes duration
- *backspace* or *cancel* — deletes selected notes

Arrow keys (with edit tool)

- *left/right* — switches selection to next note
- *shift-left/right* — extends selection of multiple notes
- *command-left/right* — moves selected notes horizontally (time)
- *command-up/down* — moves selected notes vertically (pitch)
- *alt-command-left/right* — increments/decrements duration

Matrix Editor (mx)

Mouse interaction (with edit tool)

- *doubleclick* on unselected cell — enters edit mode
- *click* on selected cell — enters edit mode
- *click* off edited cell — exits from edit mode

Arrow keys (with edit tool)

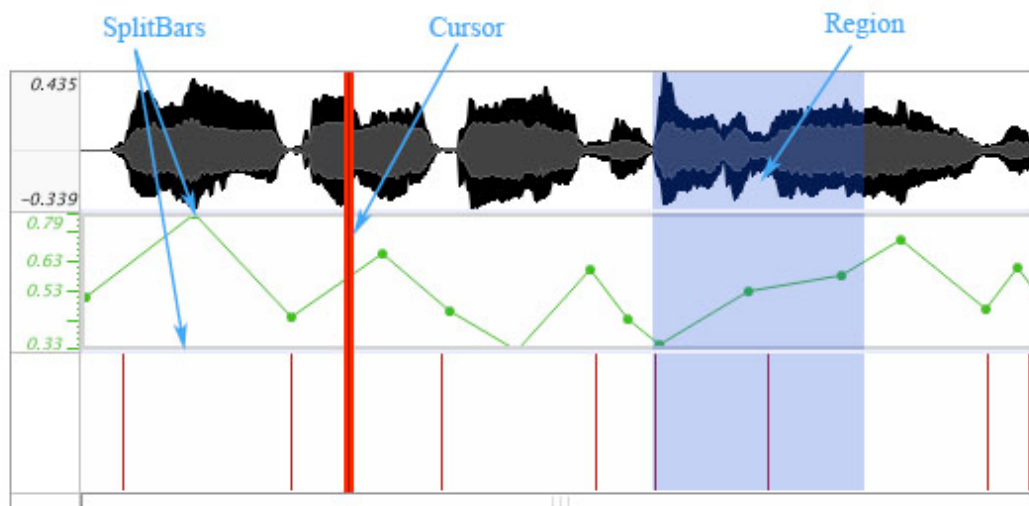
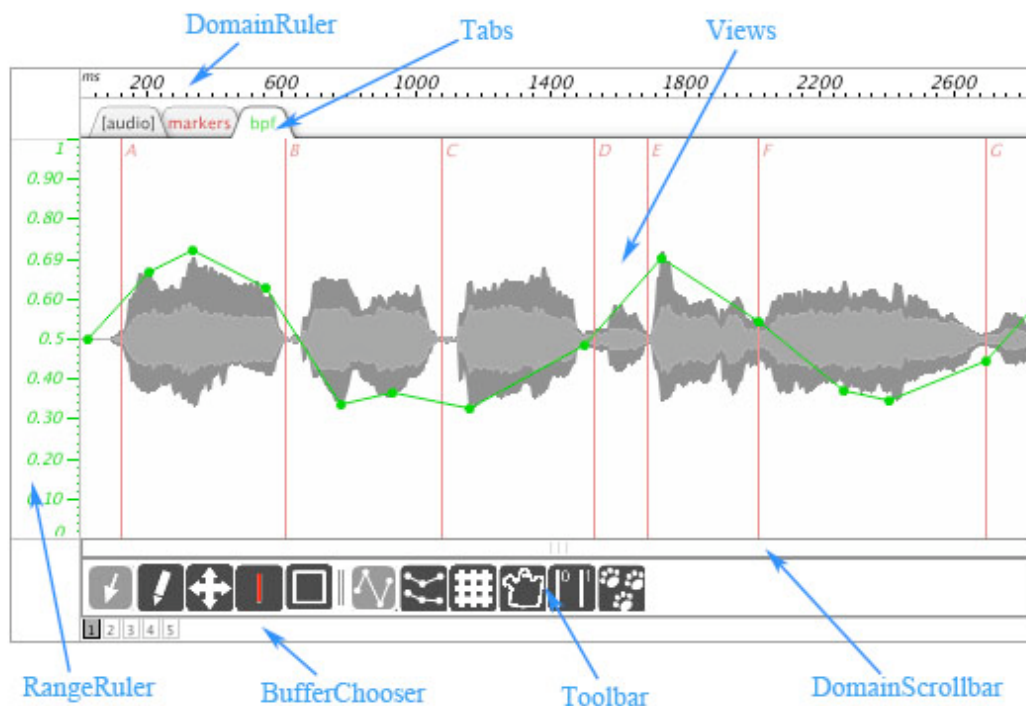
- *left/right* — switches selection to previous/next column
- *up/down* — switches selection to previous/next row

The *enter* key allows for toggling the selected cell between selection and editing.

Interface Components

The object provides a set of configurable interface components that can be displayed in addition to the views:

- **Toolbar** — sets active tool or view interface
- **Tabs** — organizes, shows/hides layered views
- **BufferChooser** — sets current buffer
- **DomainScrollbar** — scrolls and zooms horizontally (time) common to all views
- **DomainRuler** — displays horizontal grid of (time) positions common to all views
- **RangeRuler** — displays view dependent vertical grid of values
- **Cursor** — displays horizontally moving cursor common to all views
- **Region** — displays horizontal selection common to all views



BufferChooser

Mouse interaction

- *click* on buffer index — sets current buffer

Domain Scrollbar

Mouse interaction

- *click-horizontal drag* — scrolls
- *control-click-horizontal drag* — zooms while keeping start position unchanged
- *control-click-vertical drag* — zooms while keeping mouse down position unchanged
- with *shift* — accelerated zoom and scroll
- *control-double click* — sets zoom to show whole data duration in editor

Tabs

Mouse interaction

- *click* on tab — brings corresponding view to front
- *control-click* on tab — hides/shows corresponding view (foremost view stays visible)
- *alt-click* on tab — shows corresponding view and hides all others

Toolbar

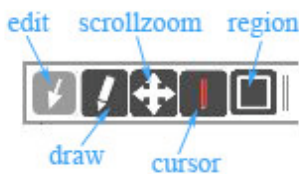
Mouse interaction

- *click* on tool buttons (on the left) — sets active tool
- *click* on interface buttons (on the right) — sets interface of the current view

Tools

The following tools are available:

- **edit** — general tool allowing for most of the possible editing interactions
- **draw** — adds new points/draws data (as edit tool but without *command* key)
- **scrollzoom** — allows zoom (*command-click-drag* vertically or horizontally) and drag (click and drag horizontally)
- **cursor** — changes cursor position to mouse click/mouse move position
- **region** — sets region selection (as edit tool but without *alt* key pressed)



Edit Tool

The edit tool is the default tool allowing for most of the possible editing interactions. - select, move and delete data

- add new points or draw data (with *command* key pressed)
- change of region selection (with *alt* key pressed)
- move cursor (click and drag cursor component)

For a complete description of possible interactions, see the list of editors above.

Arguments

Name	Type	Opt	Description
			(none)

Messages

addtrack			(see mubu)
(drag)			(internal)
bgcolor	RGB-list (0 through 255) [list]		Sets display backgorund color.
bufferchooser	attribute name and arguments [list]		Sets bufferchooser attributes. Valid messages are: - bufferchooser visible [int: 1 0] — shows/hides the component (def: 0) - bufferchooser size [int] — sets size (def: 12) - bufferchooser position [symbol: 'top' 'left' 'bottom' 'right'] — sets display position (def: 'bottom')

		<ul style="list-style-type: none"> - bufferchooser bgcolor [list: r, g, b] — sets background color (def: 'white') - bufferchooser fgcolor [list: r, g, b] — sets foreground color (def: 'black')
alignviewbounds	on/off [int]	Align view bounds. If alignviewbounds is enabled, vertical bounds of views are the same, and are aligned on the min/max of all view bounds.
autoupdate	refresh delay [float]	Sets the display refresh delay. o: automatic refresh off (def: 120 ms).
autoviewbounds	on/off [int]	Enables automatic view bounds. If autoviewbounds enabled on, vertical bounds for every view, are set to min/max of view content (def: off).
deltrack		(see mubu)
clear		(see mubu)
domain	kind of domain and arguments [list]	<p>Sets (time) domain attributes.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - domain bounds [float, float] — sets bounds to given minimum and maximum - domain min [float] — sets minimum of bounds - domain max [float] — sets maximum of bounds - domain center [float, float] — sets center and range of bounds - domain range [float] — sets range keeping the center - domain reset — resets bounds
domainruler	attribute name and arguments [list]	<p>Sets domainruler attributes.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - domainruler visible [int: 1 0] — shows/hides the ruler (def: o) - domainruler size [int] — sets size (def: 15) - domainruler position [symbol: 'top' 'bottom'] — sets display position (def: 'bottom') - domainruler bgcolor [list: r, g, b] — sets background color (def: 'white') - domainruler fgcolor [list: r, g, b] — sets foreground color (def: 'black') - domainruler unit [symbol: 'milliseconds' 'seconds' 'minutes'] — sets time unit (def: 'milliseconds') - domainruler grid [int: 1 0] — shows/hides the grid in views (def: o)
cursor	position or attribute name and arguments [list]	<p>Sets cursor attributes and position.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - cursor [float] — moves cursor to given time position in msec - cursor visible [int: 1 0] — shows/hides cursor (def: o) - cursor size [int] — sets size (def: 3) - cursor color [list: r, g, b] — sets color (def: 'red')
domainscrollbar	attribute name and arguments [list]	<p>Sets domainscrollbar attributes.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - domainscrollbar visible [int: 1 0] — shows/hides the scrollbar (def: o) - domainscrollbar size [int] — sets size (def: 15) - domainscrollbar bgcolor [list: r, g, b] — sets background color (def: 'white')

		- domainscrollbar fgcolor [list: r, g, b] — sets foreground color (def: 'black')
dscroll		(alias for domainscrollbar)
getbgcolor		Outputs background color.
getdomain		Outputs domain bounds.
getcursor	attribute name [symbol]	Outputs cursor position or attribute values. Valid messages are: - getcursor — outputs position of cursor - getcursor color — outputs color - getcursor size — outputs size - getcursor visible — outputs 1 if cursor is visible, 0 otherwise
getdomainruler	attribute name [symbol]	Outputs domainruler attribute values. Valid messages are: - getdomainruler fgcolor — outputs foreground color - getdomainruler bgcolor — outputs background color - getdomainruler size — outputs size - getdomainruler position — outputs position - getdomainruler grid — outputs 1 if grid is shown in views, 0 otherwise - getdomainruler visible — outputs 1 if ruler is visible, 0 otherwise
getdomainscrollbar	attribute name [symbol]	Outputs domainscrollbar attribute values. Valid messages are: - getdomainscrollbar color — outputs color - getdomainscrollbar size — outputs size - getdomainscrollbar visible — outputs 1 if scrollbar is visible, 0 otherwise
getforemost		Outputs index of foremost view.
getinfopanel		(deprecated — see getrangeruler)
getlayout		Outputs layout [symbol: 'superposed' 'juxtaposed'].
getname		(see mubu)
getnumbuffers		(see mubu)
getnumtracks		(see mubu)
getopacity		Outputs opacity value.
getorientation		Outputs orientation [symbol: 'vertical' 'horizontal'].
getrangeruler	attribute name [symbol]	Outputs rangeruler attribute values. Valid messages are: - getrangeruler grid — outputs 1 if grid is shown in views, 0 otherwise - getrangeruler visible — outputs 1 if ruler is visible, 0 otherwise
getruler		(alias for getdomainruler)
getscrollbar		(alias for domainscrollbar)
getregion	attribute name [symbol]	Outputs region selection bounds or attribute values. Valid messages are: - getregion — outputs bounds

		<ul style="list-style-type: none"> - getregion color — outputs color - getregion visible — outputs 1 if region is visible, 0 otherwise
gettabs	attribute name [symbol]	<p>Outputs tabs attribute values.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - gettabs size — outputs size - gettabs position — outputs display position [symbol: 'top' 'left'] - gettabs visible — outputs 1 if tabs are visible, 0 otherwise
gettoolbar	attribute name [symbol]	<p>Outputs toolbar attribute values.</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - gettoolbar size — outputs size - gettoolbar position — outputs display position [symbol: 'top' 'bottom' 'left' 'right'] - gettoolbar bgcolor — outputs background color - gettoolbar visible — outputs 1 if toolbar is visible, 0 otherwise
getview	view index or view name [atom] attribute name [symbol]	<p>Outputs attribute values of the given view (index or track name).</p> <p>Valid messages are:</p> <ul style="list-style-type: none"> - getview [atom] bgcolor — outputs background color for given view (all) - getview [atom] fgcolor — outputs foreground color for given view (all) - getview [atom] shape — outputs shape for given view (bpf, mbpf, wav, mwav, sco, trc) - getview [atom] bounds — outputs vertical bounds for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - getview [atom] min — outputs vertical min for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - getview [atom] max — outputs vertical max for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - getview [atom] interface — outputs interface for given view (all) - getview [atom] visible — outputs 1 if given view is visible, 0 otherwise (all) - getview [atom] thickness — outputs thickness for given view (wav, mwav, bpf, mbpf, mrk) - getview [atom] foremost — outputs internal foremost index for given view (mbpf and mwav) - getview [atom] opacity — outputs internal opacity for given view (mbpf and mwav) - getview [atom] layout — outputs internal layout for given view (mbpf and mwav) - getview [atom] visibleindexes — outputs list of visible indexes for given view (mbpf and mwav) - getview [atom] drawmean — outputs 1 if drawmean attribute is 'on' for given view (wav and mwav) - getview [atom] showcolnames — outputs 1 if column names are drawn for given view (mbpf and mwav) - getview [atom] colormode — outputs color pattern used for given view (sgrm, trc, mwav)

- `getView [atom] depth` — outputs color depth for given view (sgrm, trc)
- `getView [atom] fgcolorgradient` — outputs 1 if a color gradient is used for given view (trc)
- `getView [atom] grid visible` — outputs 1 if the internal grid is shown for given view (mx)
- `getView [atom] grid color` — outputs color of the internal grid for given view (mx)
- `getView [atom] header visible` — outputs 1 if the internal header is visible for given view (mx)
- `getView [atom] header fgcolor` — outputs foreground color of the internal header for given view (mx)
- `getView [atom] header bgcolor` — outputs background color of the internal header for given view (mx)
- `getView [atom] header bordercolor` — outputs border color of the internal header for given view (mx)

<code>forceredraw</code>		Forces redrawing of visible views.
<code>foremost</code>	view index or track name [atom]	Sets the foremost view.
<code>infopanel</code>		(deprecated — see <code>rangeruler</code>)
<code>merge</code>		(see mubu)
<code>modifytrack</code>		(see mubu)
<code>(mouse)</code>		(internal)
<code>layout</code>	layout type [symbol] juxtaposed views size list [list]	Sets view layout [symbol: 'superposed' 'juxtaposed']. Juxtaposed layout can be followed by list of relative view sizes. (e.g. 'layout juxtaposed 1 2 3').
<code>print</code>		(see mubu)
<code>opacity</code>	opacity [float]	Sets opacity in superposed layout [float: 0 to 1] (def: 1)
<code>orientation</code>	orientation type [symbol]	Sets orientation [symbol: 'horizontal' or 'vertical'] (def: 'horizontal').
<code>rangeruler</code>	attribute name and arguments [list]	Messages for rangeruler configuration. Valid messages are: - <code>rangeruler visible [int: 1 0]</code> — shows/hides the ruler (def: 0) - <code>rangeruler grid [int: 1 0]</code> — shows/hides the grid in views (def: 0)
<code>read</code>		(see mubu)
<code>refer</code>		(see mubu)
<code>region</code>	bounds or attribute name and value [list]	Sets region selection bounds or attribute values. Valid messages are: - <code>region [float, float]</code> — sets bounds - <code>region color [list: r, g, b]</code> — sets regions color (def: color contrasting with background color) - <code>region visible [int: 1 0]</code> — shows/hides the selection (def: 1)

removetrack		(see mubu)
replacetrack		(see mubu)
resizewithwindow	on/off [int]	Enable/disable automatic resize with window. 1: display keeps bounds offset when patcher window is resized 0: do not resize automatically
ruler		(alias for domainruler)
track		(see mubu)
split	attribute name and arguments [list]	Sets split bar attribute for juxtaposed layout. Valid messages are: - split [float list] — sets relative size of views in juxtaposed layout - split visible [int: 1 0] — shows/hides split bars (def: 1) - split size [int] — sets size (def: 2) - split color [list: r, g, b] — sets split bars color (def: 'white')
tabs	attribute name and arguments [list]	Sets tabs attributes. Valid messages are: - tabs visible [int: 1 0] — shows/hides the component (def: 1) - tabs size [int] — sets size (def: 20) - tabs position [symbol: 'top' 'left'] — sets display position (def: 'top')
tool	tool name [symbol]	Sets active tool [symbol: 'edit' 'draw' 'scrollzoom' 'region' 'cursor' 'lock'] (def: 'edit').
toolbar	attribute name and arguments [list]	Sets toolbar attributes. Valid messages are: - toolbar visible [int: 1 0] — shows/hides the toolbar (def: 1) - toolbar size [int] — sets size (def: 30) - toolbar position [symbol: 'top' 'left' 'bottom' 'right'] — sets display position (def: 'bottom') - toolbar bgcolor [list: r, g, b] — sets background color (def: 'white')
write		(see mubu)
view	view index or track name [atom] attribute name and arguments [list]	Sets attributes for given view (by index or by name) if defined. Valid messages are: - view [atom] bgcolor [list: r, g, b] — sets background color for given view (all) - view [atom] fgcolor [list: r, g, b] — sets foreground color for given view (all) - view [atom] shape [symbol] — sets shape for given view (bpf, mbpf, wav, mwav, sco, trc) - view [atom] bounds [float, float] — sets vertical bounds for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - view [atom] min [float] — sets vertical min for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - view [atom] max [float] — sets vertical max for given view (bpf, mbpf, wav, mwav, sgrm, trc, sco) - view [atom] interface [symbol] — sets interface for given view (all) - view [atom] visible [int: 1 0] — with 1 sets given view visible, with 0 invisible (all)

- view [atom] thickness [int] — sets thickness for given view (wav, mwav, bpf, mbpf, mrk)
- view [atom] foremost [int] — sets internal foremost index for given view (mbpf and mwav)
- view [atom] opacity [float] — sets internal opacity for given view (mbpf and mwav)
- view [atom] layout [symbol: 'superposed' | 'juxtaposed'] — sets internal layout for given view (mbpf and mwav)
- view [atom] visibleindexes [float-list] — sets list of visible indexes for given view (mbpf and mwav)
- view [atom] drawmean [int: 1 | 0] — sets drawmean attribute is 'on/off' for given view (wave and mwav)
- view [atom] showcolnames [int: 1 | 0] — with 1 column names are drawn for given view (mbpf and mwav)
- view [atom] colormode [symbol] — sets color pattern used for given view (sgrm, trc, mwav)
- view [atom] depth [float, float] — sets color depth for given view (sgrm, trc)
- view [atom] fgcolorgradient [int: 1 | 0] — with 1 a color gradient is used for given view (trc)
- view [atom] grid visible [int: 1 | 0] — sets internal grid visible for given view (mx)
- view [atom] grid color [list: r, g, b] — sets color of the internal grid for given view (mx)
- view [atom] header visible [int: 1 | 0] — sets internal header visible for given view (mx)
- view [atom] header fgcolor [list: r, g, b] — sets foreground color of the internal header for given view (mx)
- view [atom] header bgcolor [list: r, g, b] — sets background color of the internal header for given view (mx)
- view [atom] header bordercolor [list: r, g, b] — sets border color of the internal header for given view (mx)

Attributes

Name	Type	g/s Description
alignviewbounds	int	Align view bounds. If 'on', view vertical bounds are aligned on the min/max of all view bounds.
autoupdate	float	Sets the display refresh rate (0: no automatic refresh) (def: 120 ms).
autoviewbounds	int	Enable automatic fitting of view bounds. If 'on', view vertical bounds are set to min/max of view content (def: off)
bgcolor	float	Background color.
bufferchooser_bgcolor	float	Buffer chooser background color.
bufferchooser_fgcolor	float	Buffer chooser foreground color.
bufferchooser_position	int	Buffer chooser position.
bufferchooser_size	int	Buffer chooser size.
bufferchooser_visible	int	Buffer chooser visible.
bufferindex	int	(see mubu)
cursor_color	float	Cursor color.
cursor_position	float	Cursor time position.

cursor_size	int	Cursor size.
cursor_visible	int	Cursor visible.
domain_bounds	float	Domain bounds minimum and maximum.
domainruler_bgcolor	float	Domain ruler background color.
domainruler_fgcolor	float	Domain ruler foreground color.
domainruler_grid	int	Domain ruler grid visible.
domainruler_position	int	Domain ruler position.
domainruler_size	int	Domain ruler size.
domainruler_unit	int	Domain ruler time unit.
domainruler_visible	int	Domain ruler visible.
domainscrollbar_color	float	Domain scrollbar color.
domainscrollbar_size	int	Domain scrollbar size.
domainscrollbar_visible	int	Domain scrollbar visible.
embed	int	(see mubu)
layout	int	Editor layout (choose if views are superposed or juxtaposed).
name	symbol	(see mubu)
numbuffers	int	(see mubu)
opacity	float	Set opacity of foremost view background (in superposed layout), 0: completely opaque, 1: completely transparent (def: 1).
orientation	int	Editor orientation [symbol: 'horizontal' 'vertical'].
rangeruler_grid	int	Range ruler grid visible: if 'on' draws a 'value grid' over views when defined (ex: <i>bpf</i> and <i>wave</i>).
rangeruler_size	int	Range ruler size.
rangeruler_visible	int	Range ruler visible.
region_bounds	float	Region bounds minimum and maximum.
region_color	float	Region color.
split_color	float	Split bars color.
split_size	int	Split bars size.
split_visible	int	Hide/show split bars.
tabs_position	int	Tabs position [symbol: 'top' 'left'].
tabs_size	int	Tabs size.
tabs_visible	int	Hide/show tabs.
toolbar_bgcolor	float	Toolbar background color.
toolbar_position	int	Toolbar position [symbol: 'top' 'left' 'bottom' 'right'].
toolbar_size	int	Toolbar size.
toolbar_visible	int	Toolbar visible.
view_bgcolor	float	View background color.
view_bounds	float	View bounds minimum and maximum.
view_colormode	symbol	View color mode (sgrm, trc, mwav).
view_depth	float	View color depth as min/max values (sgrm and trc).
view_fgcolor	float	View foreground color.
view_fgcolorgradient	int	View color gradient on/off (trc).
view_foremost	int	Multi-view foremost index (mbpf and mwav).
view_grid_color	float	Matrix grid color (mx).
view_grid_visible	int	Matrix grid visible (mx).

view_header_bgcolor	float	Matrix header background color (mx).
view_header_bordercolor	float	Matrix header border color (mx).
view_header_fgcolor	float	Matrix header foreground color (mx).
view_header_visible	int	Matrix header visible (mx).
view_interface	symbol	View graphical interface name.
view_layout	symbol	Multi-view layout (mbpf and mwav).
view_opacity	float	Multi-view opacity (mbpf and mwav).
view_paramcols	atom	Changes data column names/indexes, corresponding to graphic parameter (trc and mrk).
view_scrollbars_visible	int	Matrix scrollbars visible (mx).
view_shape	symbol	View shape (bpf, mbpf, wav, mwav, sco and trc).
view_showcolnames	int	Show/hide column names in multi-view (mbpf and mwav).
view_showmean	int	Show/hide wave mean (<i>wave</i> and mwav).
view_thickness	int	Line thickness (wav, mwav, bpf, mbpf, mrk).
view_track	int	Select current/foremost view.
view_visible	int	View visible.
view_visibleindices	int	Sets in multi-view the list of visible indices (mwav and mbpf).
windresize	int	Enable/disable resize with window.

[Information for box attributes common to all objects](#)

Examples

See Also

<i>Name</i>	<i>Description</i>
mubu	MuBu, multi-buffer container for sound description and motion capture data
mubu.track	MuBu track reference