

## General commands

The following commands relate to general topics in 3D Train Studio and any layout that may be open.

ID	description	parameter	return values
1	Returns the program version of 3D Train Studio	No	thong 4-digit version number in Format XYZW
2	Returns the complete file path of the 3D Train Studio	No	thong
10	Starts a new command group	No	Number -number of processed commands within the group
11	Terminates the active command group	No	No
20	Returns the ID of the opened attachment	No	thongID of open facility as GUID
21	Returns additional information about the opened attachment	No	thongName of the opened attachment
40	Returns the unit of length	No	Number -0 for mm, 1 for cm, 2 for dm, 3 for m, 4 for inch
41	Sets the unit for length measurement. Note: The unit only applies to communication via the Control interface and must be reset after each connection.	Number -Unit as a number, see command 40 for a list of supported units.	No
42	Returns the unit for the angle measure.	No	Number -0 for degrees 1 for radians
43	Sets the unit for the angle measure. Note: The unit only applies to communication via the Control interface and must be reset after each connection.	Number -Unit as a number, see command 42 for a list of supported units.	No
50	Returns whether animations are enabled	No	boolean
51	Enables or disables animations	boolean	No
52	Returns whether sound are enabled	No	boolean
53	Enables or disables sound in the studio	boolean	No
54	Returns whether simulation mode is enabled	No	boolean

55	Activates or deactivates simulation mode	boolean	No
60	Returns all variables from the event controller	thongoptional Name of the object for which the variables be returned must.	String, string, string... - For each variable the name and its value as a separate string
61	Returns the value of a specific (object) variable	thongname of the variable	thongvalue of the variable
62	Sets the value of a specific (object) variable	thongname of the variable thongvalue of the variable	No
70	Retrieves all event management countdowns	boolean -Specifies whether only active countdowns are to be determined (True)	String, string, string... - For each countdown the name
71	Gets the current state of a countdown	thongCountdown name	floating point number - remaining term floating point number - total duration boolean - Automatic restart
80	Animates the active project for a fixed amount of time	floating point number - number of seconds around which the project is to be animated.	No

## General object commands

The following commands relate to all object types and allow you to query and set states that apply to all objects.

ID	description	parameter	return values
100	Returns a list of the names of all objects back on the plant	Number -0 for all objects, 1 for tracks, 2 for rolling stock, 3 for signals, 4 for barriers, 5 for engine sheds, 6 for overhead lines, 7 for cameras, 8 for lights, 9 for floor plates, 10 for base bodies, 11 for controls, 12 for Object groups, 13 for general models, 14 for annotative objects	thong, thong, String... -A name for each object
101	Returns the type of an object	thongname of the object	Number -please refer Command 100 for a list of object types
102	Returns the 3D position an object back	thongname of the object	3x floating point number - X, Y, Z
103	Sets the 3D position of an object	thongname of the object 3x floating point number -X,Y,Z	No
104	Returns the rotation of an object around the 3 axes.	thongname of the object	3x floating point number - Rotation around X, Y, Z
105	Sets the rotation of an object	thongname of the object 3x floating point number -Rotation around X, Y, Z	No
106	Returns the scaling an object back	thongname of the object	floating point number

107	Sets the scaling of an object	thongname of the object floating point number -New scaling	No
108	Returns the size of an object (along X, Y, Z)	thongname of the object	3x floating point number - Size along X, Y, Z
130	Returns the names of all selected objects return	No	thong, thong, String... - One for each selected object Surname
131	Selects a list of objects	boolean -Indicates whether the objects should be added to the current selection or replace them string, string, string... -A name for each object to be selected	No
133	Delivers the catalog GUID of an object return	thongname of the object. If the object does not exist in the catalog, an error message is returned.	String - GUID of the object
134	Inserts a new object from the catalog on the plant	thongGUID of the catalog item thongOptional name of the new object	No
135	Duplicates a existing object on the plant	thongName of the object to be duplicated thongName of the new object	No
136	Deletes one existing object from the plant	thongName of the object to be deleted	No
137	Names an object around	thongname of the object thongNew name	No
138	Groups a list of objects	thongName of the new group string, string, string... -A name for each object to be grouped. If no names are specified, the current selection is used grouped.	No
139	solves one object group	thongname of the group	No
140	Link two Objects (A follows B)	thongName of object A thongName of object B	No
141	Breaks the link of an object	thongname of the object	No
142	Determines the name of the linked object	thongName of the object whose link is to be determined	thongName of the linked object or empty if the object is not is linked.
143	Detect the visibility of a object	thongname of the object	boolean -0 for invisible, 1 for visible
144	Sets the visibility of an object	thongname of the object boolean -0 for invisible, 1 for visible	No
150	Returns a list of all objects user defined animations back	No	thong, thong, String... - For each object with a animation a name

151	Starts an object animation	thongname of the object string ( optional) - name of the animation. If not specified, all animations are started. Number - Direction of animation, -1 for backward, 1 for forward boolean -Indicates whether the animation should be repeated automatically	No
152	Stops an object animation	thongname of the object string ( optional) - name of the animation. If not specified, all animations will be stopped.	No
153	Sets an object animation to one certain position	thongname of the object string (optional) - name of the animation. If not specified, all animations reset. floating point number -New animation position between 0 (start) and 1 (end)	No
161	Starts in object noise	thongname of the object string ( optional) - name of the noise. If not specified, all sounds will be started. boolean -Indicates whether the sound should be repeated automatically	No
162	pauses on object noise	thongname of the object string (optional) - name of the noise. If not specified, all sounds will be paused.	No
163	stops a object noise	thongname of the object string (optional) - name of the noise. If not specified, all sounds will be stopped.	No

## Camera Commands

The following commands enable the cameras on a system to be controlled.

ID	description	parameter	return values
250	Gives a list of everyone's names cameras back	Number -0 for all cameras, 1 for free and 2D camera, 2 for custom cameras, 3 for cockpit cameras	string, string, string... - A name for each camera
260 (until V3)	gives one screenshot as JPEG one camera back	thongName of the camera to capture a screenshot for. If empty, then an image of the active camera is returned. Number -Width of the screenshot in pixels, maximum 2048. Number -Height of the screenshot in pixels, maximum 2048. Number -Compression quality between 0 and 100.	thongThe JPEG file encoded in Base64
270	Gives the name the active one camera back	No	thongname of the camera boolean -Indicates if the camera is a technical view (2D camera only)

271	Activates one camera	thongname of the camera boolean - Indicates whether to activate the technical drawing view (2D camera only)	No
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## Track Commands

The following commands enable the query and control of tracks on a layout.

ID	description	parameter	return values
300	Returns a list of all tracks	Number -0 for all tracks, 1 for straight tracks, 2 for curved tracks, 3 for flex tracks, 4 for switches, 5 for cross switches, 6 for three-way switches, 7 for crossings, 8 for Buffer rails, 9 for Turntables, 10 for uncoupling tracks	string, string, string... - A name for each track
301	Returns the type of track	thongtrack name	Number -See command 300 for a list of track types
302	Returns the number of tracks on a track return	thongtrack name	Number
303	Returns the geometry one track back	thongtrack name Number -0-based index of the track boolean (optional) - Indicates whether the segment positions are to be returned	floating point number - overall length floating point number -begin floating point number -length 1 floating point number -radius floating point number - angle floating point number -length 2 floating point number - crossing angle floating point number, floating point number, floating point number... - Absolute 3D positions (X, Y, Z) of the segments that make up the trace is constructed
304	Returns the index of the active track tracks back	thongtrack name	Number
305	Activates a track a track	thongtrack name Number -0-based index of the track to activate	No

306 (until V3)	gives the decoupling state one uncoupling track return	thongtrack name	boolean - decoupling state
307 (until V3)	Set the decoupling state one uncoupling track	thongtrack name boolean - decoupling state	No

## Rolling Stock Commands

The following commands enable locomotives and wagons to be controlled on a layout.

ID	description	parameter	return values
350	Returns a list of rolling stock	Number -0 for all locomotives and wagons, 1 for locomotives, 2 for wagons string (optional) - name of a track. Only rolling stock that is on the specified track will be returned. Number (optional) - 0-based index of the track track on which a rolling stock must be located (only if a track is also specified).	thong, thong, String... -A name for every rolling stock
351	Returns the type of rolling stock	thongRolling stock name	Number -1 for locomotives, 2 for wagons
360	Returns the track on which a rolling stock is located	thongRolling stock name	thongtrack name Number -0-based Track track index floating point number - Relative position of rolling stock on the track Number -Relative direction of rolling stock to the track (1 for forward, -1 for backward)
370	Give the speed one loco back	thongname of the locomotive Number -0 for actual speed, 1 for target speed	floating point number
371	Set the speed one locomotive	thongname of the locomotive Number -0 for actual speed, 1 for target speed floating point number -New speed of the locomotive	No

374	Give the activation states the couplings back	thongRolling stock name Number -0 for front coupling, 1 for rear coupling	boolean -Indicates whether the coupling is engaged or is disabled
375	Enabled/Disabled a coupling	thongRolling stock name Number -0 for front coupling, 1 for rear coupling boolean -New activation state	No
380 (until V3)	Determines the Activation status of the lights of a locomotive	thongname of the locomotive	boolean -Indicates whether the locomotive's lights are activated or not are disabled
381 (until V3)	Activated or disables the lights on a locomotive	thongname of the locomotive boolean -Indicates whether the lights are activated or not should be deactivated	No

## Signal Commands

The following commands enable signals to be controlled.

ID	description	parameter	return values
400	Returns a list of all signals	No	string, string, string... - A name for each signal
401	Returns the state of a signal	thongname of the signal	Number -ID of the active signal aspect
402	Sets the state of a signal	thongname of the signal Number -ID of the new signal aspect	No
403 (away V5)	Determines the number of signal aspects of one signal	thongname of the signal	Number -Number of signal aspects

## Control Panel Commands

The following commands allow you to query and set control panel objects, such as the knob or toggle switch.

ID	description	parameter	return values
450	Returns a list of all control objects	Number -0 for all objects, 1 for analog control objects, 2 for digital objects	string, string, string... - A name for each control object
451	Specifies the type of a control object return	thongName of the control object	Number -1 for analog control objects, 2 for digital objects
452	Returns the value of a control object return	thongName of the control object	floating point number -value between 0 and 1

453	Sets the value of a control object	thongName of the control object floating point number -New value between 0 and 1	No
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## Text Commands

The following commands allow you to query and set text objects that can be found in the catalog under Additional - Labels.

ID	description	parameter	return values
500	Returns a list of all text objects	No	string, string, string... -A name for each text object
501	Give the properties of a text object back	thongName of the text object	thongtext content thongfont Number -Font color as hex value (RGB) Number -Text style, binary or - 0 for normal, 1 for bold, 2 for italic, 4 for underline Number -Text alignment - 0 for left, 1 for right, 2 for centered boolean -0 for no background, 1 for background Number -Background color as hex value (RGB)
502	Set the properties of a text object	thongName of the control object thongtext content thongfont Number -Font color as hex value (RGB) Number -Text style, binary or - 0 for normal, 1 for bold, 2 for italic, 4 for underline Number -Text alignment - 0 for left, 1 for right, 2 for centered boolean -0 for no background, 1 for background Number -Background color as hex value (RGB)	No

## Crane Commands

The following commands allow cranes to be queried and controlled, which can be found in the catalog under Landscape/Industry/Cranes.

ID	description	parameter	return values
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550	Determines the name of the transported goods a crane	thongCrane name	thongName of the transport good. Empty if the crane is not carrying a load.
551	take one transported goods on/sets down it off	thongCrane name thong Target name. If the crane is not carrying any load, it picks up the target, otherwise it places the load on the target.	No
552	Puts a crane on the starting position return	thongCrane name	No