

Struct Actions

Struct actions are complex data actions designed to be used with [XINA Structs](#). Unlike most API actions, they may involve complex multi-step operations, and are dependent on the structs configuration of groups and databases.

Data Actions

STRUCT BUFFER IMPORT

Imports a [buffer data file](#) into a pipe.

| Property | Value | Req | Default |
|----------|--------------------------------------|-----|---------|
| action | <code>"struct_buffer_import"</code> | ? | |
| pipe | pipe group specifier | ? | |
| file | binary object | ? | |
| format | <code>string</code> | ? | |
| conf | <code>jsonobject</code> | | |

When a data set is imported the XINA server will run the following steps:

- For each row:
 - validate time and value
 - process mnemonic
 - If mnemonic ID
 - If found in definitions database:
 - If mnemonic is deprecated, throw error
 - Else, use mnemonic for row
 - Else, throw error due to unrecognized ID
 - Else, parse name and optional unit
 - If name match found:
 - If unit is provided and does not match, throw error
 - If mnemonic is deprecated, throw error
 - Else, use mnemonic for row
 - Else, mnemonic is new, create new temporary mnemonic definition based on provided information
- If any rows contain same mnemonic and time, throw error
- Check for time overlap in database
 - If found
 - If `on_overlap = fail`, throw error
 - Else If `on_overlap = delete`, delete all data from database in time range of imported data
 - Else (`on_overlap = ignore`), do nothing
- If new mnemonic definitions created, insert into mnemonic definition database
- Insert data into mnemonic database

STRUCT MN ALIAS

Adds one or more aliases of name/unit pairs to a single existing mnemonic.

| Property | Value |
|-----------------------|---|
| <code>action</code> | <code>"struct_mn_alias"</code> |
| <code>database</code> | mnemonic definition database specifier |
| <code>mn</code> | mnemonic ID |
| <code>aliases</code> | <code>string[]</code> , name/unit pair alias(es) for mnemonic |

STRUCT MN EDIT

Edits one or more properties of a single existing mnemonic.

| Property | Value | Required |
|-----------------------|---|----------|
| <code>action</code> | <code>"struct_mn_edit"</code> | ? |
| <code>database</code> | mnemonic definition database specifier | ? |
| <code>mn</code> | mnemonic ID | ? |
| <code>name</code> | <code>string</code> , new name/unit pair for mnemonic | |
| <code>state</code> | <code>string</code> | |

STRUCT MN MERGE

Merges one or more existing mnemonics into a single existing mnemonic.

STRUCT EVENT

Performs context-aware event operations.

Unlike typical record operations, these actions support event definition lookup and creation. Event records or updates may specify a `"name"` property, as if it were a database field. This will be used to lookup a corresponding event ID from the event definitions associated with the database, and create a new definition with the name if one is not found. Alternatively, the `"name"` may reference an event definition by external ID, by starting with the `$` character.

If an event specifies both a `"name"` and `"e_id"`, the action will fail, as the outcome is ambiguous. If the `"name"` property value is numeric or numeric text, it will interpreted as a direct event ID reference (as if it had been provided as `"e_id"`).

"e_id" values are validated against existing event definitions, and the action will fail if the event ID is not found.

STRUCT EVENT INSERT

Inserts one or more events into a single event database.

| Property | Value | Req | Default |
|----------|----------------|-----|---------|
| action | "struct_event" | ? | |
| op | "insert" | ? | |
| database | event database | ? | |
| events | event records | ? | |

If the event database has an associated event change database, the event change database will be checked for any `update` records, and the changes will be applied to the incoming events before they are inserted.

If any inserted UEIDs are already present in the database, the action will fail.

STRUCT EVENT CLOSE

Closes one or more open interval event(s).

| Property | Value | Req | Default |
|----------|--------------------------|-----|---------|
| action | "struct_event" | ? | |
| op | "close" | ? | |
| database | event database | ? | |
| t | instant(us) closing time | | now |
| events | events specifier | ? | |
| fields | field value map | | |

The closing time is specified by the `t` property.

The `events` property is an extension of the standard records specifier, but may include UEID(s) as strings. Only currently open intervals in the specified database will be affected.

If the `fields` property is provided, updates the value(s) of the specified field(s) in the map for all events being closed.

STRUCT EVENT UPDATE

Updates one or more events.

| Property | Value | Req | Default |
|----------|-------------------------|-----|---------|
| action | "struct_event" | ? | |
| op | "update" | ? | |
| database | event database | ? | |
| t | instant(us) update time | | now |

| Property | Value | Req | Default |
|----------|--------------------|-----|---------|
| events | events specifier | | |
| fields | field(s) to update | ? | |

If the event database is a child of a pipe, an event change record is inserted in the associated event change database for each event UEID matching the specifier. Additionally, if any updated fields are not configured to permit updating, the action will fail.

STRUCT EVENT CLEAR

Schema Actions

STRUCT CREATE

The STRUCT CREATE action is used to create a variety of XINA Structs compatible schema elements.

STRUCT CREATE PROJECT

Creates a structs project group.

| Property | Value | Req | Default |
|----------------|---------------------------------|-----|---------|
| action | <code>"struct_create"</code> | ? | |
| create | <code>"project"</code> | ? | |
| parent | group specifier | | |
| name | <code>string</code> | ? | |
| label | <code>string</code> | | name |
| desc | <code>string</code> | | label |
| group_teams | team group privilege map | | |
| database_teams | team database privilege map | | |

If a `parent` group is specified, it may not include a structs definition (since project groups must be at the top level of a struct heirarchy). The `name` (and `label`, if provided) must not be in use by any group siblings, or the action will fail.

STRUCT CREATE CATEGORY

Creates a structs category group.

| Property | Value | Req | Default |
|----------|------------------------------|-----|---------|
| action | <code>"struct_create"</code> | ? | |
| create | <code>"category"</code> | ? | |

| Property | Value | Req | Default |
|----------------|-----------------------------|-----|---------|
| parent | group specifier | ? | |
| name | string | ? | |
| label | string | | name |
| desc | string | | label |
| group_teams | team group privilege map | | |
| database_teams | team database privilege map | | |

The `parent` group must be either a project group or category group, or the action will fail. The `name` (and `label`, if provided) must not be in use by any group siblings, or the action will fail.

STRUCT CREATE MODEL

Creates a structs model group.

| Property | Value | Req | Default |
|----------------|-----------------------------|-----|---------|
| action | "struct_create" | ? | |
| create | "model" | ? | |
| parent | group specifier | ? | |
| name | string | ? | |
| label | string | | name |
| desc | string | | label |
| event | boolean | | false |
| eventf | boolean | | false |
| eventfs | boolean | | false |
| group_teams | team group privilege map | | |
| database_teams | team database privilege map | | |

The `parent` group must be either a project group or category group, or the action will fail. The `name` (and `label`, if provided) must not be in use by any group siblings, or the action will fail.

STRUCT CREATE PIPE

Creates a struct pipe group.

| Property | Value | Required | Default |
|----------|-----------------|----------|---------|
| action | "struct_create" | ? | |
| create | "pipe" | ? | |
| model | group specifier | ? | |
| name | string | ? | |
| label | string | | name |

| Property | Value | Required | Default |
|----------------|--|----------|---------|
| desc | string | | label |
| group_teams | team group privilege map | | |
| database_teams | team database privilege map | | |
| partition | boolean or {"from": <start year>, "to": <end year>} | | false |
| | See the pipe definition for other supported properties | | |

The `parent` group must be either a project group or category group, or the action will fail. The `name` (and `label`, if provided) must not be in use by any group siblings, or the action will fail.

STRUCT CREATE DEF

Creates a structs definitions group, with associated databases.

| Property | Value | Req | Default |
|----------|---------------------------------|-----|---------|
| action | "struct_create" | ? | |
| create | "def" | ? | |
| parent | group specifier | ? | |

The `parent` group must be either a project, category, or model group, or the action will fail.

STRUCT CREATE EVENT

Creates a new structs event database.

| Property | Value | Req | Default |
|----------|--|-----|---------------------------------|
| action | "struct_create" | ? | |
| create | "event" | ? | |
| group | group specifier | ? | |
| type | "none", "file", or "files" | | "none" |
| name | string | | "event", "eventf", or "eventfs" |
| label | string | | name |
| desc | string | | label |
| singular | string | | "event" |
| plural | string | | singulars |
| conf | JSON object | | |
| fields | array of field definitions | | |
| teams | team database privilege map | | |

STRUCT CREATE NOTEBOOK

Creates a new structs notebook database.

| Property | Value | Req | Default |
|----------|-----------------------------|-----|---------|
| action | "struct_create" | ? | |
| create | "notebook" | ? | |
| parent | group specifier | ? | |
| name | string | ? | |
| label | string | | name |
| desc | string | | label |
| fields | array of field definitions | | |
| teams | team database privilege map | | |

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