leicascanningtemplate Documentation

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class leicascanningtemplate.**ScanningTemplate**(*filename*)

Bases: object

Python object of Leica LAS Matrix Screener Scanning Template XML. Provides easy access to elements via attributes:

```
>>> tmpl = ScanningTemplate('{ScanningTemplate}tmpl.xml')
>>> # attributes of MatrixScreenerTemplate/ScanningTemplate/Properties
>>> print(tmpl.properties.attrib)
```

Parameters **filename** (*str*) – XML to load.

filename

str

Path XML-filename.

root

lxml.objectify.ObjectifiedElement

Objectified root of loaded XML. See http://lxml.de/objectify.html#the-lxml-objectify-api

add_well(*well_x*, *well_y*, *start_x*, *start_y*)

Add well with associated scan fields. `self.wells[0]` and `self.fields[0]` will be used as base. ScanWellData will be added to ScanWellArray and ScanFieldData to ScanFieldArray. The amount of fields added is decided by Properties/CountOfScanFields.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –
- **start_x** (*int*) – In meters. FieldXCoordinate of first field in well.
- **start_y** (*int*) – In meters. FieldYCoordinate of first field in well.

Raises `ValueError` – If well or fields already exists.

count_of_assigned_jobs

Number of fields that have attrib['JobAssigned'] set to true.

count_of_wells

Number of wells in x/y-direction of template.

Returns (xs, ys) number of wells in x and y direction.

Return type tuple

field(*well_x=1*, *well_y=1*, *field_x=1*, *field_y=1*)

ScanFieldData of specified field.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –
- **field_x** (*int*) –
- **field_y** (*int*) –

Returns ScanFieldArray/ScanFieldData element.

Return type lxml.objectify.ObjectifiedElement

field_array
Short hand for `self.root.ScanFieldArray`

field_exists(*well_x*, *well_y*, *field_x*, *field_y*)
Check if field exists ScanFieldArray.

fields
All ScanFieldData elements.

Returns

Return type list of objectify.ObjectifiedElement

move_well(*well_x*, *well_y*, *start_x*, *start_y*)
Move well and associated scan fields. Spacing between fields will be what Properties/ScanFieldStageDistance is set to.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –
- **start_x** (*int*) – In meters. FieldXCoordinate of first field in well.
- **start_y** (*int*) – In meters. FieldYCoordinate of first field in well.

Raises `ValueError` – If specified well or associated fields does not exist.

properties
Short hand for `self.root.ScanningTemplate.Properties`

remove_well(*well_x*, *well_y*)
Remove well and associated scan fields.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –

Raises `AttributeError` – If well not found.

update_counts()
Update counts of fields and wells.

update_start_position()
Set start position of experiment to position of first field.

update_well_positions()
Set `well_attrib['FieldXStartCoordinate']` and `well_attrib['FieldYStartCoordinate']` to FieldXCoordinate and FieldYCoordinate of first field in well.

well(*well_x=1*, *well_y=1*)
ScanWellData of specific well.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –

Returns

Return type lxml.objectify.ObjectifiedElement

well_array
Short hand for `self.root.ScanWellArray`

well_attrib(*well_x=1*, *well_y=1*)
Attributes of specific well.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –

Returns Attributes of ScanWellArray/ScanWellData.

Return type dict

well_exists(*well_x*, *well_y*)
Check if well exists in ScanWellArray.

well_fields(*well_x=1*, *well_y=1*)
All ScanFieldData elements of given well.

Parameters

- **well_x** (*int*) –
- **well_y** (*int*) –

Returns All ScanFieldData elements of given well.

Return type list of lxml.objectify.ObjectifiedElement

wells
All ScanWellData elements.

Returns

Return type list of objectify.ObjectifiedElement

write(*filename=None*)
Save template to xml. Before saving template will update date, start position, well positions, and counts.

Parameters **filename** (*str*) – If not set, XML will be written to self.filename.

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