DEVELOP THE PYTHON CODE

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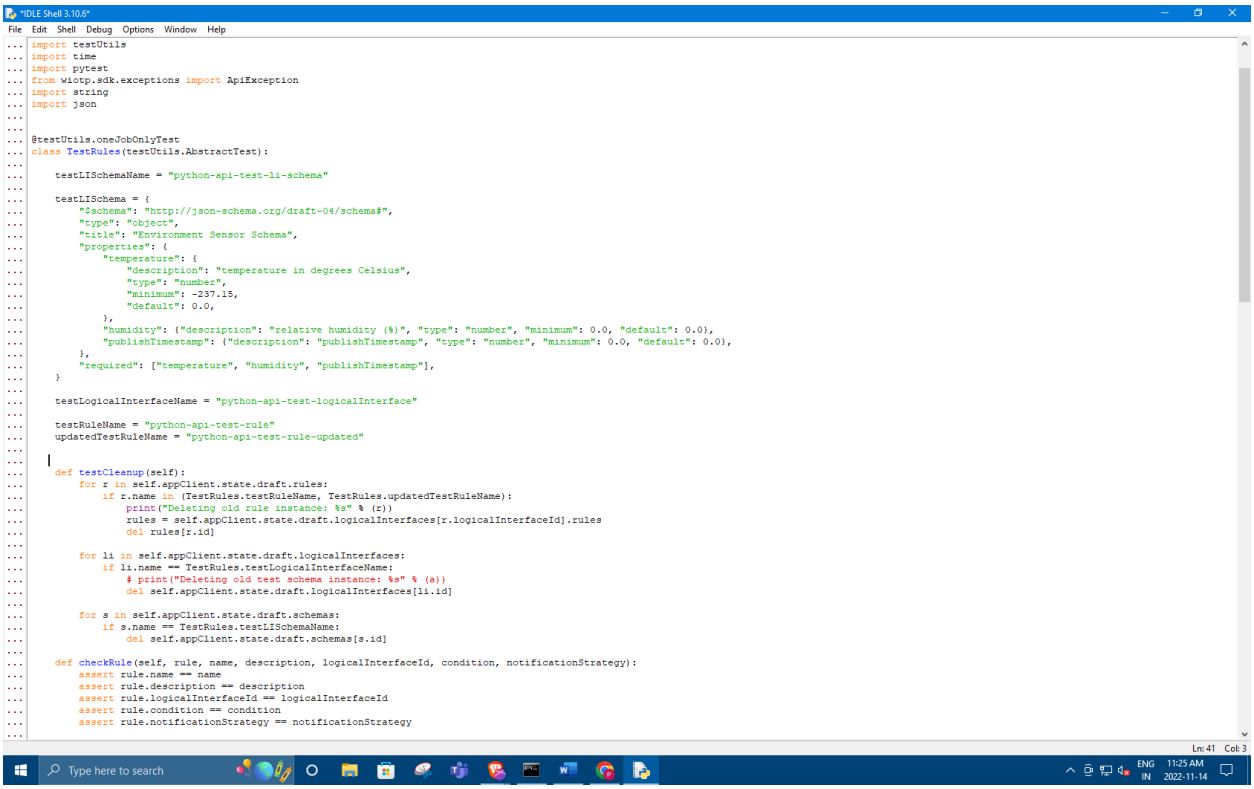
IDLE Shell 3.10.6
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import testUtils
import time
import pytest
from wiotp.sdk.exceptions import ApiException
import string
import json
@testUtils.oneJobOnlyTest
class TestRules(testUtils.AbstractTest):
testLISchemaName = "python-api-test-li-schema"
testLISchema = {
"$schema": "http://json-schema.org/draft-04/schema#",
"type": "object",
"title": "Environment Sensor Schema",
"properties": {
"temperature": {
"description": "temperature in degrees Celsius",
"type": "number",
"minimum": -237.15,
"default": 0.0,
},
"humidity": {"description": "relative humidity (%)", "type": "number", "minimum": 0.0, "default": 0.0},
"publishTimestamp": {"description": "publishTimestamp", "type": "number", "minimum": 0.0, "default": 0.0},
},
"required": ["temperature", "humidity", "publishTimestamp"],
}
testLogicalInterfaceName = "python-api-test-logicalInterface"
testRuleName = "python-api-test-rule"
updatedTestRuleName = "python-api-test-rule-updated"
def testCleanup(self):
for r in self.appClient.state.draft.rules:
if r.name in (TestRules.testRuleName, TestRules.updatedTestRuleName):
print("Deleting old rule instance: %s" % (r))
rules = self.appClient.state.draft.logicalInterfaces[r.logicalInterfaceId].rules
del rules[r.id]
for li in self.appClient.state.draft.logicalInterfaces:
if li.name == TestRules.testLogicalInterfaceName:
# print("Deleting old test schema instance: %s" % (a))
del self.appClient.state.draft.logicalInterfaces[li.id]
for s in self.appClient.state.draft.schemas:
if s.name == TestRules.testLISchemaName:
del self.appClient.state.draft.schemas[s.id]
def checkRule(self, rule, name, description, logicalInterfaceId, condition, notificationStrategy):
assert rule.name == name
assert rule.description == description
assert rule.logicalInterfaceId == logicalInterfaceId
assert rule.condition == condition
assert rule.notificationStrategy == notificationStrategy
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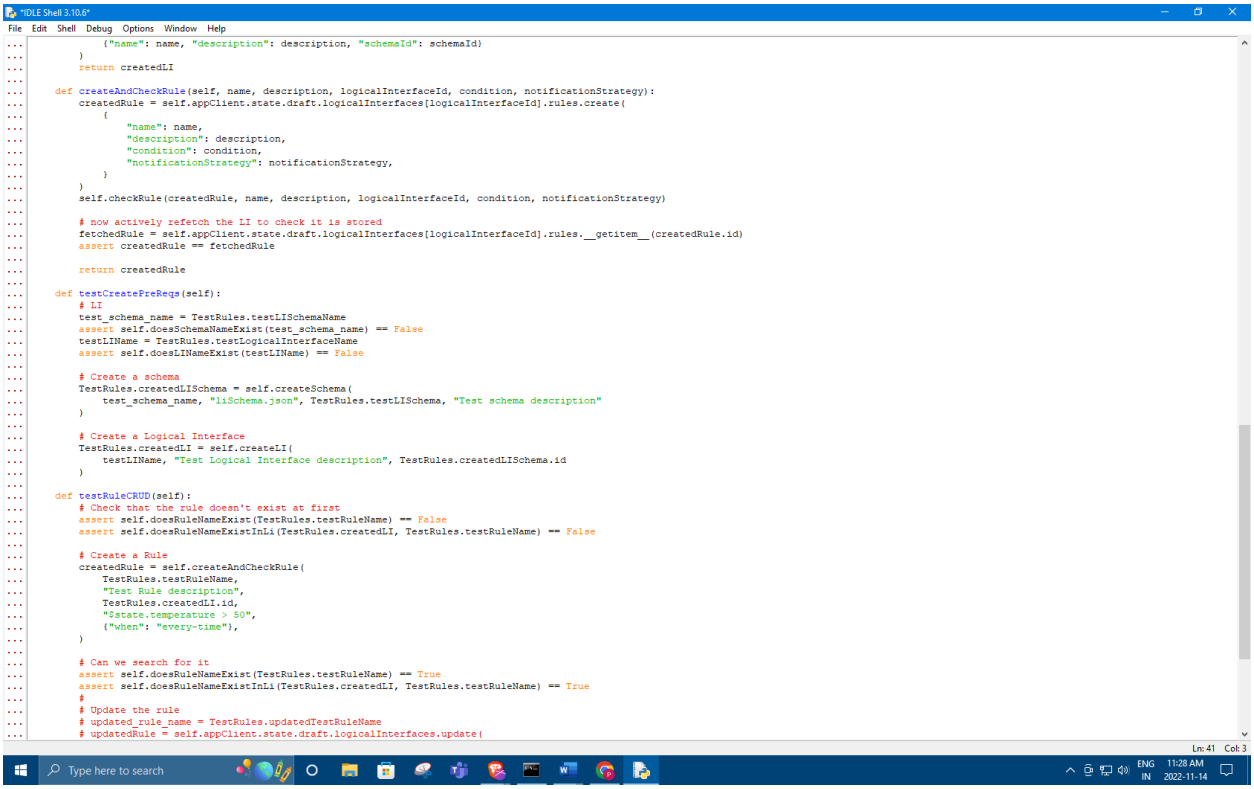
IDLE Shell 3.10.6
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{"name": name, "description": description, "schemaId": schemaId}
)
return createdLI
def createAndCheckRule(self, name, description, logicalInterfaceId, condition, notificationStrategy):
createdRule = self.appClient.state.draft.logicalInterfaces[logicalInterfaceId].rules.create(
{
"name": name,
"description": description,
"condition": condition,
"notificationStrategy": notificationStrategy,
}
)
self.checkRule(createdRule, name, description, logicalInterfaceId, condition, notificationStrategy)
# now actively refetch the LI to check it is stored
fetchedRule = self.appClient.state.draft.logicalInterfaces[logicalInterfaceId].rules.__getitem__(createdRule.id)
assert createdRule == fetchedRule
return createdRule
def testCreatePreReqs(self):
# LI
test_schema_name = TestRules.testLISchemaName
assert self.doesSchemaNameExist(test_schema_name) == False
testLIName = TestRules.testLogicalInterfaceName
assert self.doesLINameExist(testLIName) == False
# Create a schema
TestRules.createdLISchema = self.createSchema(
test_schema_name, "liSchema.json", TestRules.testLISchema, "Test schema description"
)
# Create a Logical Interface
TestRules.createdLI = self.createLI(
testLIName, "Test Logical Interface description", TestRules.createdLISchema.id
)
def testRuleCRUD(self):
# Check that the rule doesn't exist at first
assert self.doesRuleNameExist(TestRules.testRuleName) == False
assert self.doesRuleNameExistInLi(TestRules.createdLI, TestRules.testRuleName) == False
# Create a Rule
createdRule = self.createAndCheckRule(
TestRules.testRuleName,
"Test Rule description",
TestRules.createdLI.id,
"$state.temperature > 50",
{"when": "every-time"},
)
Can we search for it
assert self.doesRuleNameExist(TestRules.testRuleName) == True
assert self.doesRuleNameExistInLi(TestRules.createdLI, TestRules.testRuleName) == True
#
Update the rule
updated_rule_name = TestRules.updatedTestRuleName
updatedRule = self.appClient.state.draft.logicalInterfaces.update(
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Python code:

```
import uuid
from datetime import datetime
import testUtils
import time
import pytest
from wiotp.sdk.exceptions import ApiException
import string
import json



@testUtils.oneJobOnlyTest
class TestRules(testUtils.AbstractTest):


    testLISchemaName = "python-api-test-li-schema"


    testLISchema = {
        "$schema": "http://json-schema.org/draft-04/schema#",
        "type": "object",
        "title": "Environment Sensor Schema",
        "properties": {
            "temperature": {
                "description": "temperature in degrees Celsius",
                "type": "number",
                "minimum": -237.15,
                "default": 0.0,
            },
            "humidity": {"description": "relative humidity (%)", "type": "number", "minimum": 0.0, "default":
0.0},
```

```
        "publishTimestamp": {"description": "publishTimestamp", "type": "number", "minimum": 0.0,
"default": 0.0},
    },
    "required": ["temperature", "humidity", "publishTimestamp"],
}

testLogicalInterfaceName = "python-api-test-logicalInterface"

testRuleName = "python-api-test-rule"
updatedTestRuleName = "python-api-test-rule-updated"
def testCleanup(self):
    for r in self.appClient.state.draft.rules:
        if r.name in (TestRules.testRuleName, TestRules.updatedTestRuleName):
            print("Deleting old rule instance: %s" % (r))
            rules = self.appClient.state.draft.logicalInterfaces[r.logicalInterfaceId].rules
            del rules[r.id]

    for li in self.appClient.state.draft.logicalInterfaces:
        if li.name == TestRules.testLogicalInterfaceName:
            # print("Deleting old test schema instance: %s" % (a))
            del self.appClient.state.draft.logicalInterfaces[li.id]

    for s in self.appClient.state.draft.schemas:
        if s.name == TestRules.testLISchemaName:
            del self.appClient.state.draft.schemas[s.id]

def checkRule(self, rule, name, description, logicalInterfaceId, condition, notificationStrategy):
    assert rule.name == name
    assert rule.description == description
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    assert rule.logicalInterfaceId == logicalInterfaceId
    assert rule.condition == condition
    assert rule.notificationStrategy == notificationStrategy

    assert isinstance(rule.created, datetime)
    assert isinstance(rule.createdBy, str)
    assert isinstance(rule.updated, datetime)
    assert isinstance(rule.updatedBy, str)

def doesSchemaNameExist(self, name):
    for a in self.appClient.state.draft.schemas.find({"name": name}):
        if a.name == name:
            return True
    return False

def doesLINameExist(self, name):
    for li in self.appClient.state.draft.logicalInterfaces.find({"name": name}):
        if li.name == name:
            return True
    return False

def doesRuleNameExist(self, name):
    for r in self.appClient.state.draft.rules.find({"name": name}):
        if r.name == name:
            return True
    return False

def doesRuleNameExistInLi(self, li, name):
    for r in li.rules:
```

```
            if r.name == name:
                return True
        return False

    def createSchema(self, name, schemaFileName, schemaContents, description):
        jsonSchemaContents = json.dumps(schemaContents)
        createdSchema = self.appClient.state.draft.schemas.create(name, schemaFileName,
jsonSchemaContents, description)
        return createdSchema

    def createLI(self, name, description, schemaId):
        createdLI = self.appClient.state.draft.logicalInterfaces.create(
            {"name": name, "description": description, "schemaId": schemaId}
        )
        return createdLI

    def createAndCheckRule(self, name, description, logicalInterfaceId, condition, notificationStrategy):
        createdRule = self.appClient.state.draft.logicalInterfaces[logicalInterfaceId].rules.create(
            {
                "name": name,
                "description": description,
                "condition": condition,
                "notificationStrategy": notificationStrategy,
            }
        )
        self.checkRule(createdRule, name, description, logicalInterfaceId, condition, notificationStrategy)

        # now actively refetch the LI to check it is stored
```

```
        fetchedRule =
self.appClient.state.draft.logicalInterfaces[logicalInterfaceId].rules.__getitem__(createdRule.id)
        assert createdRule == fetchedRule


        return createdRule


    def testCreatePreReqs(self):
        # LI
        test_schema_name = TestRules.testLISchemaName
        assert self.doesSchemaNameExist(test_schema_name) == False
        testLIName = TestRules.testLogicalInterfaceName
        assert self.doesLINameExist(testLIName) == False

        # Create a schema
        TestRules.createdLISchema = self.createSchema(
            test_schema_name, "liSchema.json", TestRules.testLISchema, "Test schema description"
        )

        # Create a Logical Interface
        TestRules.createdLI = self.createLI(
            testLIName, "Test Logical Interface description", TestRules.createdLISchema.id
        )

    def testRuleCRUD(self):
        # Check that the rule doesn't exist at first
        assert self.doesRuleNameExist(TestRules.testRuleName) == False
        assert self.doesRuleNameExistInLi(TestRules.createdLI, TestRules.testRuleName) == False

        # Create a Rule
```

```
        createdRule = self.createAndCheckRule(
            TestRules.testRuleName,
            "Test Rule description",
            TestRules.createdLI.id,
            "$state.temperature > 50",
            {"when": "every-time"},
        )

        # Can we search for it
        assert self.doesRuleNameExist(TestRules.testRuleName) == True
        assert self.doesRuleNameExistInLi(TestRules.createdLI, TestRules.testRuleName) == True
        #
        # Update the rule
        # updated_rule_name = TestRules.updatedTestRuleName
        # updatedRule = self.appClient.state.draft.logicalInterfaces.update(
        #    createdLI.id, {'id': createdLI.id, 'name': updated_li_name, 'description': "Test LI updated
description", "schemaId": createdSchema.id})
        # self.checkLI(updatedLI, updated_li_name, "Test LI updated description", createdSchema.id)

        # Delete the Rule
        del TestRules.createdLI.rules[createdRule.id]
        # It should be gone
        assert self.doesRuleNameExist(TestRules.testRuleName) == False
        assert self.doesRuleNameExistInLi(TestRules.createdLI, TestRules.testRuleName) == False

    def testDeletePreReqs(self):

        # Delete the LI
        del self.appClient.state.draft.logicalInterfaces[TestRules.createdLI.id]
```

```
assert self.doesLINameExist(TestRules.testLogicalInterfaceName) == False


# Delete the schema
del self.appClient.state.draft.schemas[TestRules.createdLISchema.id]
assert self.doesSchemaNameExist(TestRules.testLISchemaName) == False
```