

Auth Admin Site

msaSDK Auth

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Auth Site that extends the Admin Site Web UI with Login/Auth for the API's.

Simple Example

Just define in the Service Definition (Settings)

```
site_auth: bool = False
```

```
# -*- encoding: utf-8 -*-
"""
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"""
__version__ = "0.0.1"

from msaSDK.models.service import get_msa_app_settings
from msaSDK.service import MSAAApp

# get the MSA app setting, clear the cache, set some settings
get_msa_app_settings.cache_clear()
settings = get_msa_app_settings()
settings.title = "SPK.ai - MSA/SDK MVP"
settings.version = "SPK.0.0.1"
settings.debug = True
settings.site_auth = True

# Create the main app instance, like FastAPI but provide a Setting Definition Instance
# Define if the optional Admin Site gets mounted automatically, if False you need to
Mount in your own Startup MSAUIEvent Handler
app = MSAAApp(settings=settings, auto_mount_site=True,
              contact={"name": "msaSDK", "url": "http://u2d.ai", "email":
"stefan@u2d.ai"},
              license_info={"name": "MIT", "url": "https://opensource.org/licenses/MIT",
})

# use the internal logger of app
app.logger.info("Initialized " + settings.title + " " + settings.version)

# Optional use startup event
```

```

@app.on_event("startup")
async def startup():
    app.logger.info("msaSDK Own Startup MSAUIEvent")

# Optional use shutdown event
@app.on_event("shutdown")
async def shutdown():
    app.logger.info("msaSDK Own Shutdown MSAUIEvent")

```

Validation Method

Decorator

- Recommended scenario: Single route. Supports synchronous/asynchronous routing.

```

@app.get("/auth/user")
@app.auth.requires()
def user(request: Request):
    return request.user

@app.get("/auth/admin_roles")
@app.auth.requires('admin')
def admin_roles(request: Request):
    return request.user

@app.get("/auth/vip_roles")
@app.auth.requires(['vip'])
async def vip_roles(request: Request):
    return request.user

@app.get("/auth/admin_or_vip_roles")
@app.auth.requires(roles = ['admin', 'vip'])
def admin_or_vip_roles(request: Request):
    return request.user

@app.get("/auth/admin_groups")
@app.auth.requires(groups = ['admin'])
def admin_groups(request: Request):
    return request.user

@app.get("/auth/admin_roles_and_admin_groups")
@app.auth.requires(roles = ['admin'], groups = ['admin'])
def admin_roles_and_admin_groups(request: Request):
    return request.user

@app.get("/auth/vip_roles_and_article_update")
@app.auth.requires(roles = ['vip'], permissions = ['article:update'])

```

```
def vip_roles_and_article_update(request: Request):
    return request.user
```

Dependencies (Recommended)

- Recommended scenarios: single routes, route collections, MSAApp applications.

```
from fastapi import Depends
from typing import Tuple
from msaSDK.auth import Auth
from msaSDK.auth.models import User

app = MSAApp...

@app.get("/auth/admin_roles_depend_1")
def admin_roles(user: User = Depends(app.auth.get_current_user)):
    return user # or request.user

@app.get("/auth/admin_roles_depend_2", dependencies=[Depends(app.auth.requires('admin'))])
def admin_roles(request: Request):
    return request.user

app = MSAApp(dependencies=[Depends(app.auth.requires('admin'))])

@app.get("/auth/admin_roles_depend_3")
def admin_roles(request: Request):
    return request.user
```

Middleware

- Recommended Scenario: MSAApp Application

```
app = MSAApp()

auth.backend.attach_middleware(app)
```

Direct call

- Recommended scenarios: Non-routed methods

```
from msaSDK.auth.models import User

async def get_request_user(request: Request) -> Optional[User]:
    # user= await auth.get_current_user(request)
```

```

if await auth.requires('admin', response=False)(request):
    return request.user
else:
    return None

```

Token Storage Backend

NSA auth supports multiple token storage methods. Default is: `DbTokenStore`, suggest to customize it to: `JwtTokenStore`.

JwtTokenStore

```

from msaSDK.auth.backends.jwt import JwtTokenStore
from sqlalchemy.ext.asyncio import create_async_engine
from sqlalchemy_database import AsyncDatabase

engine = create_async_engine(url='sqlite+aiosqlite:///amisadmin.db', future=True)

auth = Auth(
    db=AsyncDatabase(engine),

    token_store=JwtTokenStore(secret_key='09d25e094faa6ca2556c818166b7a9563b93f7099f6f0f4caa6c1
)

# Auth Admin Site
site = AuthAdminSite(
    settings=Settings(database_url_async='sqlite+aiosqlite:///amisadmin.db'),
    auth=auth
)

```

DbTokenStore

```

from msaSDK.auth.backends.db import DbTokenStore

auth = Auth(
    db=AsyncDatabase(engine),
    token_store=DbTokenStore(db=AsyncDatabase(engine))
)

```

RedisTokenStore

```

# Creating auth objects with `RedisTokenStore`
from msaSDK.auth.backends.redis import RedisTokenStore
from aioredis import Redis

auth = Auth(
    db=AsyncDatabase(engine),

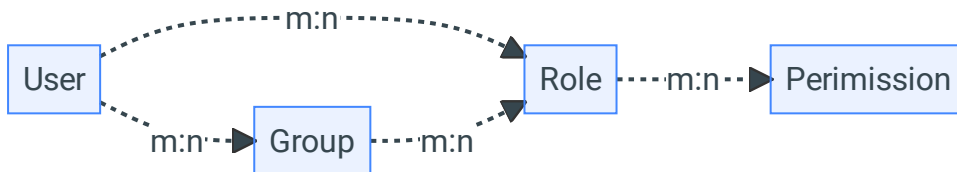
```

```
token_store=RedisTokenStore(redis=Redis.from_url('redis://localhost?db=0'))
)
```

RBAC Model

The `RBAC` model used in this system is as follows, you can also expand it according to your needs.

- Reference: [Design of permission system](#)



Advanced Expansion

Expanding the `User` model

```
from datetime import date

from msaSDK.admin.models.fields import Field
from msaSDK.auth.models import BaseUser

# Customize the `User` model, inherit from `BaseUser`.
class MyUser(BaseUser, table=True):
    birthday: date = Field(None, title="Date of Birth")
    location: str = Field(None, title="Location")

# Create auth objects using a custom `User` model
auth = Auth(db=AsyncDatabase(engine), user_model=MyUser)
```

Extending the `Role`, `Group`, `Permission` model

```
# Customize `Group` model, inherit from `BaseRBAC`;
# override `Role`, `Permission` model is similar, the difference is the table name.
class MyGroup(BaseRBAC, table = True):
    __tablename__ = 'auth_group' # Database table name, must be this to override the
    default model
    icon: str = Field(None, title = 'Icons')
    is_active: bool = Field(default = True, title = "Activate or not")
```

Customize `UserAuthApp` default management class

The default management classes can be replaced by inheritance overrides. For example:

`UserLoginFormAdmin`, `UserRegFormAdmin`, `UserInfoFormAdmin`,
`UserAdmin`, `GroupAdmin`, `RoleAdmin`, `PermissionAdmin`

```
# Custom model management class, inheritance rewrites the corresponding default
management class
class MyGroupAdmin(admin.ModelAdmin):
    group_schema = None
    page_schema = PageSchema(label = 'User Group Management', icon = 'fa fa-group')
    model = MyGroup
    link_model_fields = [Group.roles]
    readonly_fields = ['key']

# Customize the user authentication application, inherit and rewrite the default user
authentication application
class MyUserAuthApp(UserAuthApp):
    GroupAdmin = MyGroupAdmin

# Customize user management site, inherit rewrite the default user management site
class MyAuthAdminSite(AuthAdminSite):
    UserAuthApp = MyUserAuthApp

# Use the custom `AuthAdminSite` class to create the site object
site = MyAuthAdminSite(settings, auth = auth)
```

Interface Preview

Login Screen

- Open `http://127.0.0.1:8090/admin/auth/form/login` in your browser:

User Login



Login

MSA SDK Admin - Login

* Password

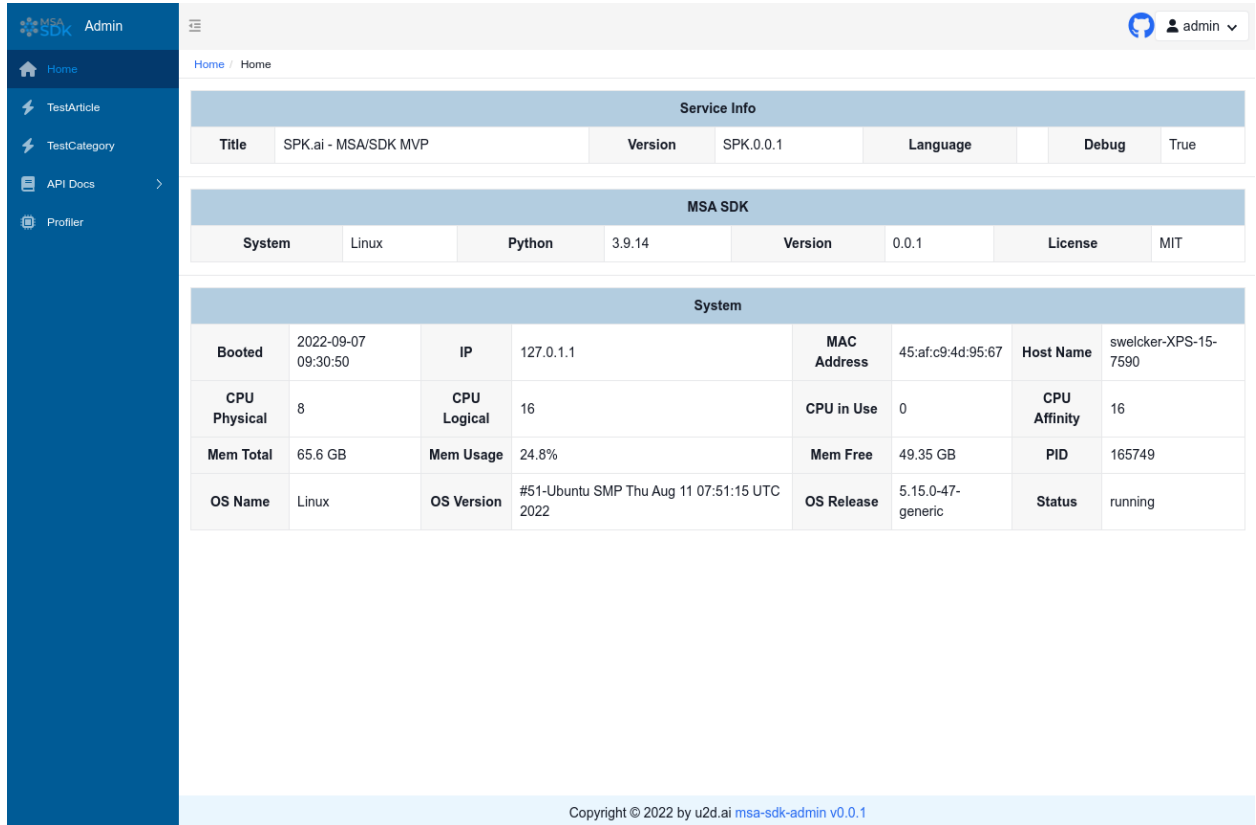
* Username

Sign up

Sign in

Home Screen with System Info

- Open `http://127.0.0.1:8090/admin/` in your browser:



The screenshot shows the 'Admin' interface of the msaSDK. The left sidebar contains links to Home, TestArticle, TestCategory, API Docs, and Profiler. The main content area displays three tables:

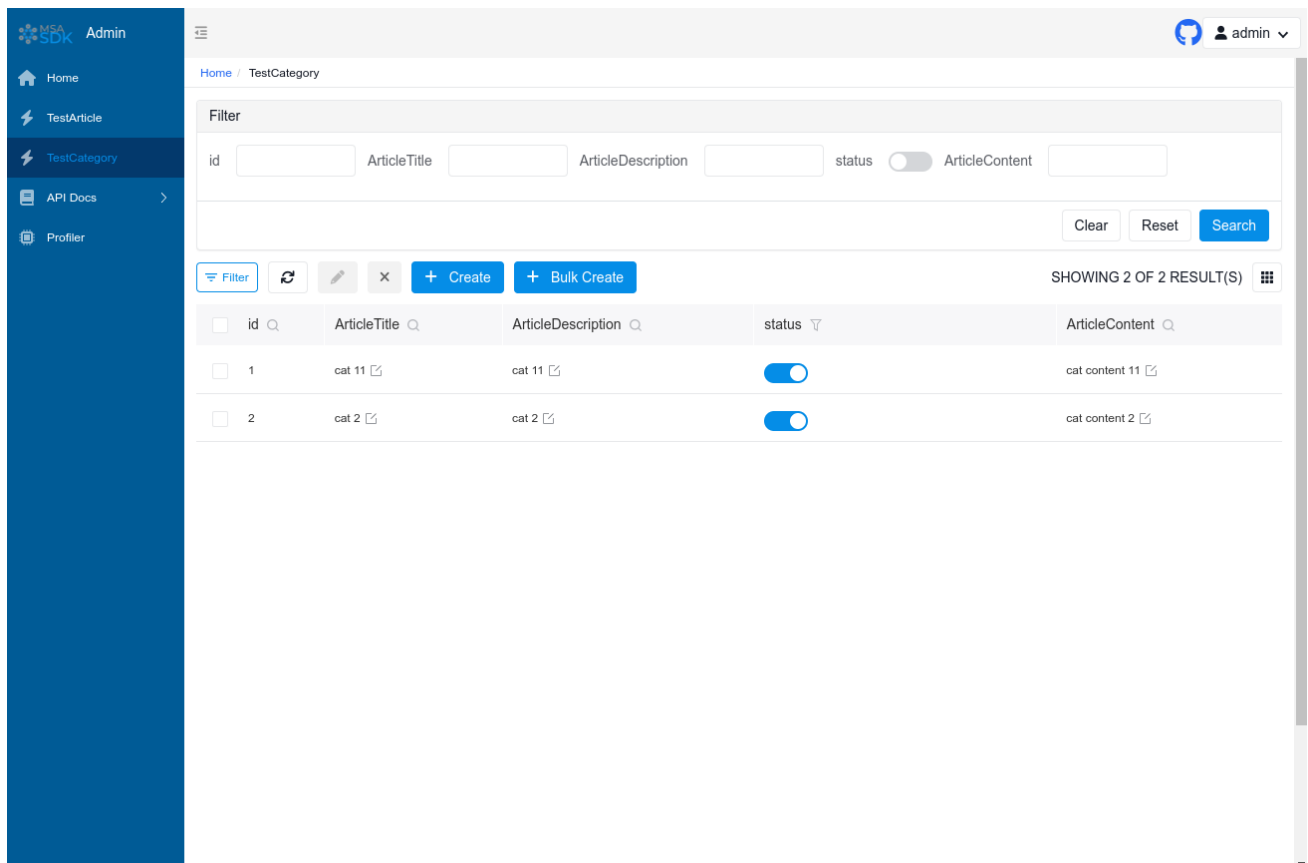
Service Info						
Title	SPK.ai - MSA/SDK MVP	Version	SPK.0.0.1	Language		Debug
						True

MSA SDK							
System	Linux	Python	3.9.14	Version	0.0.1	License	MIT

System							
Booted	2022-09-07 09:30:50	IP	127.0.1.1	MAC Address	45:af:c9:4d:95:67	Host Name	swelcker-XPS-15-7590
CPU Physical	8	CPU Logical	16	CPU in Use	0	CPU Affinity	16
Mem Total	65.6 GB	Mem Usage	24.8%	Mem Free	49.35 GB	PID	165749
OS Name	Linux	OS Version	#51-Ubuntu SMP Thu Aug 11 07:51:15 UTC 2022	OS Release	5.15.0-47-generic	Status	running

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CRUD of SQLModels Screen



The screenshot shows the 'TestCategory' screen in the msaSDK Admin interface. The left sidebar is the same as the previous screenshot. The main content area includes a filter section and a table of results.

Filter

id ArticleTitle ArticleDescription status ☐ ArticleContent

Clear Reset Search

Table:

<input type="checkbox"/>	id	ArticleTitle	ArticleDescription	status	ArticleContent
<input type="checkbox"/>	1	cat 11	cat 11	<input checked="" type="checkbox"/>	cat content 11
<input type="checkbox"/>	2	cat 2	cat 2	<input checked="" type="checkbox"/>	cat content 2

SHOWING 2 OF 2 RESULT(S)

OpenAPI Interactive Documentation (Swagger) Screen

- Open `http://127.0.0.1:8090/admin/docs` in your browser:

The screenshot displays the OpenAPI Interactive Documentation (Swagger) screen for the msaSDK Admin interface. The interface is divided into a left sidebar and a main content area. The sidebar, titled 'Admin', contains a navigation menu with the following items: Home, TestArticle, TestCategory, API Docs (expanded), OpenAPI (selected), Redocs, and Profiler. The main content area, titled 'auth', lists the following API endpoints:

Method	Endpoint	Description	Access
GET	/auth/userinfo	Userinfo	Public
GET	/auth/logout	User Logout	Public
POST	/auth/gettoken	OAuth Token	Protected
POST	/auth/	Route	Protected
POST	/auth/form/login/api	Route	Protected
POST	/auth/form/reg/api	Route	Protected
POST	/auth/form/userinfo	Userinfo	Protected
GET	/auth/form/userinfo/api	Route	Protected
POST	/auth/form/userinfo/api	Route	Protected
POST	/auth/useradmin/role/{item_id}	Auth User Roles Create	Protected
DELETE	/auth/useradmin/role/{item_id}	Auth User Roles Delete	Protected
POST	/auth/useradmin/group/{item_id}	Auth User Groups Create	Protected
DELETE	/auth/useradmin/group/{item_id}	Auth User Groups Delete	Protected

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