Auth Admin Site

MSA SDK Auth

MSA SDK Auth.
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 u2d_msa_sdk.models.service import get_msa_app_settings
from u2d_msa_sdk.service import MSAApp

# 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 = MSAApp(settings=settings, auto_mount_site=True,
             contact={"name": "MSA SDK", "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("MSA SDK Own Startup MSAUIEvent")

# Optional use shutdown event
@app.on_event("shutdown")
async def shutdown():
    app.logger.info("MSA SDK 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 u2d_msa_sdk.auth import Auth
from u2d_msa_sdk.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 u2d_msa_sdk.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 u2d_msa_sdk.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 =
'09d25e094faa6ca2556c818166b7a9563b93f7099f6f0f4caa6cf63b88e8d3e7')
)

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

DbTokenStore

```
from u2d_msa_sdk.auth.backends.db import DbTokenStore

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

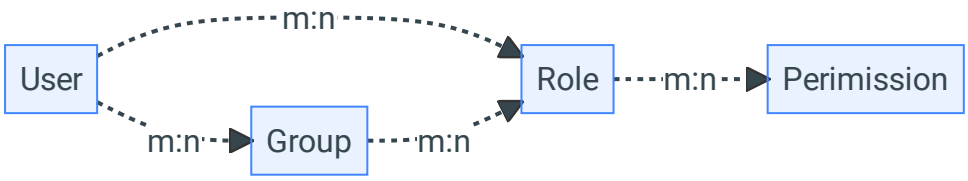
RedisTokenStore

```
# Creating auth objects with `RedisTokenStore`
from u2d_msa_sdk.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 u2d_msa_sdk.admin.models.fields import Field
from u2d_msa_sdk.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')
```

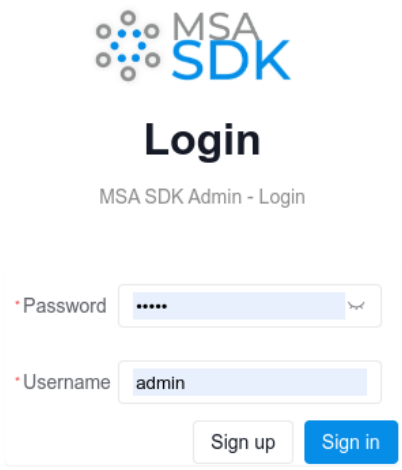
```
    model = MyGroup
    link_model_fields = [Group.roles]
    readonly_fields = ['key']

# 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

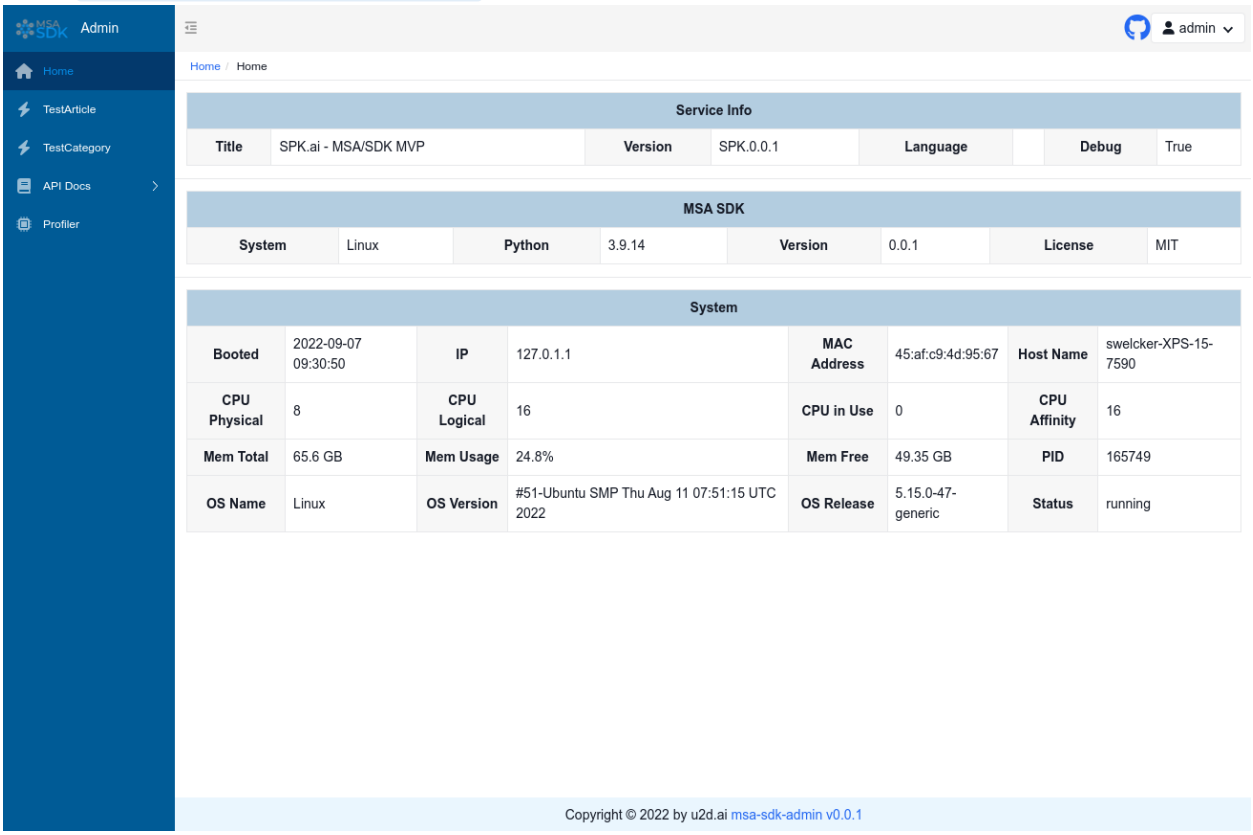
- Open `http://127.0.0.1:8090/admin/auth/form/login` in your browser:

  User Login

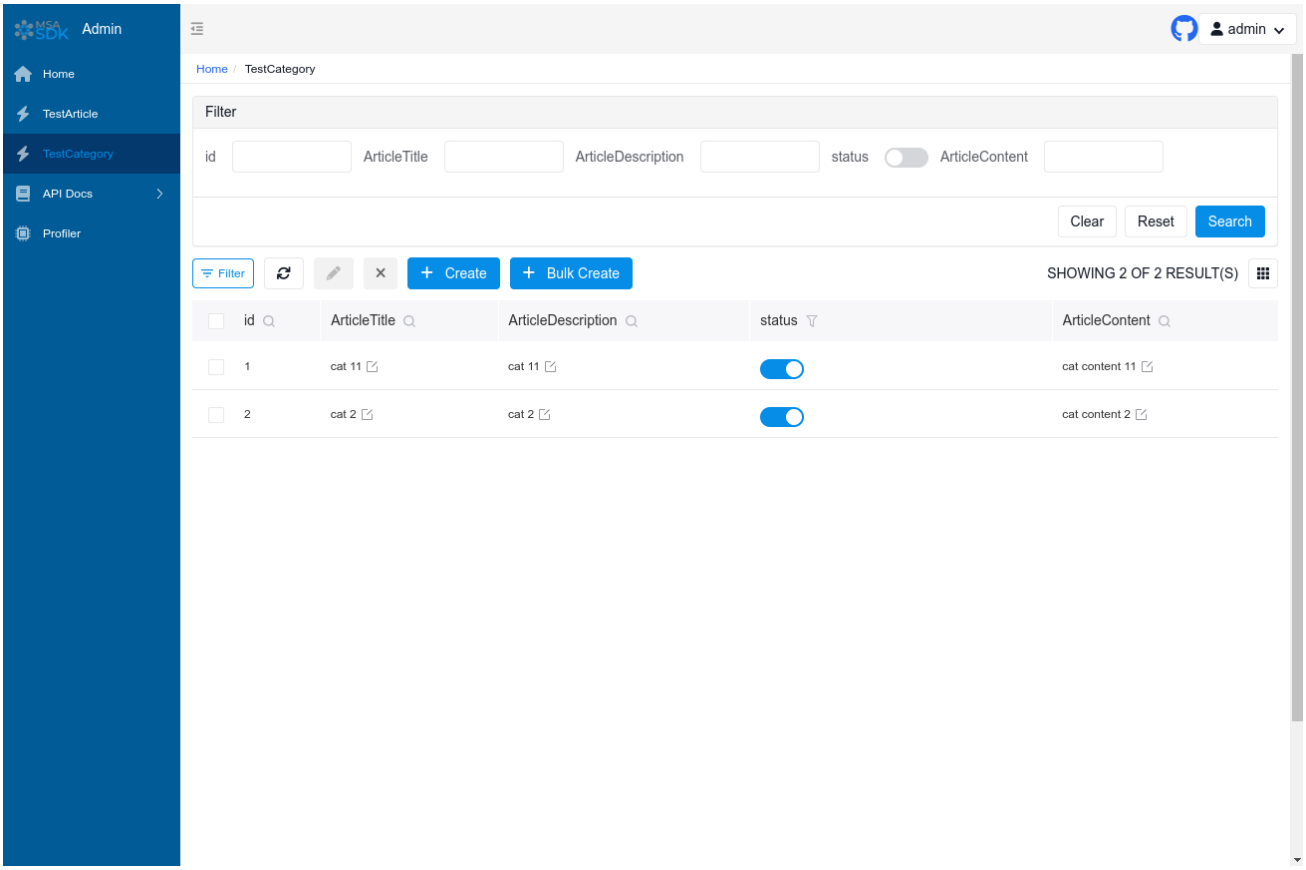


Home Screen with System Info

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

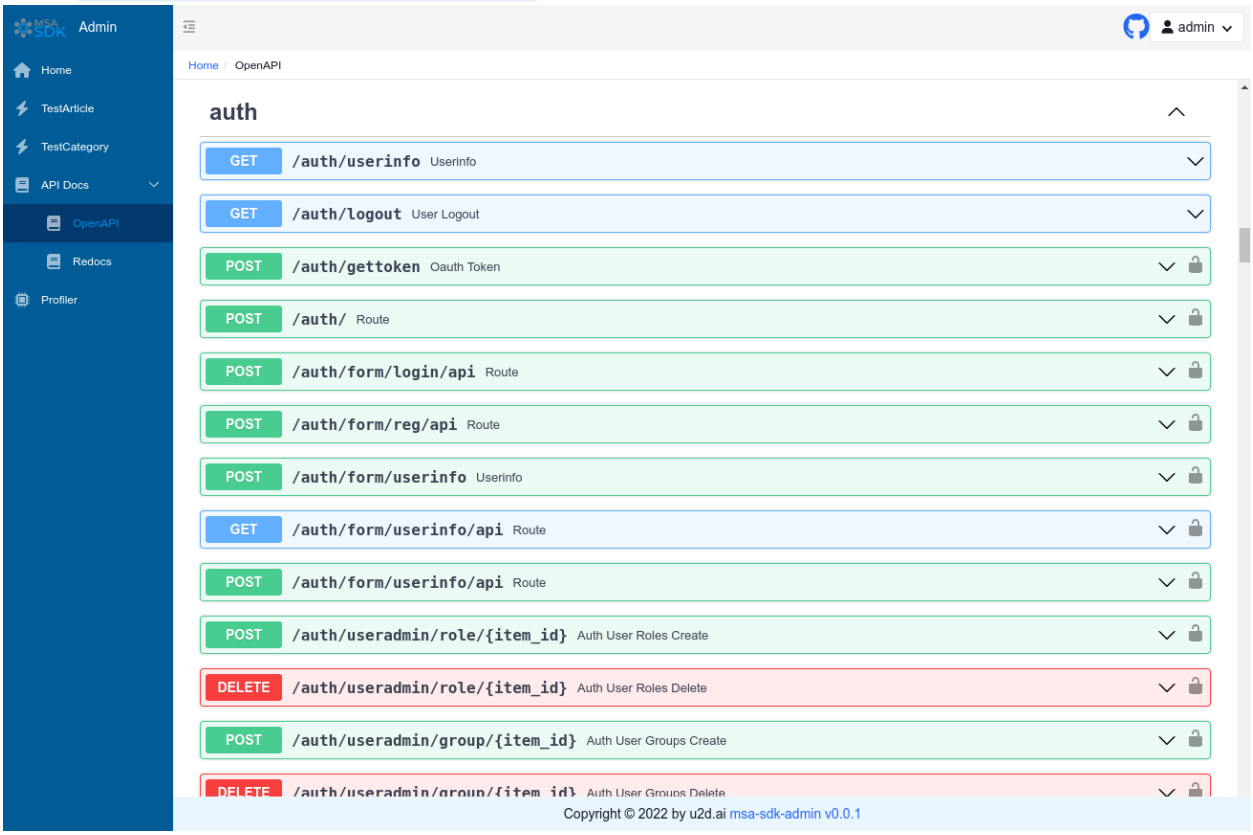


CRUD of SQLModels Screen



OpenAPI Interactive Documentation (Swagger) Screen

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



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