# IDSA数据空间连接器 - 后端接口设计文档

## 概述

本文档详细描述了IDSA数据空间连接器前端系统所需的后端RESTful API接口设计。基于对前端页面和组件的分析，识别出以下主要功能模块的接口需求。

## 1. 用户认证与授权模块

### 1.1 用户登录

**接口名称**: 用户登录  
**对应页面**: Login.tsx

  
**接口描述**: 用户身份验证，返回访问令牌和用户信息  
**接口报文格式**: POST /api/auth/login

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "username": {  
 "type": "string",  
 "description": "用户名"  
 },  
 "password": {  
 "type": "string",  
 "description": "密码"  
 }  
 },  
 "required": ["username", "password"]  
}

**请求体示例**:

{  
 "username": "admin",  
 "password": "123456"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {  
 "type": "boolean",  
 "description": "登录是否成功"  
 },  
 "token": {  
 "type": "string",  
 "description": "访问令牌"  
 },  
 "user": {  
 "type": "object",  
 "properties": {  
 "username": {"type": "string"},  
 "role": {  
 "type": "object",  
 "properties": {  
 "type": {"type": "string", "enum": ["enterprise"]},  
 "name": {"type": "string"},  
 "permissions": {"type": "array", "items": {"type": "string"}},  
 "organizationId": {"type": "string"}  
 }  
 }  
 }  
 },  
 "message": {  
 "type": "string",  
 "description": "响应消息"  
 }  
 }  
}

**响应体成功示例**:

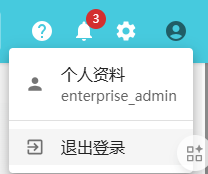
{  
 "success": true,  
 "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG9lIiwiaWF0IjoxNTE2MjM5MDIyfQ.SflKxwRJSMeKKF2QT4fwpMeJf36POk6yJV\_adQssw5c",  
 "user": {  
 "username": "admin",  
 "role": {  
 "type": "enterprise",  
 "name": "系统管理员",  
 "permissions": [  
 "read:users",  
 "write:users",  
 "delete:users",  
 "manage:system",  
 "access:dashboard"  
 ],  
 "organizationId": "org\_12345678"  
 }  
 },  
 "message": "登录成功"  
}

**响应体失败示例**:

{  
 "success": false,  
 "token": null,  
 "user": null,  
 "message": "用户名或密码错误"  
}

### 1.2 用户登出

**接口名称**: 用户登出  
**对应页面**: MainLayout.tsx (Topbar组件)

  
**接口描述**: 用户登出，清除会话  
**接口报文格式**: POST /api/auth/logout

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "message": {"type": "string"}  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "message": "登出成功"  
}

**响应体失败示例**:

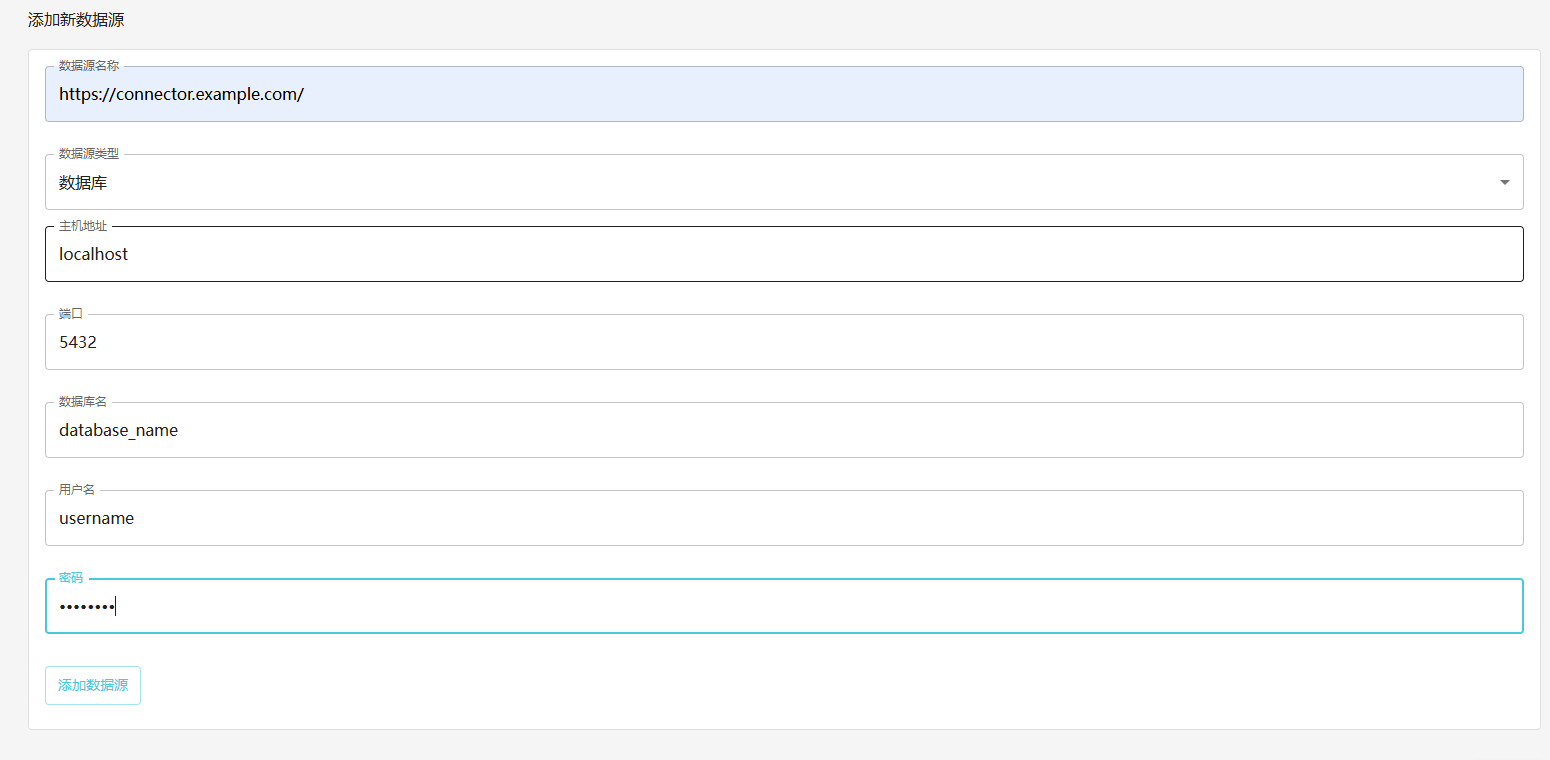
{  
 "success": false,  
 "message": "会话已过期"  
}

## 2. 数据发现模块

### 2.1 测试数据源连接

**接口名称**: 设置数据源

**对应页面**: provider/resources/DataDiscovery.tsx



**接口描述**: 在保存数据源配置前测试连接是否成功

**接口报文格式**: POST /api/data-discovery/test-connection

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "type": {  
 "type": "string",  
 "enum": ["database", "filesystem"],  
 "description": "数据源类型"  
 },  
 "database": {  
 "type": "object",  
 "properties": {  
 "host": {"type": "string", "description": "主机地址"},  
 "port": {"type": "integer", "description": "端口号"},  
 "database": {"type": "string", "description": "数据库名"},  
 "username": {"type": "string", "description": "用户名"},  
 "password": {"type": "string", "description": "密码"}  
 },  
 "required": ["host", "port", "database", "username", "password"]  
 },  
 "filesystem": {  
 "type": "object",  
 "properties": {  
 "path": {"type": "string", "description": "文件路径"},  
 "recursive": {"type": "boolean", "description": "是否递归扫描"},  
 "filePattern": {"type": "string", "description": "文件过滤规则"}  
 },  
 "required": ["path"]  
 }  
 },  
 "required": ["type"]  
}

**请求体示例（数据库类型）**:

{  
 "type": "database",  
 "database": {  
 "host": "localhost",  
 "port": 3306,  
 "database": "sales\_db",  
 "username": "db\_user",  
 "password": "db\_password"  
 }  
}

**请求体示例（文件系统类型）**:

{  
 "type": "filesystem",  
 "filesystem": {  
 "path": "/data/csv\_files",  
 "recursive": true,  
 "filePattern": "\*.csv"  
 }  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "connected": {"type": "boolean", "description": "连接是否成功"},  
 "message": {"type": "string", "description": "连接结果消息"},  
 "details": {  
 "type": "object",  
 "properties": {  
 "responseTime": {"type": "number", "description": "响应时间(ms)"},  
 "version": {"type": "string", "description": "数据库版本或文件系统信息"},  
 "availableSchemas": {"type": "array", "items": {"type": "string"}, "description": "可用的数据库模式(仅数据库)"},  
 "fileCount": {"type": "integer", "description": "文件数量(仅文件系统)"}  
 }  
 }  
 }  
}

**响应体成功示例（数据库）**:

{  
 "success": true,  
 "connected": true,  
 "message": "数据库连接成功",  
 "details": {  
 "responseTime": 125,  
 "version": "MySQL 8.0.25",  
 "availableSchemas": ["sales\_db", "inventory\_db", "user\_db"]  
 }  
}

**响应体成功示例（文件系统）**:

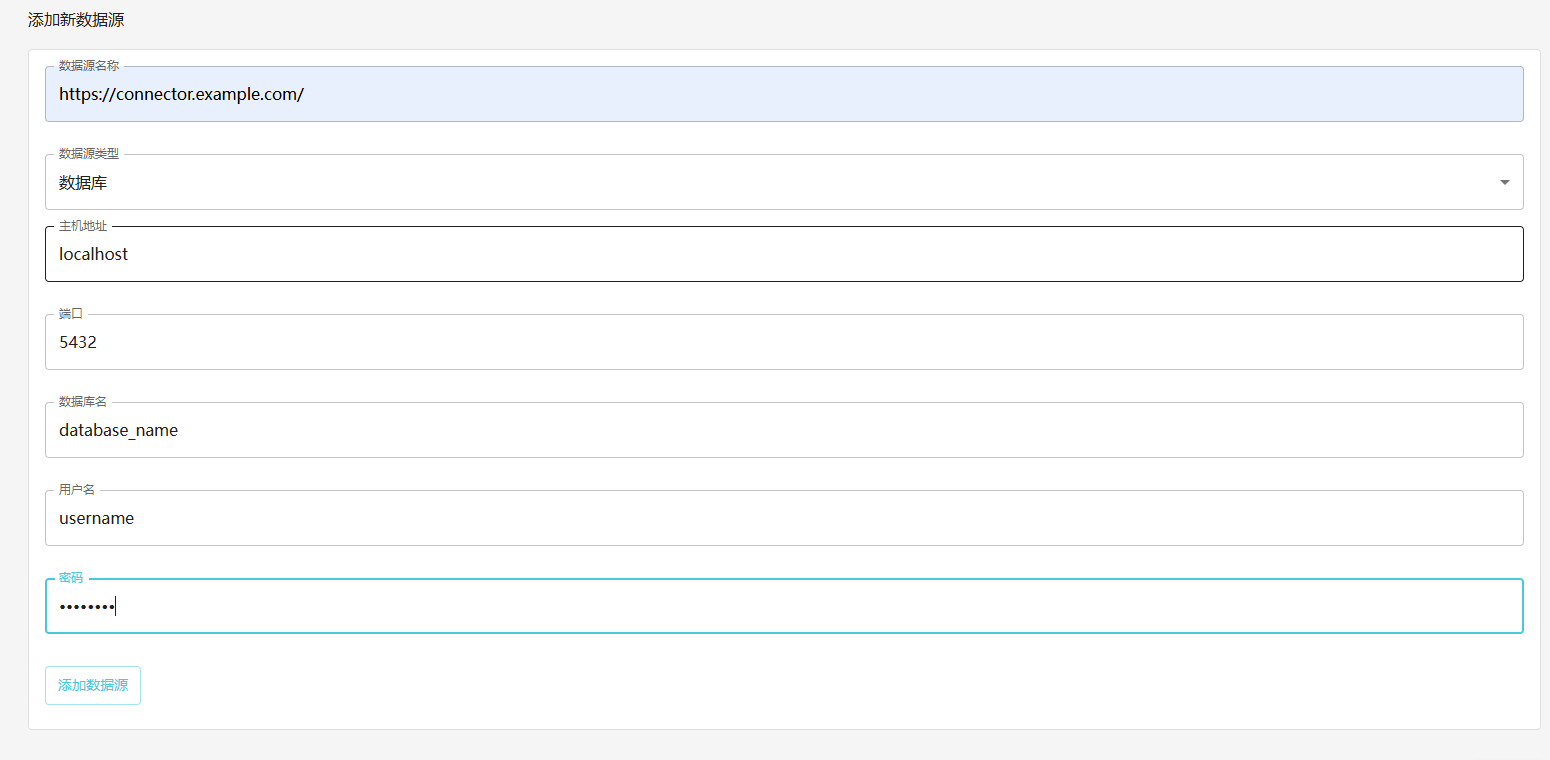
{  
 "success": true,  
 "connected": true,  
 "message": "文件系统连接成功",  
 "details": {  
 "responseTime": 45,  
 "version": "Linux ext4",  
 "fileCount": 156  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "connected": false,  
 "message": "连接失败：无法连接到数据库服务器",  
 "details": {  
 "responseTime": 5000  
 }  
}

### 2.2 保存数据源配置

**接口名称**: 保存数据源配置  
**对应页面**: provider/resources/DataDiscovery.tsx

  
**接口描述**: 保存数据源连接配置信息  
**接口报文格式**: POST /api/data-discovery/data-sources

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "name": {"type": "string", "description": "数据源名称"},  
 "type": {  
 "type": "string",  
 "enum": ["database", "filesystem"],  
 "description": "数据源类型"  
 },  
 "config": {  
 "type": "object",  
 "oneOf": [  
 {  
 "properties": {  
 "host": {"type": "string"},  
 "port": {"type": "integer"},  
 "database": {"type": "string"},  
 "username": {"type": "string"},  
 "password": {"type": "string"}  
 },  
 "required": ["host", "port", "database", "username", "password"]  
 },  
 {  
 "properties": {  
 "path": {"type": "string"},  
 "recursive": {"type": "boolean"},  
 "filePattern": {"type": "string"}  
 },  
 "required": ["path"]  
 }  
 ]  
 }  
 },  
 "required": ["name", "type", "config"]  
}

**请求体示例（数据库类型）**:

{  
 "name": "销售数据库",  
 "type": "database",  
 "config": {  
 "host": "localhost",  
 "port": 3306,  
 "database": "sales\_db",  
 "username": "db\_user",  
 "password": "db\_password"  
 }  
}

**请求体示例（文件系统类型）**:

{  
 "name": "CSV文件数据源",  
 "type": "filesystem",  
 "config": {  
 "path": "/data/csv\_files",  
 "recursive": true,  
 "filePattern": "\*.csv"  
 }  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string", "description": "数据源ID"},  
 "name": {"type": "string"},  
 "type": {"type": "string"},  
 "createdAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

**响应体成功示例**:

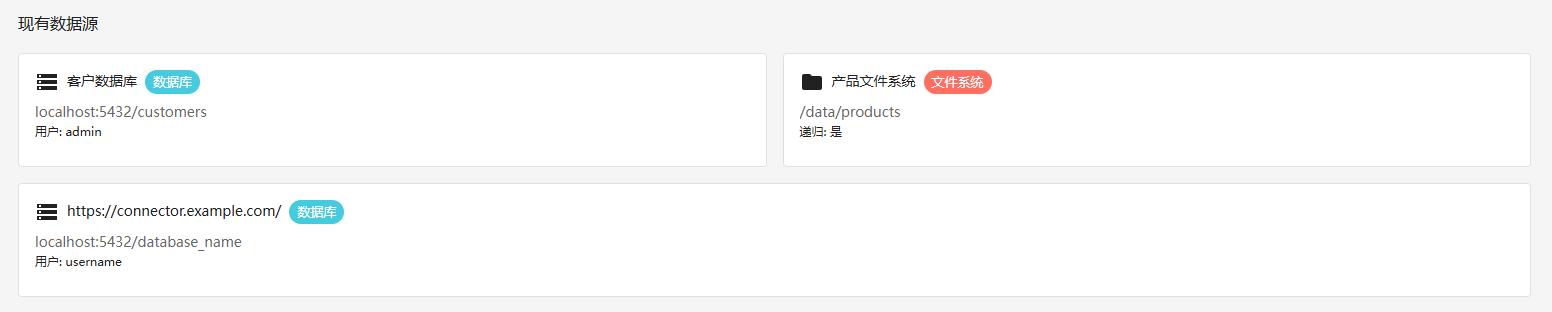
{  
 "success": true,  
 "data": {  
 "id": "ds\_001",  
 "name": "销售数据库",  
 "type": "database",  
 "createdAt": "2024-01-15T10:30:00Z"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "数据源名称已存在"  
}

### 2.3 获取数据源列表

**接口名称**: 获取数据源列表  
**对应页面**: provider/resources/DataDiscovery.tsx



注：用于显示数据发现页面“现有的数据源”

**接口描述**: 获取已配置的数据源列表  
**接口报文格式**: GET /api/data-discovery/data-sources

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "name": {"type": "string"},  
 "type": {"type": "string", "enum": ["database", "filesystem"]},  
 "config": {"type": "object"},  
 "status": {"type": "string", "enum": ["active", "inactive", "error"]},  
 "lastTested": {"type": "string", "format": "date-time"},  
 "createdAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": [  
 {  
 "id": "ds\_001",  
 "name": "销售数据库",  
 "type": "database",  
 "config": {  
 "host": "localhost",  
 "port": 3306,  
 "database": "sales\_db"  
 },  
 "status": "active",  
 "lastTested": "2024-01-15T10:30:00Z",  
 "createdAt": "2024-01-10T08:00:00Z"  
 },  
 {  
 "id": "ds\_002",  
 "name": "CSV文件数据源",  
 "type": "filesystem",  
 "config": {  
 "path": "/data/csv\_files",  
 "recursive": true  
 },  
 "status": "inactive",  
 "lastTested": "2024-01-14T15:20:00Z",  
 "createdAt": "2024-01-12T09:15:00Z"  
 }  
 ]  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "获取数据源列表失败"  
}

### 2.4 启动数据发现扫描

**接口名称**: 启动数据发现扫描  
**对应页面**: provider/resources/DataDiscovery.tsx

  
**接口描述**: 对配置的数据源启动自动化数据发现扫描  
**接口报文格式**: POST /api/data-discovery/scan

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "dataSourceIds": {  
 "type": "array",  
 "items": {"type": "string"},  
 "description": "要扫描的数据源ID列表"  
 },  
 "scanOptions": {  
 "type": "object",  
 "properties": {  
 "includeMetadata": {"type": "boolean", "description": "是否提取元数据"},  
 "detectSensitiveData": {"type": "boolean", "description": "是否识别敏感数据"},  
 "analyzeDataQuality": {"type": "boolean", "description": "是否分析数据质量"},  
 "maxSampleRows": {"type": "integer", "description": "最大采样行数"}  
 }  
 }  
 },  
 "required": ["dataSourceIds"]  
}

**请求体示例**:

{  
 "dataSourceIds": ["ds\_001", "ds\_002"],  
 "scanOptions": {  
 "includeMetadata": true,  
 "detectSensitiveData": true,  
 "analyzeDataQuality": false,  
 "maxSampleRows": 1000  
 }  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "taskId": {"type": "string", "description": "扫描任务ID"},  
 "status": {"type": "string", "enum": ["started", "running"]},  
 "estimatedDuration": {"type": "integer", "description": "预估完成时间(秒)"}  
 }  
 }  
 }  
}

**响应体成功示例**:

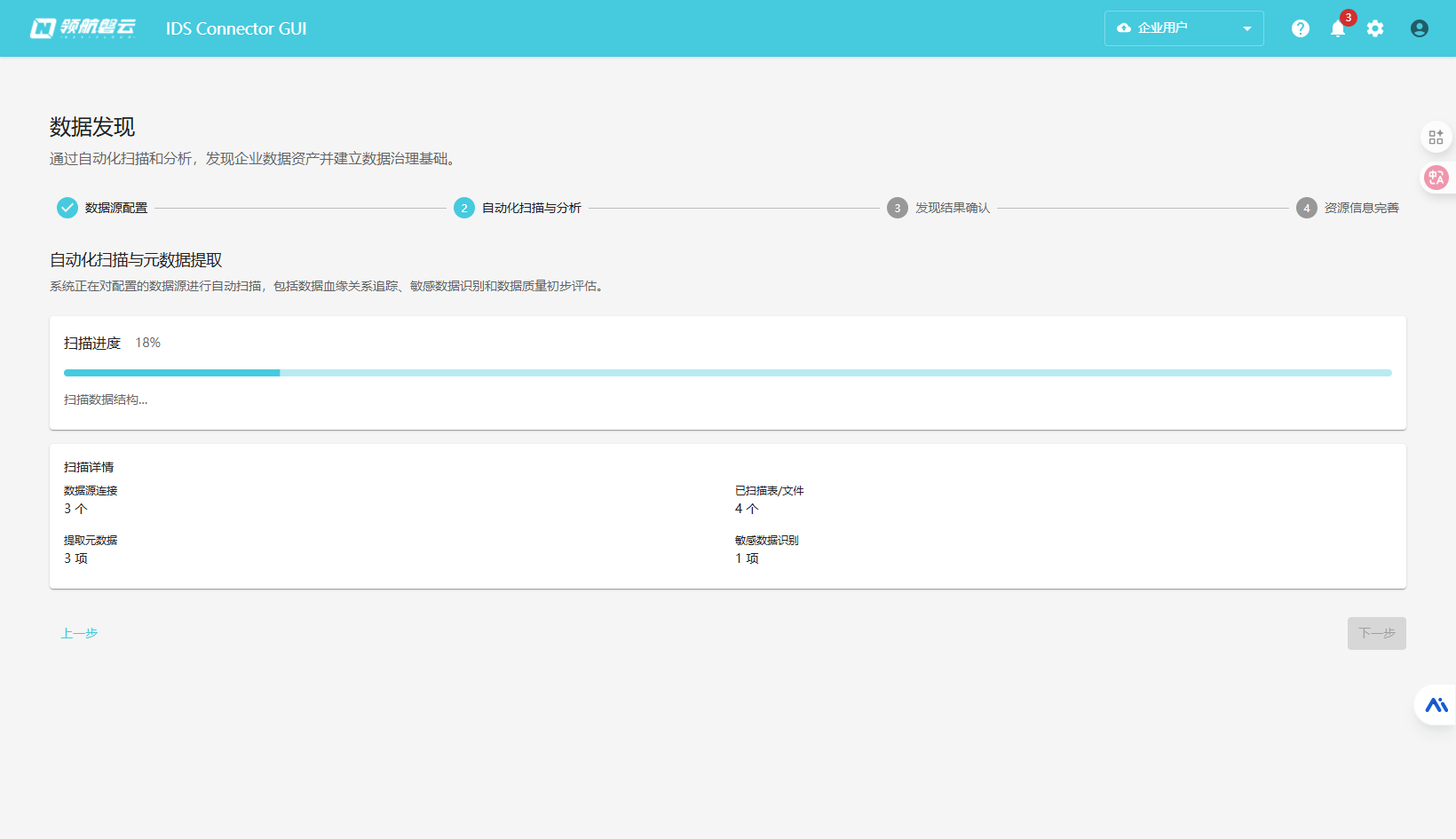
{  
 "success": true,  
 "data": {  
 "taskId": "scan\_task\_001",  
 "status": "started",  
 "estimatedDuration": 300  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "数据源不存在或无法访问"  
}

### 2.5 查询扫描进度

**接口名称**: 查询扫描进度  
**对应页面**: provider/resources/DataDiscovery.tsx  
**接口描述**: 查询数据发现扫描任务的进度和状态

  
**接口报文格式**: GET /api/data-discovery/scan/{taskId}/progress

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "taskId": {"type": "string"},  
 "status": {"type": "string", "enum": ["running", "completed", "failed", "cancelled"]},  
 "progress": {"type": "number", "minimum": 0, "maximum": 100, "description": "完成百分比"},  
 "currentStep": {"type": "string", "description": "当前执行步骤"},  
 "steps": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "name": {"type": "string"},  
 "status": {"type": "string", "enum": ["pending", "running", "completed", "failed"]},  
 "progress": {"type": "number"}  
 }  
 }  
 },  
 "statistics": {  
 "type": "object",  
 "properties": {  
 "dataSourcesScanned": {"type": "integer"},  
 "tablesFound": {"type": "integer"},  
 "filesFound": {"type": "integer"},  
 "metadataExtracted": {"type": "integer"},  
 "sensitiveDataDetected": {"type": "integer"}  
 }  
 },  
 "startTime": {"type": "string", "format": "date-time"},  
 "estimatedEndTime": {"type": "string", "format": "date-time"},  
 "errorMessage": {"type": "string"}  
 }  
 }  
 }  
}

**响应体成功示例（运行中）**:

{  
 "success": true,  
 "data": {  
 "taskId": "scan\_task\_001",  
 "status": "running",  
 "progress": 65,  
 "currentStep": "扫描数据库表结构",  
 "steps": [  
 {  
 "name": "连接数据源",  
 "status": "completed",  
 "progress": 100  
 },  
 {  
 "name": "扫描数据库表结构",  
 "status": "running",  
 "progress": 65  
 },  
 {  
 "name": "提取元数据",  
 "status": "pending",  
 "progress": 0  
 }  
 ],  
 "statistics": {  
 "dataSourcesScanned": 1,  
 "tablesFound": 15,  
 "filesFound": 0,  
 "metadataExtracted": 10,  
 "sensitiveDataDetected": 3  
 },  
 "startTime": "2024-01-15T10:30:00Z",  
 "estimatedEndTime": "2024-01-15T10:35:00Z"  
 }  
}

**响应体成功示例（已完成）**:

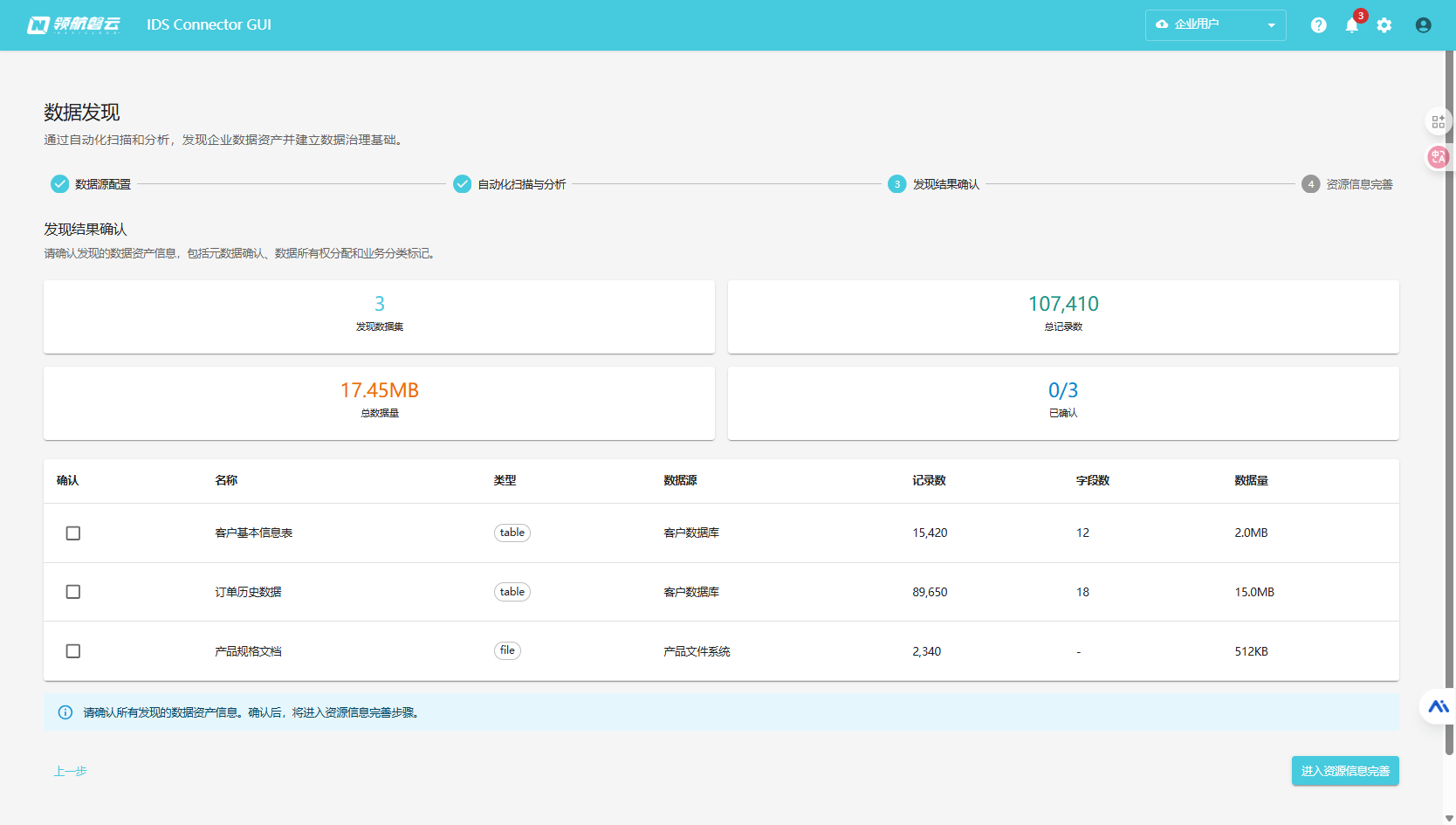
{  
 "success": true,  
 "data": {  
 "taskId": "scan\_task\_001",  
 "status": "completed",  
 "progress": 100,  
 "currentStep": "扫描完成",  
 "statistics": {  
 "dataSourcesScanned": 2,  
 "tablesFound": 25,  
 "filesFound": 156,  
 "metadataExtracted": 181,  
 "sensitiveDataDetected": 8  
 },  
 "startTime": "2024-01-15T10:30:00Z",  
 "estimatedEndTime": "2024-01-15T10:35:00Z"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "扫描任务不存在或已过期"  
}

### 2.6 获取发现结果

**接口名称**: 获取数据发现结果  
**对应页面**: provider/resources/DataDiscovery.tsx

  
**接口描述**: 获取扫描完成后的数据发现结果  
**接口报文格式**: GET /api/data-discovery/scan/{taskId}/results

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "taskId": {"type": "string"},  
 "summary": {  
 "type": "object",  
 "properties": {  
 "totalDatasets": {"type": "integer"},  
 "totalRecords": {"type": "integer"},  
 "totalFileSize": {"type": "integer", "description": "总文件大小(字节)"}  
 }  
 },  
 "discoveredAssets": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "name": {"type": "string"},  
 "type": {"type": "string", "enum": ["table", "view", "file", "dataset"]},  
 "source": {"type": "string", "description": "来源数据源名称"},  
 "schema": {"type": "string", "description": "数据库模式(仅数据库)"},  
 "path": {"type": "string", "description": "文件路径(仅文件系统)"},  
 "recordCount": {"type": "integer", "description": "记录数量"},  
 "columnCount": {"type": "integer", "description": "字段数量"},  
 "dataVolume": {  
 "type": "object",  
 "properties": {  
 "recordCount": {"type": "integer", "description": "记录数"},  
 "fileSize": {"type": "integer", "description": "文件大小(字节)"},  
 "estimatedSize": {"type": "string", "description": "预估大小(如1.2MB, 500KB)"}  
 }  
 },  
 "metadata": {  
 "type": "object",  
 "properties": {  
 "columns": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "name": {"type": "string"},  
 "type": {"type": "string"},  
 "nullable": {"type": "boolean"},  
 "primaryKey": {"type": "boolean"}  
 }  
 }  
 },  
 "lastModified": {"type": "string", "format": "date-time"},  
 "encoding": {"type": "string", "description": "文件编码"}  
 }  
 },  
 "sampleData": {  
 "type": "array",  
 "description": "样本数据(前几行)",  
 "items": {"type": "object"}  
 }  
 }  
 }  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

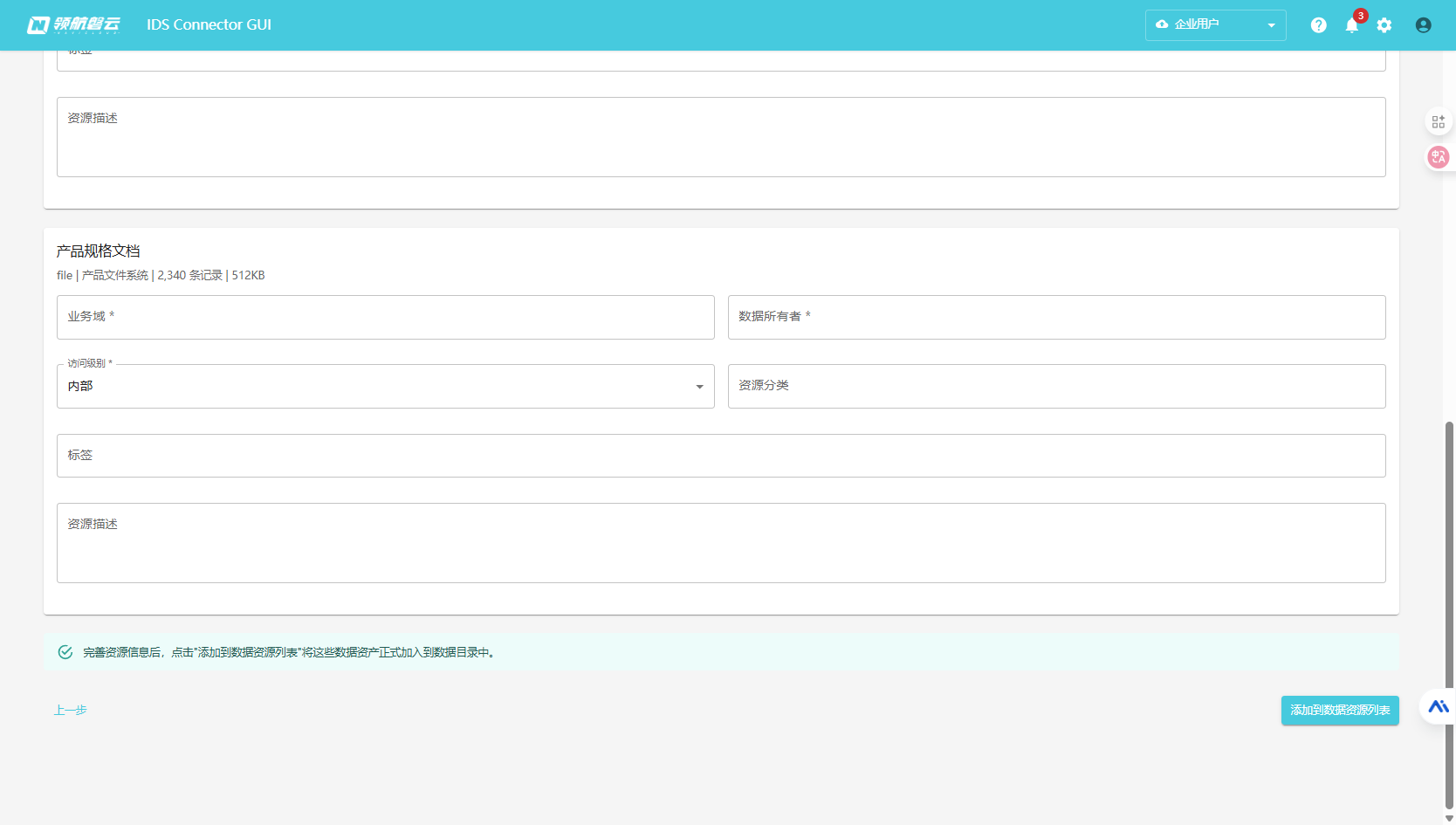
{  
 "success": true,  
 "data": {  
 "taskId": "scan\_task\_001",  
 "summary": {  
 "totalDatasets": 25,  
 "totalRecords": 1250000,  
 "totalFileSize": 524288000  
 },  
 "discoveredAssets": [  
 {  
 "id": "asset\_001",  
 "name": "customers",  
 "type": "table",  
 "source": "销售数据库",  
 "schema": "sales\_db",  
 "recordCount": 50000,  
 "columnCount": 8,  
 "dataVolume": {  
 "recordCount": 50000,  
 "fileSize": 10485760,  
 "estimatedSize": "10MB"  
 },  
 "metadata": {  
 "columns": [  
 {  
 "name": "customer\_id",  
 "type": "int",  
 "nullable": false,  
 "primaryKey": true  
 },  
 {  
 "name": "customer\_name",  
 "type": "varchar(100)",  
 "nullable": false,  
 "primaryKey": false  
 }  
 ],  
 "lastModified": "2024-01-15T09:30:00Z"  
 },  
 "sampleData": [  
 {"customer\_id": 1, "customer\_name": "张三"},  
 {"customer\_id": 2, "customer\_name": "李四"}  
 ]  
 }  
 ]  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "扫描任务未完成或结果已过期"  
}

### 2.7 确认发现结果

**接口名称**: 确认数据发现结果  
**对应页面**: provider/resources/DataDiscovery.tsx

  
**接口描述**: 确认发现的数据资产，进入资源信息完善步骤  
**接口报文格式**: POST /api/data-discovery/confirm-results

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "taskId": {"type": "string"},  
 "confirmedAssets": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "assetId": {"type": "string"},  
 "confirmed": {"type": "boolean"},  
 "customName": {"type": "string", "description": "自定义名称"}  
 },  
 "required": ["assetId", "confirmed"]  
 }  
 }  
 },  
 "required": ["taskId", "confirmedAssets"]  
}

**请求体示例**:

{  
 "taskId": "scan\_task\_001",  
 "confirmedAssets": [  
 {  
 "assetId": "asset\_001",  
 "confirmed": true,  
 "customName": "客户信息表"  
 },  
 {  
 "assetId": "asset\_002",  
 "confirmed": true  
 },  
 {  
 "assetId": "asset\_003",  
 "confirmed": false  
 }  
 ]  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "confirmedCount": {"type": "integer"},  
 "sessionId": {"type": "string", "description": "资源完善会话ID"},  
 "confirmedAssets": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "assetId": {"type": "string"},  
 "name": {"type": "string"},  
 "type": {"type": "string"},  
 "dataVolume": {  
 "type": "object",  
 "properties": {  
 "recordCount": {"type": "integer"},  
 "fileSize": {"type": "integer"},  
 "estimatedSize": {"type": "string"}  
 }  
 }  
 }  
 }  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

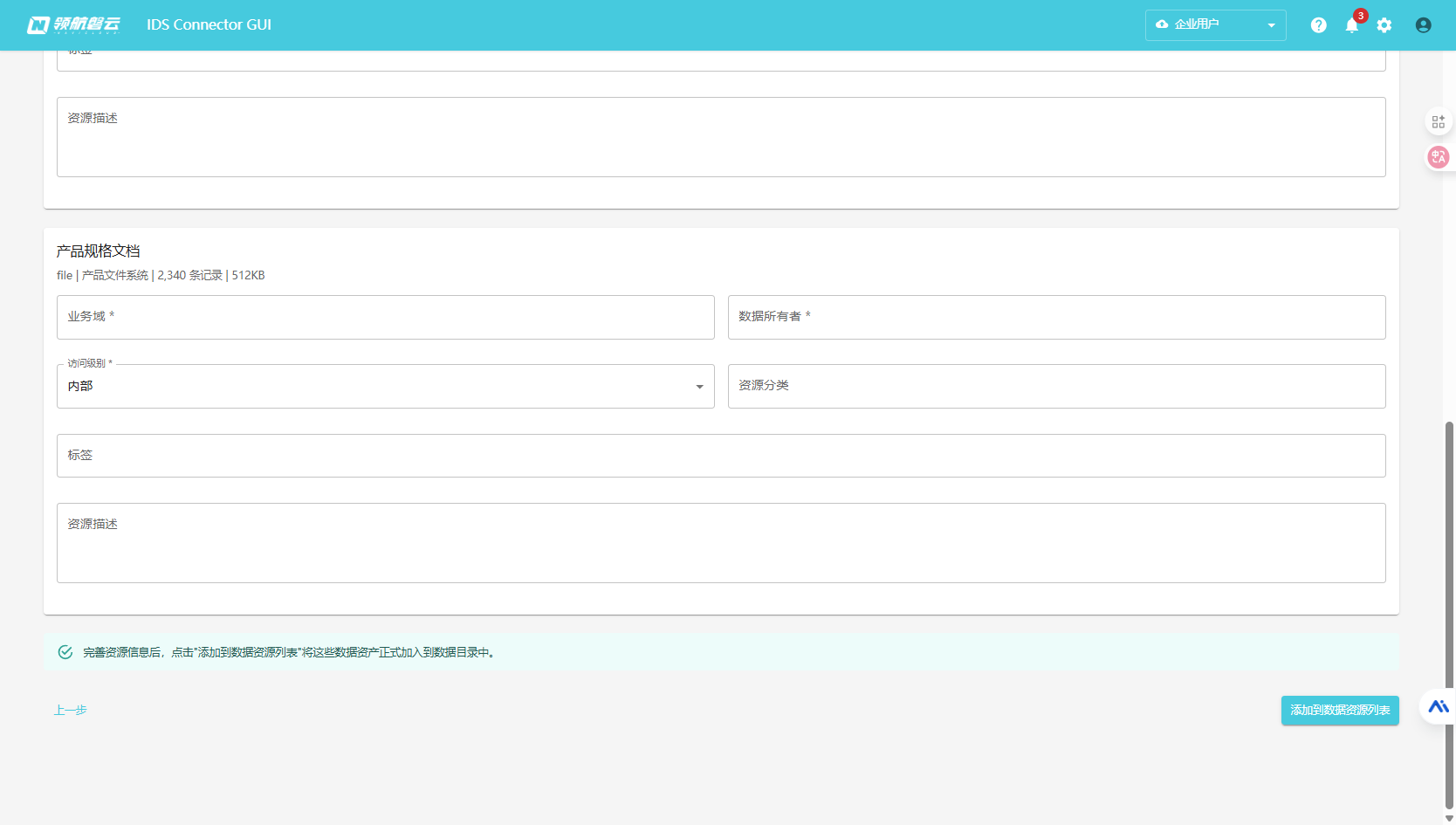
{  
 "success": true,  
 "data": {  
 "confirmedCount": 2,  
 "sessionId": "session\_001",  
 "confirmedAssets": [  
 {  
 "assetId": "asset\_001",  
 "name": "客户信息表",  
 "type": "table",  
 "dataVolume": {  
 "recordCount": 50000,  
 "fileSize": 10485760,  
 "estimatedSize": "10MB"  
 }  
 },  
 {  
 "assetId": "asset\_002",  
 "name": "orders",  
 "type": "table",  
 "dataVolume": {  
 "recordCount": 120000,  
 "fileSize": 25165824,  
 "estimatedSize": "24MB"  
 }  
 }  
 ]  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "扫描任务不存在或已过期"  
}

### 2.8 资源信息完善

**接口名称**: 完善资源信息  
**对应页面**: provider/resources/DataDiscovery.tsx

  
**接口描述**: 为确认的数据资产补充业务信息，然后添加到数据资源列表  
**接口报文格式**: POST /api/data-discovery/complete-resource-info

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "sessionId": {"type": "string", "description": "资源完善会话ID"},  
 "resourcesInfo": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "assetId": {"type": "string"},  
 "businessDomain": {"type": "string", "description": "业务域"},  
 "owner": {"type": "string", "description": "数据所有者"},  
 "accessLevel": {  
 "type": "string",  
 "enum": ["public", "internal", "confidential"],  
 "description": "访问级别"  
 },  
 "tags": {  
 "type": "array",  
 "items": {"type": "string"},  
 "description": "标签列表"  
 },  
 "description": {"type": "string", "description": "资源描述"},  
 "category": {"type": "string", "description": "资源分类"}  
 },  
 "required": ["assetId", "businessDomain", "owner", "accessLevel"]  
 }  
 }  
 },  
 "required": ["sessionId", "resourcesInfo"]  
}

**请求体示例**:

{  
 "sessionId": "session\_001",  
 "resourcesInfo": [  
 {  
 "assetId": "asset\_001",  
 "businessDomain": "销售管理",  
 "owner": "张三",  
 "accessLevel": "internal",  
 "tags": ["客户数据", "CRM", "销售"],  
 "description": "客户基本信息表，包含客户姓名、联系方式等",  
 "category": "业务数据"  
 },  
 {  
 "assetId": "asset\_002",  
 "businessDomain": "订单管理",  
 "owner": "李四",  
 "accessLevel": "confidential",  
 "tags": ["订单数据", "交易记录"],  
 "description": "订单详细信息表",  
 "category": "交易数据"  
 }  
 ]  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "addedCount": {"type": "integer", "description": "成功添加的资源数量"},  
 "resourceIds": {  
 "type": "array",  
 "items": {"type": "string"},  
 "description": "新创建的资源ID列表"  
 },  
 "failedAssets": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "assetId": {"type": "string"},  
 "error": {"type": "string", "description": "失败原因"}  
 }  
 },  
 "description": "添加失败的资产列表"  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "addedCount": 2,  
 "resourceIds": ["res\_001", "res\_002"],  
 "failedAssets": []  
 }  
}

**响应体部分失败示例**:

{  
 "success": true,  
 "data": {  
 "addedCount": 1,  
 "resourceIds": ["res\_001"],  
 "failedAssets": [  
 {  
 "assetId": "asset\_002",  
 "error": "资源名称已存在"  
 }  
 ]  
 }  
}

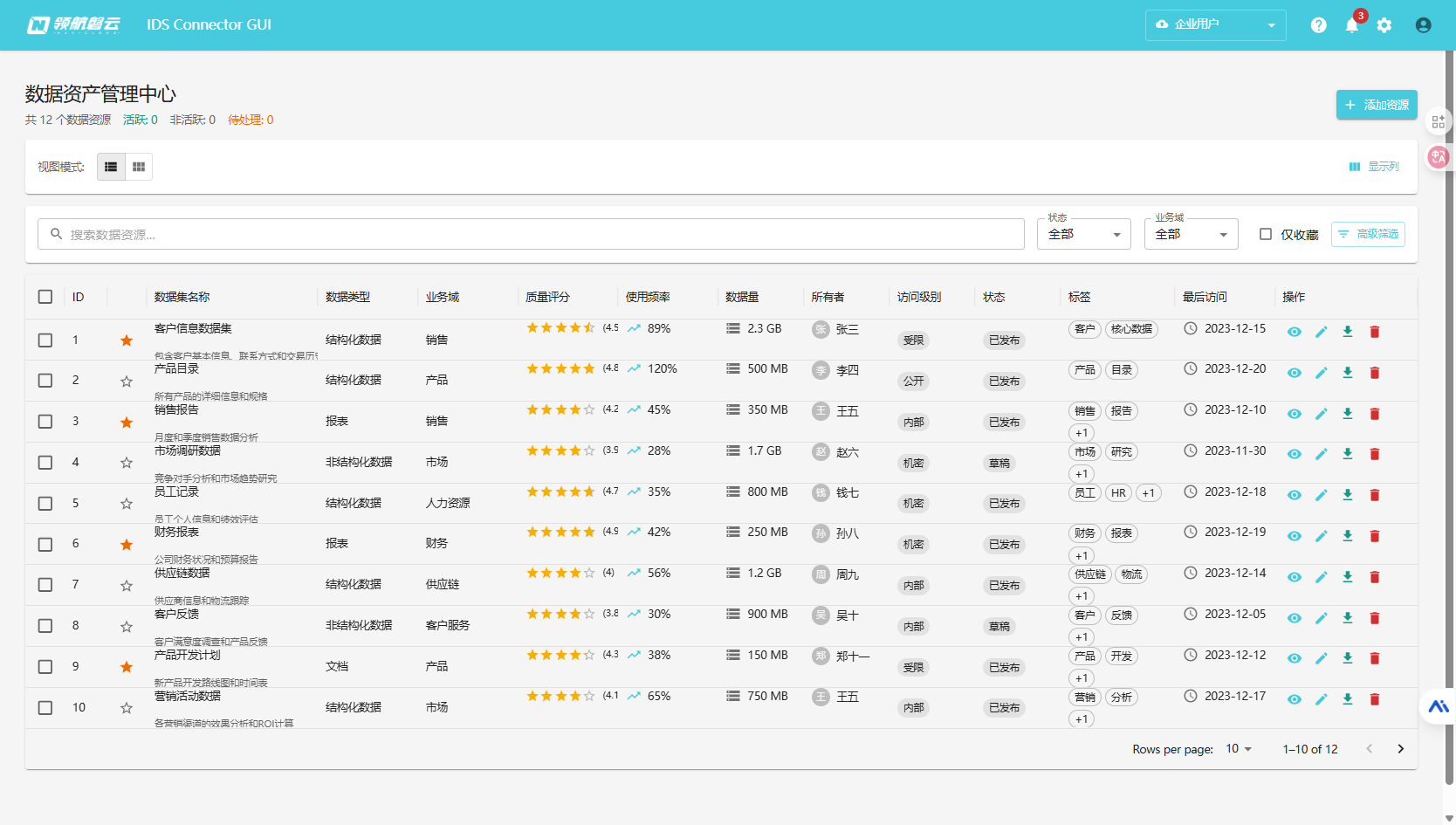
**响应体失败示例**:

{  
 "success": false,  
 "message": "会话已过期，请重新确认发现结果"  
}

## 3 数据列表模块

### 3.1 获取资源列表

**接口名称**: 获取数据资源列表  
**对应页面**: provider/resources/ResourceList.tsx

  
**接口描述**: 分页获取数据资源列表，支持过滤和排序  
**接口报文格式**: GET /api/resources

**查询参数**: - page: 页码 - pageSize: 每页数量 - searchTerm: 搜索关键词 - status: 状态过滤 - domain: 领域过滤 - dataType: 数据类型过滤 - accessLevel: 访问级别过滤 - owner: 所有者过滤 - onlyFavorites: 仅收藏 - sortBy: 排序字段 - sortOrder: 排序方向

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "resources": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "integer"},  
 "name": {"type": "string"},  
 "description": {"type": "string"},  
 "type": {"type": "string"},  
 "domain": {"type": "string"},  
 "owner": {"type": "string"},  
 "accessLevel": {"type": "string"},  
 "status": {"type": "string"},  
 "tags": {"type": "array", "items": {"type": "string"}},  
 "qualityScore": {"type": "number"},  
 "usageFrequency": {"type": "integer"},  
 "dataVolume": {"type": "string"},  
 "lastAccessed": {"type": "string", "format": "date-time"},  
 "isFavorite": {"type": "boolean"}  
 }  
 }  
 },  
 "total": {"type": "integer"},  
 "page": {"type": "integer"},  
 "pageSize": {"type": "integer"}  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "resources": [  
 {  
 "id": 1,  
 "name": "客户信息表",  
 "description": "包含客户基本信息的数据表",  
 "type": "数据库表",  
 "domain": "销售管理",  
 "owner": "张三",  
 "accessLevel": "internal",  
 "status": "active",  
 "tags": ["客户数据", "CRM"],  
 "qualityScore": 85.5,  
 "usageFrequency": 120,  
 "dataVolume": "10MB",  
 "lastAccessed": "2024-01-15T14:30:00Z",  
 "isFavorite": true  
 },  
 {  
 "id": 2,  
 "name": "订单数据",  
 "description": "订单交易记录",  
 "type": "数据库表",  
 "domain": "订单管理",  
 "owner": "李四",  
 "accessLevel": "confidential",  
 "status": "active",  
 "tags": ["订单", "交易"],  
 "qualityScore": 92.0,  
 "usageFrequency": 85,  
 "dataVolume": "24MB",  
 "lastAccessed": "2024-01-15T16:20:00Z",  
 "isFavorite": false  
 }  
 ],  
 "total": 50,  
 "page": 1,  
 "pageSize": 20  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "获取资源列表失败"  
}

### 3.2 获取单个资源详情

**接口名称**: 获取数据资源详情  
**对应页面**: provider/resources/ResourceEdit.tsx  
**接口描述**: 根据ID获取单个数据资源的详细信息  
**接口报文格式**: GET /api/resources/{id}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "integer"},  
 "name": {"type": "string"},  
 "description": {"type": "string"},  
 "type": {"type": "string"},  
 "domain": {"type": "string"},  
 "owner": {"type": "string"},  
 "accessLevel": {"type": "string"},  
 "status": {"type": "string"},  
 "tags": {"type": "array", "items": {"type": "string"}},  
 "qualityScore": {"type": "number"},  
 "usageFrequency": {"type": "integer"},  
 "dataVolume": {"type": "string"},  
 "lastAccessed": {"type": "string", "format": "date-time"},  
 "isFavorite": {"type": "boolean"},  
 "createdAt": {"type": "string", "format": "date-time"},  
 "updatedAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "id": 1,  
 "name": "客户信息表",  
 "description": "包含客户基本信息的数据表，包括姓名、联系方式、地址等",  
 "type": "数据库表",  
 "domain": "销售管理",  
 "owner": "张三",  
 "accessLevel": "internal",  
 "status": "active",  
 "tags": ["客户数据", "CRM", "销售"],  
 "qualityScore": 85.5,  
 "usageFrequency": 120,  
 "dataVolume": "10MB",  
 "lastAccessed": "2024-01-15T14:30:00Z",  
 "isFavorite": true,  
 "createdAt": "2024-01-10T08:00:00Z",  
 "updatedAt": "2024-01-15T10:30:00Z"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "资源不存在或已被删除"  
}

### 3.3 创建数据资源

**接口名称**: 创建数据资源  
**对应页面**: provider/resources/ResourceEdit.tsx  
**接口描述**: 创建新的数据资源  
**接口报文格式**: POST /api/resources

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "name": {"type": "string"},  
 "description": {"type": "string"},  
 "type": {"type": "string"},  
 "domain": {"type": "string"},  
 "accessLevel": {"type": "string"},  
 "tags": {"type": "array", "items": {"type": "string"}}  
 },  
 "required": ["name", "description", "type", "domain", "accessLevel"]  
}

**请求体示例**:

{  
 "name": "产品库存表",  
 "description": "产品库存信息，包含产品编号、库存数量、仓库位置等",  
 "type": "数据库表",  
 "domain": "库存管理",  
 "accessLevel": "internal",  
 "tags": ["库存", "产品", "仓储"]  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "id": 3,  
 "name": "产品库存表",  
 "description": "产品库存信息，包含产品编号、库存数量、仓库位置等",  
 "type": "数据库表",  
 "domain": "库存管理",  
 "accessLevel": "internal",  
 "status": "active",  
 "tags": ["库存", "产品", "仓储"],  
 "createdAt": "2024-01-15T16:45:00Z"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "资源名称已存在"  
}

### 3.4 更新数据资源

**接口名称**: 更新数据资源  
**对应页面**: provider/resources/ResourceEdit.tsx  
**接口描述**: 更新现有数据资源信息  
**接口报文格式**: PUT /api/resources/{id}

### 3.5 删除数据资源

**接口名称**: 删除数据资源  
**对应页面**: provider/resources/ResourceList.tsx  
**接口描述**: 删除一个或多个数据资源  
**接口报文格式**: DELETE /api/resources

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "ids": {  
 "type": "array",  
 "items": {"type": "integer"}  
 }  
 },  
 "required": ["ids"]  
}

### 3.6 切换资源收藏状态

**接口名称**: 切换资源收藏状态  
**对应页面**: provider/resources/ResourceList.tsx  
**接口描述**: 添加或移除资源收藏  
**接口报文格式**: POST /api/resources/{id}/favorite

## 4. 数据集策略管理模块

### 4.1 获取数据集策略配置

**接口名称**: 获取数据集策略配置  
**对应页面**: provider/dataset-policy-edit/DatasetPolicyEdit.tsx  
**接口描述**: 获取指定数据集的策略配置信息  
**接口报文格式**: GET /api/datasets/{datasetId}/policy

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "datasetId": {"type": "integer"},  
 "datasetName": {"type": "string"},  
 "policyConfig": {  
 "type": "object",  
 "properties": {  
 "restrict\_consumer": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "allowedConsumers": {  
 "type": "array",  
 "items": {"type": "string"}  
 }  
 }  
 },  
 "restrict\_connector": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "allowedConnectors": {  
 "type": "array",  
 "items": {"type": "string"}  
 }  
 }  
 },  
 "time\_limit": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "startTime": {"type": "string", "format": "date-time"},  
 "endTime": {"type": "string", "format": "date-time"}  
 }  
 },  
 "usage\_count": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "maxCount": {"type": "integer"}  
 }  
 }  
 }  
 },  
 "odrlSpec": {"type": "object"},  
 "idsSpec": {"type": "object"},  
 "createdAt": {"type": "string", "format": "date-time"},  
 "updatedAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

### 4.2 设置数据集策略配置

**接口名称**: 设置数据集策略配置  
**对应页面**: provider/dataset-policy-edit/DatasetPolicyEdit.tsx  
**接口描述**: 为指定数据集设置策略配置，包括组合策略配置和生成的ODRL/IDS规范  
**接口报文格式**: POST /api/datasets/{datasetId}/policy

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "policyConfig": {  
 "type": "object",  
 "properties": {  
 "restrict\_consumer": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "allowedConsumers": {  
 "type": "array",  
 "items": {"type": "string"}  
 }  
 },  
 "required": ["enabled"]  
 },  
 "restrict\_connector": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "allowedConnectors": {  
 "type": "array",  
 "items": {"type": "string"}  
 }  
 },  
 "required": ["enabled"]  
 },  
 "time\_limit": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "startTime": {"type": "string", "format": "date-time"},  
 "endTime": {"type": "string", "format": "date-time"}  
 },  
 "required": ["enabled"]  
 },  
 "usage\_count": {  
 "type": "object",  
 "properties": {  
 "enabled": {"type": "boolean"},  
 "maxCount": {"type": "integer"}  
 },  
 "required": ["enabled"]  
 }  
 },  
 "required": ["restrict\_consumer", "restrict\_connector", "time\_limit", "usage\_count"]  
 },  
 "odrlSpec": {  
 "type": "object",  
 "description": "生成的ODRL策略规范"  
 },  
 "idsSpec": {  
 "type": "object",  
 "description": "生成的IDS策略规范"  
 }  
 },  
 "required": ["policyConfig", "odrlSpec", "idsSpec"]  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "message": {"type": "string"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "policyId": {"type": "integer"},  
 "datasetId": {"type": "integer"},  
 "createdAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

### 4.3 更新数据集策略配置

**接口名称**: 更新数据集策略配置  
**对应页面**: provider/dataset-policy-edit/DatasetPolicyEdit.tsx  
**接口描述**: 更新指定数据集的策略配置  
**接口报文格式**: PUT /api/datasets/{datasetId}/policy

**请求体 JSON Schema**: 与4.2接口相同

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "message": {"type": "string"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "policyId": {"type": "integer"},  
 "datasetId": {"type": "integer"},  
 "updatedAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

### 4.4 删除数据集策略配置

**接口名称**: 删除数据集策略配置  
**对应页面**: provider/dataset-policy-edit/DatasetPolicyEdit.tsx  
**接口描述**: 删除指定数据集的策略配置  
**接口报文格式**: DELETE /api/datasets/{datasetId}/policy

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "message": {"type": "string"}  
 }  
}

## 5. 提供者连接器管理模块

### 5.1 获取提供者连接器状态

**接口名称**: 获取提供者连接器状态列表  
**对应页面**: provider/connections/ConnectorStatus.tsx  
**接口描述**: 获取所有提供者连接器的状态信息  
**接口报文格式**: GET /api/connectors/status

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "integer"},  
 "name": {"type": "string"},  
 "type": {"type": "string"},  
 "endpoint": {"type": "string"},  
 "status": {"type": "string", "enum": ["online", "offline", "warning", "error"]},  
 "uptime": {"type": "string"},  
 "lastConnection": {"type": "string"},  
 "dataTransferred": {"type": "string"},  
 "cpuUsage": {"type": "number"},  
 "memoryUsage": {"type": "number"},  
 "description": {"type": "string"},  
 "logs": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "timestamp": {"type": "string", "format": "date-time"},  
 "level": {"type": "string", "enum": ["info", "warning", "error"]},  
 "message": {"type": "string"}  
 }  
 }  
 }  
 }  
 }  
 }  
 }  
}

### 5.2 获取提供者数据交换记录

**接口名称**: 获取提供者数据交换记录  
**对应页面**: provider/connections/DataExchange.tsx  
**接口描述**: 分页获取提供者数据交换历史记录  
**接口报文格式**: GET /api/data-exchange/records

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "records": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "integer"},  
 "sourceConnector": {"type": "string"},  
 "targetConnector": {"type": "string"},  
 "resourceName": {"type": "string"},  
 "resourceType": {"type": "string"},  
 "exchangeType": {"type": "string", "enum": ["push", "pull"]},  
 "status": {"type": "string", "enum": ["completed", "failed", "in\_progress", "pending"]},  
 "startTime": {"type": "string", "format": "date-time"},  
 "endTime": {"type": "string", "format": "date-time"},  
 "dataSize": {"type": "string"},  
 "transferRate": {"type": "string"},  
 "errorMessage": {"type": "string"}  
 }  
 }  
 },  
 "total": {"type": "integer"}  
 }  
 }  
 }  
}

## 6. 消费者模块

### 6.1 数据订阅

#### 6.1.1 验证连接器地址

**接口名称**: 验证Provider连接器地址  
**对应页面**: consumer/subscriptions/DataSubscription.tsx  
**接口描述**: 验证输入的Provider连接器地址是否有效  
**接口报文格式**: POST /api/consumer/subscription/validate-connector

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "connectorAddress": {  
 "type": "string",  
 "description": "Provider连接器地址"  
 }  
 },  
 "required": ["connectorAddress"]  
}

**请求体示例**:

{  
 "connectorAddress": "https://provider.example.com:8080/api/ids/connector"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "isValid": {"type": "boolean"},  
 "connectorInfo": {  
 "type": "object",  
 "properties": {  
 "name": {"type": "string"},  
 "version": {"type": "string"},  
 "description": {"type": "string"}  
 }  
 }  
 }  
 },  
 "message": {"type": "string"}  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "isValid": true,  
 "connectorInfo": {  
 "name": "销售部门数据连接器",  
 "version": "2.1.0",  
 "description": "提供销售相关数据资源的连接器"  
 }  
 },  
 "message": "连接器验证成功"  
}

**响应体失败示例**:

{  
 "success": false,  
 "data": {  
 "isValid": false  
 },  
 "message": "连接器地址无效或无法访问"  
}

#### 6.1.2 发现数据资源

**接口名称**: 发现Provider的数据资源  
**对应页面**: consumer/subscriptions/DataSubscription.tsx  
**接口描述**: 从指定的Provider连接器获取可用的数据资源列表  
**接口报文格式**: POST /api/consumer/subscription/discover-resources

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "connectorAddress": {  
 "type": "string",  
 "description": "Provider连接器地址"  
 }  
 },  
 "required": ["connectorAddress"]  
}

**请求体示例**:

{  
 "connectorAddress": "https://provider.example.com:8080/api/ids/connector"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "name": {"type": "string"},  
 "description": {"type": "string"},  
 "type": {"type": "string"},  
 "size": {"type": "string"},  
 "format": {"type": "string"},  
 "lastUpdated": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": [  
 {  
 "id": "res\_001",  
 "name": "客户销售数据集",  
 "description": "包含客户购买记录和销售统计的数据集",  
 "type": "dataset",  
 "size": "2.5GB",  
 "format": "CSV",  
 "lastUpdated": "2024-01-15T10:30:00Z"  
 },  
 {  
 "id": "res\_002",  
 "name": "产品库存数据",  
 "description": "实时产品库存信息",  
 "type": "api",  
 "size": "实时",  
 "format": "JSON",  
 "lastUpdated": "2024-01-15T14:20:00Z"  
 }  
 ]  
}

**响应体失败示例**:

{  
 "success": false,  
 "data": [],  
 "message": "无法连接到指定的连接器或连接器无可用资源"  
}

#### 6.1.3 获取合同模板

**接口名称**: 获取数据订阅合同模板  
**对应页面**: consumer/subscriptions/DataSubscription.tsx  
**接口描述**: 获取指定资源的合同模板  
**接口报文格式**: POST /api/consumer/subscription/contract-template

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "connectorAddress": {"type": "string"},  
 "resourceId": {"type": "string"}  
 },  
 "required": ["connectorAddress", "resourceId"]  
}

**请求体示例**:

{  
 "connectorAddress": "https://provider.example.com:8080/api/ids/connector",  
 "resourceId": "res\_001"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "templateId": {"type": "string"},  
 "terms": {  
 "type": "object",  
 "properties": {  
 "usagePurpose": {"type": "string"},  
 "accessDuration": {"type": "string"},  
 "dataRetention": {"type": "string"},  
 "restrictions": {"type": "array", "items": {"type": "string"}}  
 }  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "templateId": "template\_001",  
 "terms": {  
 "usagePurpose": "数据分析和报告生成",  
 "accessDuration": "12个月",  
 "dataRetention": "合同期满后30天内删除",  
 "restrictions": ["不得用于商业转售", "不得与第三方共享"]  
 }  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "指定资源不存在或无可用合同模板"  
}

#### 6.1.4 协商合同条款

**接口名称**: 协商合同条款  
**对应页面**: consumer/subscriptions/DataSubscription.tsx  
**接口描述**: 与Provider协商合同条款  
**接口报文格式**: POST /api/consumer/subscription/negotiate-contract

#### 6.1.5 签署合同

**接口名称**: 签署订阅合同  
**对应页面**: consumer/subscriptions/DataSubscription.tsx  
**接口描述**: 签署数据订阅合同  
**接口报文格式**: POST /api/consumer/subscription/sign-contract

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "contractId": {"type": "string"},  
 "accepted": {"type": "boolean"},  
 "signature": {"type": "string"}  
 },  
 "required": ["contractId", "accepted"]  
}

**请求体示例**:

{  
 "contractId": "contract\_12345",  
 "accepted": true,  
 "signature": "digital\_signature\_hash\_value"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "subscriptionId": {"type": "string"},  
 "contractId": {"type": "string"},  
 "status": {"type": "string"},  
 "signedAt": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "subscriptionId": "sub\_67890",  
 "contractId": "contract\_12345",  
 "status": "active",  
 "signedAt": "2024-01-15T16:30:00Z"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "合同签署失败：合同已过期或无效"  
}

### 6.2 订阅管理

#### 6.2.1 获取订阅列表

**接口名称**: 获取消费者订阅列表  
**对应页面**: consumer/subscriptions/ManageSubscription.tsx  
**接口描述**: 获取当前消费者的所有数据订阅记录  
**接口报文格式**: GET /api/consumer/subscriptions

**查询参数**: - page: 页码 - pageSize: 每页数量 - search: 搜索关键词 - status: 状态过滤 (active/expired/suspended/pending)

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "subscriptions": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "datasetName": {"type": "string"},  
 "datasetUuid": {"type": "string"},  
 "providerName": {"type": "string"},  
 "providerId": {"type": "string"},  
 "subscriptionDate": {"type": "string", "format": "date"},  
 "expiryDate": {"type": "string", "format": "date"},  
 "status": {"type": "string", "enum": ["active", "expired", "suspended", "pending"]},  
 "pricePerMonth": {"type": "number"},  
 "currency": {"type": "string"},  
 "dataTransferred": {"type": "number"},  
 "monthlyQuota": {"type": "number"},  
 "contractSummary": {"type": "string"}  
 }  
 }  
 },  
 "total": {"type": "integer"},  
 "statistics": {  
 "type": "object",  
 "properties": {  
 "activeCount": {"type": "integer"},  
 "expiredCount": {"type": "integer"},  
 "suspendedCount": {"type": "integer"},  
 "totalMonthlyCost": {"type": "number"}  
 }  
 }  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "subscriptions": [  
 {  
 "id": "sub\_001",  
 "datasetName": "客户销售数据集",  
 "datasetUuid": "dataset\_12345",  
 "providerName": "销售部门数据连接器",  
 "providerId": "provider\_001",  
 "subscriptionDate": "2024-01-01",  
 "expiryDate": "2024-12-31",  
 "status": "active",  
 "pricePerMonth": 299.99,  
 "currency": "CNY",  
 "dataTransferred": 1024000000,  
 "monthlyQuota": 5368709120,  
 "contractSummary": "数据分析用途，12个月有效期"  
 },  
 {  
 "id": "sub\_002",  
 "datasetName": "产品库存数据",  
 "datasetUuid": "dataset\_67890",  
 "providerName": "库存管理连接器",  
 "providerId": "provider\_002",  
 "subscriptionDate": "2023-12-15",  
 "expiryDate": "2024-01-14",  
 "status": "expired",  
 "pricePerMonth": 199.99,  
 "currency": "CNY",  
 "dataTransferred": 512000000,  
 "monthlyQuota": 2147483648,  
 "contractSummary": "实时库存查询，1个月试用期"  
 }  
 ],  
 "total": 2,  
 "statistics": {  
 "activeCount": 1,  
 "expiredCount": 1,  
 "suspendedCount": 0,  
 "totalMonthlyCost": 299.99  
 }  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "获取订阅列表失败"  
}

#### 6.2.2 获取订阅详情

**接口名称**: 获取订阅详细信息  
**对应页面**: consumer/subscriptions/ManageSubscription.tsx  
**接口描述**: 获取指定订阅的详细信息  
**接口报文格式**: GET /api/consumer/subscriptions/{subscriptionId}

#### 6.2.3 取消订阅

**接口名称**: 取消数据订阅  
**对应页面**: consumer/subscriptions/ManageSubscription.tsx  
**接口描述**: 取消指定的数据订阅  
**接口报文格式**: DELETE /api/consumer/subscriptions/{subscriptionId}

### 6.3 消费者连接器状态管理

#### 6.3.1 获取消费者连接器状态

**接口名称**: 获取消费者连接器状态  
**对应页面**: consumer/connections/ConnectorStatus.tsx  
**接口描述**: 获取消费者连接器的运行状态和配置信息  
**接口报文格式**: GET /api/consumer/connector/status

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "connectorInfo": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "name": {"type": "string"},  
 "version": {"type": "string"},  
 "status": {"type": "string", "enum": ["online", "offline", "error"]},  
 "uptime": {"type": "string"},  
 "lastHeartbeat": {"type": "string", "format": "date-time"}  
 }  
 },  
 "connections": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "providerName": {"type": "string"},  
 "providerAddress": {"type": "string"},  
 "status": {"type": "string"},  
 "lastActivity": {"type": "string", "format": "date-time"}  
 }  
 }  
 }  
 }  
 }  
 }  
}

### 6.4 数据交换管理

#### 6.4.1 获取消费者数据交换记录

**接口名称**: 获取消费者数据交换记录  
**对应页面**: consumer/connections/DataExchange.tsx  
**接口描述**: 获取消费者的数据交换历史记录  
**接口报文格式**: GET /api/consumer/data-exchange

**查询参数**: - page: 页码 - pageSize: 每页数量 - status: 状态过滤 - dateRange: 日期范围

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "exchanges": {  
 "type": "array",  
 "items": {  
 "type": "object",  
 "properties": {  
 "id": {"type": "string"},  
 "providerConnector": {"type": "string"},  
 "resourceName": {"type": "string"},  
 "resourceType": {"type": "string"},  
 "exchangeType": {"type": "string", "enum": ["pull", "push"]},  
 "status": {"type": "string", "enum": ["completed", "failed", "in\_progress", "pending"]},  
 "startTime": {"type": "string", "format": "date-time"},  
 "endTime": {"type": "string", "format": "date-time"},  
 "dataSize": {"type": "string"},  
 "transferRate": {"type": "string"},  
 "errorMessage": {"type": "string"}  
 }  
 }  
 },  
 "total": {"type": "integer"}  
 }  
 }  
 }  
}

#### 6.4.2 启动数据拉取

**接口名称**: 启动数据拉取  
**对应页面**: consumer/connections/DataExchange.tsx  
**接口描述**: 从Provider拉取订阅的数据  
**接口报文格式**: POST /api/consumer/data-exchange/pull

**请求体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "subscriptionId": {"type": "string"},  
 "resourceId": {"type": "string"},  
 "providerAddress": {"type": "string"}  
 },  
 "required": ["subscriptionId", "resourceId", "providerAddress"]  
}

**请求体示例**:

{  
 "subscriptionId": "sub\_001",  
 "resourceId": "res\_001",  
 "providerAddress": "https://provider.example.com:8080/api/ids/connector"  
}

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "exchangeId": {"type": "string"},  
 "status": {"type": "string"},  
 "startTime": {"type": "string", "format": "date-time"},  
 "estimatedDuration": {"type": "string"}  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "exchangeId": "exchange\_12345",  
 "status": "in\_progress",  
 "startTime": "2024-01-15T16:45:00Z",  
 "estimatedDuration": "约5分钟"  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "数据拉取启动失败：订阅已过期或Provider连接器不可用"  
}

## 7. 通用接口

### 7.1 获取过滤选项

**接口名称**: 获取过滤选项  
**对应页面**: 多个列表页面  
**接口描述**: 获取各种过滤条件的可选值  
**接口报文格式**: GET /api/common/filter-options

**响应体 JSON Schema**:

{  
 "type": "object",  
 "properties": {  
 "success": {"type": "boolean"},  
 "data": {  
 "type": "object",  
 "properties": {  
 "domains": {"type": "array", "items": {"type": "string"}},  
 "dataTypes": {"type": "array", "items": {"type": "string"}},  
 "accessLevels": {"type": "array", "items": {"type": "string"}},  
 "statuses": {"type": "array", "items": {"type": "string"}},  
 "owners": {"type": "array", "items": {"type": "string"}},  
 "tags": {"type": "array", "items": {"type": "string"}}  
 }  
 }  
 }  
}

**响应体成功示例**:

{  
 "success": true,  
 "data": {  
 "domains": ["销售", "财务", "人力资源", "市场营销", "运营"],  
 "dataTypes": ["数据库", "文件", "API", "流数据"],  
 "accessLevels": ["公开", "内部", "机密", "绝密"],  
 "statuses": ["活跃", "非活跃", "已删除", "待审核"],  
 "owners": ["张三", "李四", "王五", "赵六"],  
 "tags": ["客户数据", "销售报表", "财务分析", "库存管理", "用户行为"]  
 }  
}

**响应体失败示例**:

{  
 "success": false,  
 "message": "获取过滤选项失败"  
}

### 7.2 文件上传

**接口名称**: 文件上传  
**对应页面**: 多个编辑页面  
**接口描述**: 通用文件上传接口  
**接口报文格式**: POST /api/common/upload

### 7.3 文件下载

**接口名称**: 文件下载  
**对应页面**: 多个列表页面  
**接口描述**: 通用文件下载接口  
**接口报文格式**: GET /api/common/download/{fileId}

## 接口设计原则

1. **RESTful设计**: 遵循REST架构风格，使用标准HTTP方法
2. **统一响应格式**: 所有接口返回统一的JSON格式
3. **错误处理**: 提供详细的错误码和错误信息
4. **分页支持**: 列表接口支持分页、排序和过滤
5. **安全认证**: 所有接口需要JWT令牌认证
6. **版本控制**: 接口支持版本控制，如/api/v1/
7. **文档化**: 提供完整的API文档和示例

## 错误响应格式

{  
 "success": false,  
 "error": {  
 "code": "ERROR\_CODE",  
 "message": "错误描述",  
 "details": "详细错误信息"  
 }  
}

## 认证机制

所有API接口（除登录接口外）都需要在请求头中包含JWT令牌：

Authorization: Bearer <JWT\_TOKEN>