APS OAuth Scopes Reference

Complete Guide to OAuth Scopes and Permissions

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Contents

1   OAuth Scopes Overview

OAuth scopes in Autodesk Platform Services (APS) define the level of access your application has to user data and platform resources. This reference provides complete scope definitions, use cases, and RAPS CLI integration examples.

> **Scope Categories**
>
> - **Read Scopes** - View and retrieve data
> - **Write Scopes** - Modify and create data
> - **Admin Scopes** - Administrative operations

2   Core Data Management Scopes

2.1   Data API Scopes

rapslight Scope	Level	Description & Use Cases
`data:read`	Read	Access project data, folders, and items. Required for: downloading files, viewing project structure, reading metadata.
`data:write`	Write	Upload and modify project data. Required for: file uploads, version creation, metadata updates, folder management.
`data:create`	Write	Create new projects, folders, and data relationships. Often used with `data:write` for complete project setup.
`data:search`	Read	Search across project data and metadata. Enables advanced filtering and content discovery within projects.

2.2   RAPS Data Management Examples

```
# Authenticate with data scopes
raps auth client-credentials --scopes "data:read data:write"

# Read operations
raps dm hubs                      # List accessible hubs
raps dm projects HUB_ID           # List projects in hub
raps dm items PROJECT_ID          # List project items

# Write operations
raps dm upload PROJECT_ID file.dwg --folder-id FOLDER_ID
raps dm create-folder PROJECT_ID "New Folder" --parent PARENT_ID
```

3   Object Storage Service (OSS) Scopes

3.1   Bucket and Object Scopes

rapslight Scope	Level	Description & Use Cases
`bucket:read`	Read	List and access bucket contents. Required for: viewing bucket objects, downloading files, checking bucket permissions.
`bucket:create`	Write	Create new buckets and upload objects. Essential for: file storage operations, backup systems, data archival.

rapslight **Scope**	Level	Description & Use Cases
bucket:delete	Admin	Delete buckets and objects. Use carefully: permanent data removal, cleanup operations, storage management.

3.2 RAPS OSS Examples

```
# Authenticate with bucket scopes
raps auth client-credentials --scopes "bucket:read␣bucket:create"

# Bucket operations
raps oss buckets                # List all buckets
raps oss create-bucket mybucket # Create new bucket
raps oss objects mybucket       # List bucket contents

# Object operations
raps oss upload mybucket ./model.rvt
raps oss download mybucket model.rvt
```

4 Model Derivative Scopes

4.1 Translation and Viewing Scopes

rapslight **Scope**	Level	Description & Use Cases
viewables:read	Read	Access translated model derivatives. Required for: Forge Viewer, downloading SVF/SVF2, accessing thumbnails and metadata.
code:all	Write	Translate models and create derivatives. Essential for: file conversion, viewer preparation, format transformation.

4.2 RAPS Model Derivative Examples

```
# Authenticate for translation workflow
raps auth client-credentials --scopes "viewables:read␣code:all"

# Translation operations
raps translate urn:adsk.objects:os.object:bucket/model.rvt
raps translate status URN
raps translate manifest URN
raps translate download URN --format svf2
```

5 Account and User Scopes

5.1 Account Management Scopes

rapslight **Scope**	Level	Description & Use Cases
account:read	Read	Read account information and user details. Required for: user profile access, account validation, license checking.
account:write	Write	Modify account settings and user information. Used for: profile updates, preference management, account configuration.
user-profile:read	Read	Access user profile information. Enables: personalization features, user identification, preference loading.

5.2   Authentication Flow Scopes

rapslight **Scope**	Level	Description & Use Cases
`openid`	Read	OpenID Connect identity information. Standard scope for: user authentication, identity verification, SSO integration.
`profile`	Read	Basic user profile access. Provides: display name, email, basic user information for application personalization.
`email`	Read	User email address access. Required for: communication features, account verification, notification systems.

6   Construction Cloud (ACC/BIM360) Scopes

6.1   Construction Account Scopes

rapslight **Scope**	Level	Description & Use Cases
`account:admin`	Admin	Administrative access to Construction Cloud accounts. Required for: user management, project creation, account configuration.
`construction:read`	Read	Read Construction Cloud project data. Enables: project viewing, document access, model coordination workflows.
`construction:write`	Write	Modify Construction Cloud projects. Required for: document uploads, issue creation, workflow management.

> **ACC/BIM360 Important Note**
>
> Construction Cloud scopes require **custom integration approval** from Autodesk. Contact APS support before implementing these scopes in production applications.

7   Scope Combination Strategies

7.1   Common Scope Patterns

7.1.1   Basic File Viewer Application

```
# Minimal scopes for viewing workflows
raps auth browser --scopes "data:read viewables:read"

# Usage: View project files and models in Forge Viewer
raps dm projects HUB_ID
raps translate URN
raps translate download URN --format svf2
```

7.1.2   Complete Model Management

```
# Full workflow scopes
raps auth browser --scopes "data:read data:write viewables:read code:all bucket:read
    bucket:create"

# Usage: Upload, translate, and manage model lifecycle
raps oss upload bucket model.rvt
raps translate urn:adsk.objects:os.object:bucket/model.rvt
raps dm upload PROJECT_ID model.rvt
```
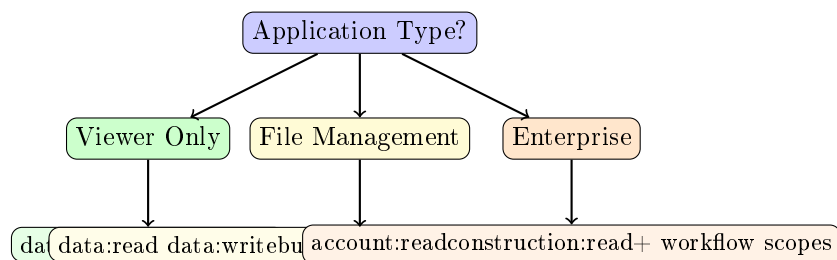
7.1.3   Enterprise Integration

```
# Enterprise application scopes
raps auth client-credentials --scopes "account:read data:read data:write construction:
    read"

# Usage: Enterprise dashboard, project analytics, reporting
raps dm hubs --all
raps analytics projects --timeframe monthly
```

7.2   Scope Selection Guide

```
              Application Type?

    Viewer Only    File Management    Enterprise

    data:read data:write bu    account:read construction:read + workflow scopes
```

8   Security Best Practices

8.1   Principle of Least Privilege

Security Guidelines

- **Minimal Scopes**: Request only required permissions

- **Scope Validation**: Verify scope grants match requirements

- **Token Management**: Implement secure token storage

- **Audit Logging**: Monitor scope usage and access patterns

- **Regular Review**: Periodically audit scope requirements

8.2   RAPS Security Features

```
# Verify current scopes
raps auth scopes

# Check token details and expiration
raps auth token --decode

# Scope-specific authentication
raps profile create secure-app \
  --client-id CLIENT_ID \
  --client-secret CLIENT_SECRET \
  --scopes "data:read viewables:read" \
  --token-expiry 3600

# Audit scope usage
raps logs --filter scope-access --last 24h
```

9   Troubleshooting Scope Issues

9.1   Common Scope Errors

rapslight **Error**	**HTTP Code**	**Resolution**
Insufficient scope	403	Add required scope to authentication request
Invalid scope	400	Check scope name spelling and availability
Scope not granted	401	User must approve scope in consent flow
Expired token	401	Refresh token or re-authenticate
App not authorized	403	Enable API in app configuration

9.2   RAPS Troubleshooting Commands

```
# Debug authentication issues
raps auth status --verbose
raps auth token --validate

# Test specific scope access
raps dm hubs --debug   # Tests data:read
raps translate URN --dry-run  # Tests code:all

# Reset authentication
raps auth logout
raps auth client-credentials --force
```

10   Scope Reference Quick Guide

10.1   Complete Scope List

rapslight **Scope**	**Level**	**API Area**	**RAPS Command**
openid	Auth	Authentication	raps auth browser
profile	Auth	User Profile	raps auth profile
email	Auth	User Email	raps auth email
data:read	Read	Data Management	raps dm hubs
data:write	Write	Data Management	raps dm upload
data:create	Write	Data Management	raps dm create-folder
data:search	Read	Data Management	raps dm search
bucket:read	Read	Object Storage	raps oss buckets
bucket:create	Write	Object Storage	raps oss upload
bucket:delete	Admin	Object Storage	raps oss delete
viewables:read	Read	Model Derivative	raps translate status
code:all	Write	Model Derivative	raps translate
account:read	Read	Account	raps account info
account:write	Write	Account	raps account update
account:admin	Admin	Construction	raps acc admin

OAuth Support

oauth-help@rapscli.xyz | Discord: discord.gg/raps | rapscli.xyz

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