APS OAuth Scopes Reference

Complete guide to OAuth scopes and permissions

Contents

1 APS OAuth Scopes Reference

- Complete guide to Autodesk Platform Services OAuth scopes and when to use them**

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2 Quick Reference

Scope	Purpose	APIs Enabled	Example Use Case
`data:read`	Read files, folders, projects	Data Management GET operations	Download files, list projects
`data:write`	Modify files and metadata	Data Management PUT/PATCH operations	Update file metadata, rename files
`data:create`	Create new resources	Data Management POST operations	Upload files, create folders
`bucket:read`	List and access buckets	OSS read operations	List available storage buckets

Scope	Purpose	APIs Enabled	Example Use Case
`bucket:create`	Create new buckets	OSS bucket creation	Setup new storage containers
`bucket:delete`	Remove buckets	OSS bucket deletion	Clean up unused storage
`viewables:read`	Access translated models	Model Derivative, Viewer SDK	Display 3D models in browser
`code:all`	Design Automation access	All Design Automation operations	Automate CAD operations
`account:read`	BIM360/ACC account info	Account Admin API reads	List account details
`account:write`	Modify BIM360/ACC settings	Account Admin API writes	Manage account settings

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3 Data Management Scopes

4 Core Data Operations

5 data:read'

- What it enables:**
- Download files from projects and folders
- List project contents and folder hierarchy

- Read file metadata and version history
- Access item thumbnails and previews
- API Endpoints:**

```
GET /data/v1/projects/{project_id}
GET /data/v1/projects/{project_id}/folders/{folder_id}/contents
GET /data/v1/projects/{project_id}/items/{item_id}/versions
GET /data/v1/projects/{project_id}/downloads
```

- RAPS Usage:**

```
# Login with read-only access
raps auth login --scopes data:read

# List projects (requires data:read)
raps dm projects

# Download file (requires data:read)
raps dm download <item_id> ./local-file.dwg
```

6 data:write'

- What it enables:**
- Update file metadata and custom attributes
- Modify folder properties
- Update version descriptions
- Change file relationships and references
- API Endpoints:**

```
PATCH /data/v1/projects/{project_id}/items/{item_id}
PATCH /data/v1/projects/{project_id}/folders/{folder_id}
PATCH /data/v1/projects/{project_id}/versions/{version_id}
```

- RAPS Usage:**

```
# Login with write permissions
raps auth login --scopes data:read,data:write

# Update file metadata
raps dm update-item <item_id> --name "Updated Model.rvt"
```

7 data:create'

- What it enables:**
- Upload new files to projects
- Create new folders and project structure
- Create new versions of existing items
- Establish file relationships
- API Endpoints:**

```
POST /data/v1/projects/{project_id}/storage
POST /data/v1/projects/{project_id}/folders
POST /data/v1/projects/{project_id}/items
POST /data/v1/projects/{project_id}/versions
```

- RAPS Usage:**

```
# Login with full data permissions
raps auth login --scopes data:read,data:write,data:create

# Upload new file
raps dm upload model.rvt --project <project_id> --folder <folder_id>

# Create new folder
raps dm create-folder "CAD Models" --parent <folder_id>
```

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8 Object Storage Service (OSS) Scopes

9 Bucket Management

10 bucket:read'

- What it enables:**
- List available buckets
- Read bucket details and settings
- Access bucket contents (object listing)
- Download objects from buckets
- API Endpoints:**

```
GET /oss/v2/buckets
GET /oss/v2/buckets/{bucketKey}/details
GET /oss/v2/buckets/{bucketKey}/objects
GET /oss/v2/buckets/{bucketKey}/objects/{objectName}
```

- RAPS Usage:**

```
# Login with bucket read access
raps auth login --scopes bucket:read

# List all accessible buckets
raps bucket list

# List objects in bucket
raps oss list mybucket
```

11   bucket:create'

- What it enables:**
- Create new storage buckets
- Set bucket policies and retention
- Configure bucket permissions
- API Endpoints:**

```
POST /oss/v2/buckets
```

- RAPS Usage:**

```
# Login with bucket creation rights
raps auth login --scopes bucket:read,bucket:create

# Create new bucket
raps bucket create my-new-bucket --region us-west
```

12   bucket:delete'

- What it enables:**
- Delete empty buckets
- Remove bucket policies
- Clean up unused storage containers
- API Endpoints:**

```
DELETE /oss/v2/buckets/{bucketKey}
```

- RAPS Usage:**

```
# Login with full bucket permissions
raps auth login --scopes bucket:read,bucket:create,bucket:delete

# Delete unused bucket
raps bucket delete old-bucket --confirm
```

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13   Model Derivative & Viewer Scopes

14   viewables:read'

- What it enables:**
- Access translated model derivatives (SVF/SVF2)
- Download viewable geometry and metadata
- Initialize Forge Viewer with models
- Extract model properties and metadata
- API Endpoints:**

```
GET /modelderivative/v2/designdata/{urn}/manifest
GET /modelderivative/v2/designdata/{urn}/metadata/{guid}
GET /modelderivative/v2/designdata/{urn}/metadata/{guid}/properties
```

- RAPS Usage:**

```
# Login for model viewing
raps auth login --scopes data:read,viewables:read

# Start translation for viewing
raps translate <urn> --formats svf2

# View model in browser
raps view <urn>
```

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15 Design Automation Scopes

16 code:all'

- What it enables:**
- Create and manage Activities
- Upload and manage AppBundles
- Submit and monitor WorkItems
- Access all Design Automation engines (AutoCAD, Revit, Inventor, 3ds Max)
- API Endpoints:**

```
GET /da/us-east/v3/engines
POST /da/us-east/v3/appbundles
POST /da/us-east/v3/activities
POST /da/us-east/v3/workitems
```

- RAPS Usage:**

```
# Login for Design Automation
raps auth login --scopes code:all

# List available engines
raps da engines

# Create activity
raps da create-activity MyActivity --engine Autodesk.AutoCAD+24

# Submit workitem
raps da submit-workitem MyActivity --input input.dwg --output output.pdf
```

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17 Account & Construction Cloud Scopes

18 BIM360/ACC Account Management

19 account:read'

- What it enables:**
- List account information and users
- Read project settings and permissions
- Access account-level reporting data
- View company and project structure
- API Endpoints:**

```
GET /hq/v1/accounts
GET /hq/v1/accounts/{account_id}/projects
GET /hq/v1/accounts/{account_id}/users
```

- RAPS Usage:**

```
# Login for account reading
raps auth login --scopes account:read

# List accessible accounts
raps acc accounts

# List projects in account
raps acc projects --account <account_id>
```

20 account:write'

- What it enables:**
- Modify account settings and permissions
- Create and configure projects
- Manage user access and roles
- Update company information
- API Endpoints:**

```
POST /hq/v1/accounts/{account_id}/projects
PATCH /hq/v1/accounts/{account_id}/projects/{project_id}
POST /hq/v1/accounts/{account_id}/users
```

- RAPS Usage:**

```
# Login for account management
raps auth login --scopes account:read,account:write

# Create new project
raps acc create-project "New Building Project" --account <account_id>

# Add user to project
raps acc add-user user@company.com --project <project_id> --role admin
```

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21 Common Scope Combinations

22 Basic File Operations

```
# Read-only access to files and projects
raps auth login --scopes data:read

# Full file management (most common)
raps auth login --scopes data:read,data:write,data:create
```

23 3D Model Workflow

```
# Upload, translate, and view models
raps auth login --scopes data:read,data:write,data:create,viewables:read

# Include bucket access for direct storage
raps auth login --scopes data:read,data:write,data:create,bucket:read,bucket:create,viewables:read
```

24 Design Automation

```
# Full Design Automation access
raps auth login --scopes code:all,data:read,data:write,data:create,bucket:read,bucket:create

# DA with BIM360 integration
raps auth login --scopes code:all,data:read,data:write,data:create,account:read
```

25 BIM360/ACC Administration

```
# Read-only account access
raps auth login --scopes account:read,data:read
```

```
# Full account management
raps auth login --scopes account:read,account:write,data:read,data:write,data:create
```

26 Maximum Permissions (Development/Testing)

```
# All available scopes (use carefully)
raps auth login --scopes data:read,data:write,data:create,bucket:read,bucket:create,bucket:delete,viewab
```

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27 Scope Troubleshooting

28 Checking Current Scopes

```
# View current authentication details
raps auth status

# Show detailed scope information
raps auth status --scopes

# Test specific scope permissions
raps auth test-scope data:read
```

29 Common Scope Issues

30 Error: "Insufficient privileges to access this resource"

- Cause:** Missing required scope for the operation
- Solution:**

```
# Check what scopes you have
raps auth status --scopes

# Re-authenticate with additional scopes
raps auth login --scopes data:read,data:write,data:create
```

31 Error: "Access denied to BIM360 project"

- Cause:** User not added to project or missing account scope
- Solution:**

```
# Login with account scope
raps auth login --scopes account:read,data:read

# Verify project access
raps acc projects
```

32 Error: "Cannot create bucket"

- Cause:** Missing `bucket:create` scope
- Solution:**

```
# Add bucket creation scope
raps auth login --scopes bucket:read,bucket:create

# Verify bucket permissions
raps auth test-scope bucket:create
```

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33   2-Legged vs 3-Legged Authentication

34   2-Legged OAuth (Server-to-Server)

- When to use:** Background processing, server applications, automation
- Available scopes:** Limited subset, no user context
- RAPS command:**

```
raps auth login --2legged --scopes data:read,bucket:read,code:all
```

35   3-Legged OAuth (User Authorization)

- When to use:** User-facing applications, accessing user's BIM360/ACC projects
- Available scopes:** Full set, user context preserved
- RAPS command:**

```
raps auth login --3legged --scopes data:read,data:write,account:read
```

36   Scope Differences

Scope	2-Legged	3-Legged	Notes
`data:read`	Limited	Full	2-legged can't access user's BIM360/ACC
`data:write`	Limited	Full	2-legged can't modify user's projects
`bucket:*`	Full	Full	Both have same OSS access
`code:all`	Full	Full	Design Automation works with both
`account:*`	None	Full	Account management requires 3-legged

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37   Best Practices

38   1. Principle of Least Privilege

Request only the scopes your application actually needs:

```
# Good: Only what's needed for file download
raps auth login --scopes data:read

# Avoid: Requesting unnecessary permissions
raps auth login --scopes data:read,data:write,data:create,bucket:delete,account:write
```

39   2. Scope Validation

Always verify your scopes match your intended operations:

```
# Test specific functionality
raps auth test-scope data:write
raps auth test-scope bucket:create
```

40　3. Environment-Specific Scopes

Use different scopes for different environments:

```
# Development: Full access for testing
raps auth login --profile dev --scopes data:read,data:write,data:create,viewables:read,code:all

# Production: Minimal required scopes
raps auth login --profile prod --scopes data:read,viewables:read
```

41　4. Regular Scope Auditing

Periodically review and update your scope requirements:

```
# Review current permissions
raps auth status --scopes --verbose

# Check actual API usage
raps logs --scope-usage --last 30d
```

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42　Advanced Scope Management

43　Dynamic Scope Requests

For applications with varying requirements:

```
# Base authentication
raps auth login --scopes data:read,bucket:read

# Request additional scopes when needed
raps auth extend-scopes --add data:write,data:create

# Remove unnecessary scopes
raps auth reduce-scopes --remove bucket:delete
```

44　Scope Monitoring

Track scope usage for optimization:

```
# Enable scope usage tracking
raps config set auth.track-scope-usage true

# Generate scope usage report
raps auth scope-report --period 30d
```

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45　Migration from Forge

46　Legacy Forge Scopes

If migrating from Forge APIs, map old scopes to new ones:

Forge Scope	APS Equivalent	Notes
data:read	data:read	No change
data:write	data:write	No change
data:create	data:create	No change
bucket:read	bucket:read	No change

Forge Scope	APS Equivalent	Notes
`bucket:create`	`bucket:create`	No change
`bucket:delete`	`bucket:delete`	No change
`viewables:read`	`viewables:read`	No change
`code:all`	`code:all`	No change

- Migration command:**

```
# Most Forge scopes work unchanged in APS
raps auth migrate-from-forge --verify-scopes
```

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47   Getting Help

48   Scope-Related Issues

1. **Check APS Authentication Guide**
2. **Test with APS Postman Collection**
3. **Ask in RAPS Discord**

49   Debugging Commands

```
# Comprehensive auth diagnosis
raps auth diagnose

# Test specific scope combination
raps auth test-scopes --scopes data:read,bucket:create --endpoint /oss/v2/buckets

# Generate auth report for support
raps auth support-report --sanitize
```

- ** Pro Tip:** Use `raps auth status` regularly to verify your current scopes match your intended operations. RAPS will warn you if you're attempting operations without proper permissions.
- *Last verified: January 2026 against APS Authentication API v2 and RAPS v4.2.1*

- OAuth scopes may evolve. Check the official documentation for the latest information.*