

APS Developer Cheat Sheet

Single-page reference for Autodesk Platform Services APIs

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1 APS Developer Cheat Sheet

- Single-page reference for Autodesk Platform Services (APS) with RAPS CLI shortcuts**
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2 Authentication

3 OAuth Flow Comparison

2-Legged OAuth	3-Legged OAuth
Use: Server-to-server	Use: User-facing apps
Context: App identity	Context: User + app
BIM360: Limited access	BIM360: Full access
Grant: client_credentials	Grant: authorization_code
RAPS: raps auth login	RAPS: raps auth login --3legged

4 Essential OAuth Scopes

Scope	Purpose	RAPS Usage
data:read	Read files/projects	--scopes data:read
data:write	Modify metadata	--scopes data:read,data:write
data:create	Upload files	--scopes data:read,data:write,data:create
bucket:read	List buckets	--scopes bucket:read
bucket:create	Create buckets	--scopes bucket:read,bucket:create
viewables:read	View models	--scopes viewables:read
code:all	Design Automation	--scopes code:all
account:read	BIM360/ACC info	--scopes account:read

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5 Data Management API

6 Common Endpoints

Operation	Manual API Call	RAPS Command
List Hubs	GET /project/v1/hubs	raps dm hubs
List Projects	GET /project/v1/hubs/{id}/projects	raps dm projects
List Folders	GET /data/v1/projects/{id}/folders/{id}/contents	raps dm folders <project>
Upload File	Multi-step: Create storage → Upload → Create item → Create version	raps dm upload <file> --project <id>
Download	GET /data/v1/projects/{id}/downloads + download URL	raps dm download <item_id>

7 URN Formats

Context	URN Format	Example
OSS Object	urn:adsk.objects:os.object:{bucket}:{object}	urn:adsk.objects:os.object:mybucket:mo

Context	URN Format	Example
Data Mgmt Encoded	urn:adsk.wipprod:dm.lineage:{item_id} Base64 URL-safe encoding	urn:adsk.wipprod:dm.lineage:abc123... dXJu0mFkc2sub2JqZWNOcy...

- URN Encoding:**

```
# Manual (error-prone)
echo -n "urn:..." | base64 | tr '+/' '-_' | tr -d '='

# With RAPS
raps urn encode "urn:adsk.objects:os.object:bucket/file.dwg"
```

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8 Object Storage Service (OSS)

9 Bucket Operations

Operation	Manual API	RAPS Command
List Buckets	GET /oss/v2/buckets	raps bucket list
Create Bucket	POST /oss/v2/buckets	raps bucket create <name>
Delete Bucket	DELETE /oss/v2/buckets/{key}	raps bucket delete <name>

10 Object Operations

Operation	Manual API	RAPS Command
List Objects	GET /oss/v2/buckets/{key}/objects	raps oss list <bucket>
Upload Object	PUT /oss/v2/buckets/{key}/objects/{name}	raps oss upload <file> <bucket>
Download	GET /oss/v2/buckets/{key}/objects/{name}	raps oss download <bucket>

11 Bucket Naming Rules

- 3-128 characters, lowercase, numbers, hyphens
- Must start/end with letter or number
- No spaces, underscores, IP addresses
-

12 Model Derivative API

13 Translation Workflow

1. Upload → 2. Start Translation → 3. Poll Status → 4. Download Results

14 Translation Operations

Operation	Manual Process	RAPS Command
Start Translation	POST /modelderivative/v2/designdata/job svf2	<code>raps translate <urn> --formats</code>
Check Status	GET /modelderivative/v2/designdata/{urn}/manifest	<code>raps translate status <urn></code>
Wait Complete	Manual polling with delays	<code>raps translate <urn> --wait</code>
Get Properties	GET /modelderivative/v2/designdata/{urn}/metadata/{guid}/properties	<code>raps translate properties</code>

15 Output Formats

Format	Use Case	RAPS Code
SVF2	Web viewer (modern)	<code>svf2</code>
SVF	Web viewer (legacy)	<code>svf</code>
OBJ	3D meshes	<code>obj</code>
STL	3D printing	<code>stl</code>
PDF	2D drawings	<code>pdf</code>
DWG	AutoCAD format	<code>dwg</code>

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16 Design Automation API

17 Engine Support

Engine	File Types	RAPS Command
AutoCAD	DWG, DXF	<code>raps da engines --filter autocad</code>
Revit	RVT, RFA	<code>raps da engines --filter revit</code>
Inventor	IPT, IAM	<code>raps da engines --filter inventor</code>
3ds Max	MAX	<code>raps da engines --filter max</code>

18 DA Components

AppBundle (code) + Activity (process) + WorkItem (execution)

Component	RAPS Management
AppBundle	<code>raps da appbundle create</code>
Activity	<code>raps da activity create</code>
WorkItem	<code>raps da workitem submit</code>

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19 Common Error Codes

Code	Cause	RAPS Solution
400	Invalid request format	Built-in validation
401	Invalid/expired token	<code>raps auth refresh</code>
403	Insufficient permissions	<code>raps auth status --scopes</code>
404	URN not found	<code>raps urn encode</code>
409	Bucket name conflict	<code>raps bucket list first</code>
429	Rate limit exceeded	Built-in rate limiting

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20 Rate Limits

API	Limit	RAPS Handling
Authentication	500/min	Automatic token reuse
Data Management	100/min	Intelligent batching
Model Derivative	20 concurrent	Queue management
OSS	500/min	Parallel optimization

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21 Quick Setup Commands

22 First-Time Setup

```
# Install RAPS
# Windows: scoop install raps
# macOS: brew install raps
# Linux: cargo install raps-cli
```

```
# Authenticate
raps auth login
```

```
# Test
raps auth status
```

23 Common Workflows

```
# Upload → Translate → View
raps oss upload model.rvt mybucket
raps translate $(raps urn encode "urn:adsk.objects:os.object:mybucket:model.rvt") --wait
raps view $(raps urn encode "urn:adsk.objects:os.object:mybucket:model.rvt")
```

```
# Batch Operations
raps oss upload-batch *.dwg --bucket mybucket
raps translate-batch --bucket mybucket --formats svf2
```

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24 Emergency Commands

```
# Authentication issues
raps auth refresh
raps auth login --force
raps auth status --verbose
```

```
# Operation failures
raps health check --comprehensive
raps logs --level error --last 1h
```

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25 Pro Tips

- Use `raps examples` for common workflows
- Set up profiles: `raps auth login --profile <name>`
- Enable verbose: `--verbose` flag for debugging

- Health check: `rops health check` for issues
- ** Support:** RAPS Discord | GitHub
- Resources:** rapscli.xyz | APS Docs
- *Print-friendly format • Save for reference • Share with team*
- RAPS v4.2.1 | APS APIs: Auth v2, DM v1, MD v2, OSS v2, DA v3 | January 2026*