API Reference - Multi-Cloud Manager

Complete API documentation for all endpoints.

Base URL

https://drop4.fullpotential.ai

Local development:

http://localhost:8010

Authentication

All protected endpoints require Bearer token authentication:

Authorization: Bearer <token>

UDC v1.0 Compliance Endpoints

GET /health

Returns droplet health status and dependencies.

Authentication: None required

Response:

```
json
```

```json
{
  "id": 4,
  "name": "Multi-Cloud Manager",
  "steward": "Hassan",
  "status": "active",
  "endpoint": "http://localhost:8010",
  "updated_at": "2025-11-13T08:00:00Z",
  "version": "1.0.0",
  "dependencies": ["registry-v2"]
}
```

GET /capabilities

Returns droplet capabilities and UDC version.

Authentication: None required

Response:

```json
{
  "version": "1.0.0",
  "udc_version": "1.0",
  "features": [
    "multi-cloud-management",
    "digitalocean-api",
    "hetzner-api",
    "vultr-api",
    "unified-listing",
    "power-management",
    "jwt-hs256-outgoing",
    "jwt-rs256-incoming",
    "jwks-verification",
    "registry-v2-integration",
    "structured-logging",
    "event-tracking"
  ],
  "dependencies": ["registry-v2"],
  "backward_compatible": ["0.9"]
}
```

GET /state

Returns system resource usage and metrics.

Authentication: None required

Response:

```json
{
  "cpu_percent": 12.5,
  "memory_mb": 5394.10,
  "uptime_seconds": 3600,
  "requests_total": 150,
  "errors_total": 2,
  "status": "active"
}
```

GET /dependencies

Returns connected droplets and dependencies.

Authentication: JWT Bearer token

Response:

```json
```

```json
{
  "required": [
    {
      "id": 18,
      "name": "Registry v2",
      "status": "connected",
      "url": "https://drop18.fullpotential.ai"
    }
  ],
  "optional": [
    {
      "id": 2,
      "name": "Dashboard",
      "status": "available"
    }
  ],
  "connected": ["5", "7"]
}
```

POST /message

Receives UDC-compliant messages from other droplets.

Authentication: JWT Bearer token

Request Body:

```json
{
  "trace_id": "550e8400-e29b-41d4-a716-446655440000",
  "source": 5,
  "target": 4,
  "message_type": "command",
  "payload": {
    "action": "list_resources",
    "provider": "digitalocean"
  },
  "timestamp": "2025-11-13T08:00:00Z"
}
```

Message Types:

- `event` - Notification of an event

- `query` - Request for information

- `command` - Action request

- `response` - Reply to a query

Response:

```json
{
  "trace_id": "550e8400-e29b-41d4-a716-446655440000",
  "response": "acknowledged",
  "data": {
    "status": "processed"
  }
}
```

POST /send

Sends UDC message to another droplet.

Authentication: JWT Bearer token

Request Body:

```json
{
  "target_droplet_id": 2,
  "message_type": "event",
  "payload": {
    "event": "resource_created",
    "resource_id": "12345"
  }
}
```

Response:

```json
```

```
{
  "status": "sent",
  "trace_id": "550e8400-e29b-41d4-a716-446655440000",
  "target": 2
}
```

GET /metrics

Returns Prometheus-compatible metrics.

Authentication: None required

Response Format: Plain text (Prometheus format)

```
# HELP droplet_requests_total Total number of requests
# TYPE droplet_requests_total counter
droplet_requests_total{droplet_id="4"} 150

# HELP droplet_errors_total Total number of errors
# TYPE droplet_errors_total counter
droplet_errors_total{droplet_id="4"} 2

# HELP droplet_uptime_seconds Uptime in seconds
# TYPE droplet_uptime_seconds gauge
droplet_uptime_seconds{droplet_id="4"} 3600

# HELP droplet_cpu_percent CPU usage percentage
# TYPE droplet_cpu_percent gauge
droplet_cpu_percent{droplet_id="4"} 12.5

# HELP droplet_memory_bytes Memory usage in bytes
# TYPE droplet_memory_bytes gauge
droplet_memory_bytes{droplet_id="4"} 5655896064
```

GET /logs

Returns structured log entries.

Authentication: JWT Bearer token

Query Parameters:

- `limit` (optional, default: 100) - Max number of logs to return
- `level` (optional) - Filter by level: INFO, WARNING, ERROR

Request:

```
GET /logs?limit=50&level=ERROR
```

Response:

```json
{
  "logs": [
    {
      "timestamp": "2025-11-13T08:00:00Z",
      "level": "ERROR",
      "message": "Failed to connect to provider",
      "droplet_id": 4,
      "trace_id": "550e8400-e29b-41d4-a716-446655440000"
    }
  ],
  "total": 1,
  "droplet_id": 4
}
```

GET /events

Returns event history.

Authentication: JWT Bearer token

Query Parameters:

- `limit` (optional, default: 50) - Max events to return
- `event_type` (optional) - Filter by event type

Request:

```
GET /events?limit=20&event_type=cloud_resource_created
```

Response:

```json
{
 "events": [
   {
     "event_id": "evt_123",
     "event_type": "cloud_resource_created",
     "timestamp": "2025-11-13T08:00:00Z",
     "droplet_id": 4,
     "trace_id": "550e8400-e29b-41d4-a716-446655440000",
     "details": {
       "provider": "digitalocean",
       "resource_id": "12345"
     }
   }
 ],
 "total": 1,
 "droplet_id": 4
}
```

GET /proof

Returns last verified action proof.

Authentication: JWT Bearer token

Response:

```json
{
 "action": "create_do_droplet_web-server",
 "timestamp": "2025-11-13T08:00:00Z",
 "trace_id": "550e8400-e29b-41d4-a716-446655440000",
 "droplet_id": 4,
 "signature": "proof_a1b2c3d4e5f6"
}
```

GET /version

Returns build and version information.

Authentication: None required

Response:

```json
{
  "version": "1.0.0",
  "udc_version": "1.0",
  "build_date": "2025-11-13",
  "droplet_id": 4,
  "name": "Multi-Cloud Manager",
  "droplet_domain": "drop4.fullpotential.ai",
  "registry_url": "https://drop18.fullpotential.ai",
  "jwks_url": "https://drop18.fullpotential.ai/.well-known/jwks.json",
  "jwt_algorithms": {
    "outgoing": "HS256",
    "incoming": "RS256"
  },
  "python_version": "3.11.0"
}
```

POST /reload-config

Reloads configuration from environment variables.

Authentication: JWT Bearer token

Response:

```json
{
  "status": "reloaded",
  "timestamp": "2025-11-13T08:00:00Z",
  "trace_id": "550e8400-e29b-41d4-a716-446655440000"
}
```

POST /shutdown

Initiates graceful shutdown.

Authentication: JWT Bearer token

Response:

```json
{
  "status": "shutting_down",
  "mode": "graceful",
  "trace_id": "550e8400-e29b-41d4-a716-446655440000"
}
```

POST /emergency-stop

Initiates immediate shutdown.

Authentication: JWT Bearer token

Response:

```json
{
  "status": "emergency_stop",
  "trace_id": "550e8400-e29b-41d4-a716-446655440000"
}
```

DigitalOcean Endpoints

GET /do/list

Lists all DigitalOcean droplets.

Authentication: JWT Bearer token

Response:

```
json
```

```json
{
  "provider": "digitalocean",
  "count": 2,
  "droplets": [
    {
      "id": "123456789",
      "name": "web-server-1",
      "status": "active",
      "ip": "192.168.1.100",
      "region": "sfo3",
      "size": "s-1vcpu-1gb",
      "created_at": "2025-11-01T10:00:00Z"
    }
  ]
}
```

POST /do/register

Creates a new DigitalOcean droplet.

Authentication: JWT Bearer token

Request Body:

```json
{
  "name": "web-server-2",
  "region": "sfo3",
  "size": "s-1vcpu-1gb",
  "image": "ubuntu-22-04-x64",
  "ssh_keys": [12345],
  "user_data": "#!/bin/bash\napt-get update"
}
```

Field Descriptions:

- `name` (required) - Droplet name

- `region` (optional, default: "sfo3") - Data center region

- `size` (optional, default: "s-1vcpu-1gb") - Droplet size

- `image` (optional, default: "ubuntu-22-04-x64") - OS image

- `ssh_keys` (optional) - Array of SSH key IDs
- `user_data` (optional) - Cloud-init script

Response: DigitalOcean API response (see DO API docs)

POST /do/action/{droplet_id}

Performs power action on droplet.

Authentication: JWT Bearer token

Path Parameters:

- `droplet_id` - DigitalOcean droplet ID

Request Body:

```json
{
  "action": "reboot"
}
```

Available Actions:

- `reboot` - Reboot the droplet
- `power_off` - Shut down the droplet
- `power_on` - Start the droplet

Response: DigitalOcean API response

DELETE /do/delete/{droplet_id}

Deletes a DigitalOcean droplet.

Authentication: JWT Bearer token

Path Parameters:

- `droplet_id` - DigitalOcean droplet ID

Response:

```json
```

```json
{
  "status": "deleted",
  "droplet_id": "123456789"
}
```

Hetzner Endpoints

GET /hetzner/list

Lists all Hetzner servers.

Authentication: JWT Bearer token

Response:

```json
{
  "provider": "hetzner",
  "count": 1,
  "servers": [
    {
      "id": "987654",
      "name": "app-server-1",
      "status": "running",
      "ip": "10.0.0.50",
      "region": "Falkenstein DC Park 1",
      "size": "cpx11",
      "created_at": "2025-11-01T12:00:00Z"
    }
  ]
}
```

POST /hetzner/register

Creates a new Hetzner server.

Authentication: JWT Bearer token

Request Body:

```json
```

```json
{
  "name": "app-server-2",
  "region": "fsn1",
  "size": "cpx11",
  "image": "ubuntu-22.04",
  "user_data": "#!/bin/bash\napt-get update"
}
```

Response: Hetzner API response

POST /hetzner/action/{server_id}

Performs power action on server.

Authentication: JWT Bearer token

Available Actions:

- `reboot`

- `power_off`

- `power_on`

DELETE /hetzner/delete/{server_id}

Deletes a Hetzner server.

Authentication: JWT Bearer token

Response:

```json
{
  "status": "deleted",
  "server_id": "987654"
}
```

Vultr Endpoints

GET /vultr/list

Lists all Vultr instances.

Authentication: JWT Bearer token

Response:

```json
{
  "provider": "vultr",
  "count": 1,
  "instances": [
    {
      "id": "abc-123-def",
      "name": "cache-server-1",
      "status": "active",
      "ip": "172.16.0.10",
      "region": "sea",
      "size": "vc2-1c-1gb",
      "created_at": "2025-11-01T14:00:00Z"
    }
  ]
}
```

POST /vultr/register

Creates a new Vultr instance.

Authentication: JWT Bearer token

Request Body:

```json
```

```json
{
  "name": "cache-server-2",
  "region": "sea",
  "size": "vc2-1c-1gb",
  "image": "1743",
  "user_data": "#!/bin/bash\napt-get update"
}
```

Response: Vultr API response

POST /vultr/action/{instance_id}

Performs power action on instance.

Authentication: JWT Bearer token

Available Actions:

- `reboot`

- `power_off`

- `power_on`

DELETE /vultr/delete/{instance_id}

Deletes a Vultr instance.

Authentication: JWT Bearer token

Response:

```json
{
  "status": "deleted",
  "instance_id": "abc-123-def"
}
```

Multi-Cloud Endpoint

GET /multi/list

Lists all resources from all configured providers.

Authentication: JWT Bearer token

Response:

json

```json
{
  "do": [
    {
      "id": "123456789",
      "name": "web-server-1",
      "status": "active",
      "ip": "192.168.1.100",
      "region": "sfo3",
      "size": "s-1vcpu-1gb",
      "created_at": "2025-11-01T10:00:00Z"
    }
  ],
  "hetzner": [
    {
      "id": "987654",
      "name": "app-server-1",
      "status": "running",
      "ip": "10.0.0.50",
      "region": "Falkenstein DC Park 1",
      "size": "cpx11",
      "created_at": "2025-11-01T12:00:00Z"
    }
  ],
  "vultr": [
    {
      "id": "abc-123-def",
      "name": "cache-server-1",
      "status": "active",
      "ip": "172.16.0.10",
      "region": "sea",
      "size": "vc2-1c-1gb",
      "created_at": "2025-11-01T14:00:00Z"
    }
  ]
}
```

Error Responses

All endpoints return errors in this format:

```
json
```

```
{
  "detail": "Error message description"
}
```

Common HTTP Status Codes

Code	Meaning
200	Success
201	Created
204	No Content (successful deletion)
400	Bad Request
401	Unauthorized (invalid/missing token)
403	Forbidden (insufficient permissions)
404	Not Found
422	Unprocessable Entity (validation error)
500	Internal Server Error
503	Service Unavailable (provider not configured)

Rate Limits

- **Local endpoints:** No rate limit

- **Cloud provider endpoints:** Subject to provider rate limits

  - DigitalOcean: 5000 requests/hour

  - Hetzner: Varies by endpoint

  - Vultr: 30 requests/second

Interactive Documentation

FastAPI provides interactive API documentation:

- **Swagger UI:** http://localhost:8010/docs

- **ReDoc:** http://localhost:8010/redoc