

LDS V1 API DOCUMENTATION

OVERVIEW

The Location Detection System (LDS) API provides address validation for high-risk regions. The system validates miner addresses to determine if they are located within high-risk countries.

The LDS validates address locations and returns detailed information about whether an address is valid and located in a high-risk region.

There is a rate limit because we do not want miners spamming the LDS. We want carefully thought-out UAVs that can attack our system.

NOTE: Only miners with registered hot keys on the subnet can call the LDS.

SUPPORTED COUNTRIES

The LDS currently supports validation for the following five high-risk countries:

- Cuba (CU)
- North Korea (KP)
- South Sudan (SS)
- Ukraine (UA)
- Yemen (YE)

IMPORTANT: Not all high-risk countries are currently supported. The LDS

only validates addresses within these five specific countries. Addresses from other high-risk regions will not be validated by this system.

AUTHENTICATION

All API requests require authentication using hotkey-based signature verification. You must include a signed message in your request that verifies your hotkey identity.

Rate Limiting:

- One request per hotkey every 5 minutes (300 seconds)
- Rate limits are enforced per hotkey address
- Use the /rate-limit/status endpoint to check your current status

API ENDPOINTS

1. POST /validate

Validate a single miner address

```
import requests
from datetime import datetime
import bittensor

# Miner information
miner_address = "123 main street, Ukraine"

latitude = None
longitude = None

wallet_name = "miner"
wallet_hotkey = "m"

api_url = "http://34.211.230.92:5000/validate"

def sign_message(wallet):
    """Generate a signed message for API authentication."""
    t = datetime.now()
    msg = f"On {t} {t.astimezone().tzname()} API Request"

    sig = wallet.hotkey.sign(data=msg)

    return (
        f"{msg}\n"
        f"\tSigned by: {wallet.hotkey.ss58_address}\n"
```

```

f"\tSignature: {sig.hex()}")


# Load wallet
wallet = bittensor.Wallet(name=wallet_name, hotkey=wallet_hotkey)

# Build payload
payload = {
    "miner_address": miner_address,
    "signature": sign_message(wallet)
}

if latitude is not None:
    payload["latitude"] = latitude

if longitude is not None:
    payload["longitude"] = longitude

# Send request
response = requests.post(api_url, json=payload)

print(response.json())

```

Rate Limiting:

The API implements rate limiting to ensure fair usage and system stability. Each hotkey is rate limited to **one request every 5 minutes** (300 seconds). Rate limiting is enforced per hotkey address, meaning each authenticated hotkey has its own independent rate limit counter. If a hotkey exceeds the rate limit, the request will be rejected with a 429 error.

REQUEST FORMAT

For Single Address Validation (/validate):

Required Fields:

- signature: A signed message block from your hotkey
- miner_address: The address string to validate

Optional Fields:

- latitude: Coordinate latitude (decimal)
- longitude: Coordinate longitude (decimal)

Example Request (Single Address):

```
{  
    "signature": "<Bytes>On 2025-01-01 CST My test  
message</Bytes>  
        Signed by: YOUR_HOTKEY  
        Signature: YOUR_SIGNATURE",  
    "miner_address": "123 Main Street, Juba",  
    "latitude": 4.85,  
    "longitude": 31.58  
}
```

RESPONSE FORMAT

```
{  
    "miner_address": "123 Main Street, Juba",  
    "display_address": "Main Street, Juba, South Sudan",  
    "lat": 4.85,  
    "lon": 31.58,  
    "is_it_high_risk": "Yes",  
    "reason": "KAV validation successful",  
    "verified_by":  
"5DUB7kNLvvx8Dj7D8tn54N1C7Xok6GodNPQE2WECCaL9Wgpr"  
}
```

PROCESS OVERVIEW

When you submit an address to the LDS system, the following high-level process occurs:

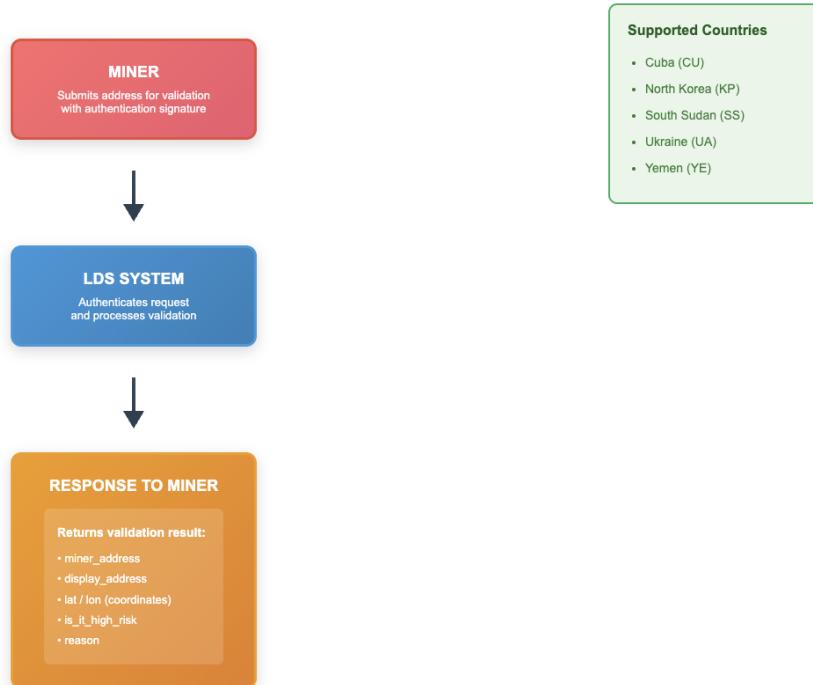
1. Authentication: Your request is authenticated using hotkey signature verification
2. Address Validation: The system processes your address through the LDS validation engine
3. Result Generation: The system determines if the address is valid and located in a high-risk region
4. Response: You receive a detailed response with validation results, coordinates (if available), and an explanation

ERROR RESPONSES

- 400 Bad Request: Missing required fields or invalid request format
- 401 Unauthorized: Signature verification failed
- 403 Forbidden: Hotkey not authorized to use the API
- 429 Too Many Requests: Rate limit exceeded (wait 5 minutes between requests)

LDS System Flow Diagram

Location Data Service - Address Validation Process



Note: The LDS system currently validates addresses for only these five high-risk countries. Addresses from other regions will not be validated by this system.